

Handbook of Corrosion Inhibitors

**Compiled by
Michael and Irene Ash**



Synapse Information Resources, Inc.

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江苏工业学院图书馆
藏书章

Synapse Information Resources

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Access Information Resources

Preface

Without deterrents, corrosion and rust would undermine the function of our infrastructures and increase expenditures by trillions of dollars. The process of corrosion is affected by the type of material that is selected for the operational environment (temperature, stress, pH, humidity) over the course of time.

Corrosion can be reduced or prevented by using inherently corrosion-resistant materials, or through the incorporation of corrosion-inhibiting chemicals into protective films, coatings, and other end product formulations that come into with contact with the substance being protected. It is the incorporation of corrosion and rust inhibitors that is the most cost-effective method of corrosion control. This reference describes over 3500 trade name and generic chemicals used to prevent corrosion damage in application areas that include paints, coatings, and sealing compounds, water treatment, industrial and institutional cleaning, metal-working, fuel additives, heat exchangers, oil field chemicals, automotive chemicals, petroleum refining, production, and drilling.

The *Handbook of Corrosion Inhibitors* is designed to function as a selection tool for corrosion-inhibiting chemicals. It centralizes information on these currently available chemical additives from major manufacturers by profiling both trade name and generic chemicals, detailing their properties, uses, use levels, regulatory status, toxicology, sources for purchase, etc.

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

Part I

Trade Name Reference provides an alphabetical listing of approximately 2900 trade name chemicals and materials that are used in corrosion-inhibiting formulations. Each entry includes the manufacturer's name; chemical/material description; its detailed functions and applications in all aspects of industry; physical properties, such as form, molecular weight, density, solubility, boiling point, cloud point, flash point, pH, freezing point, activity; toxicology, storage, precautions, etc.

Part II

Chemical Component Cross-Reference covers more than 600 chemicals and materials that are contained in the trade name products profiled in Part I or generic chemicals that are not linked to trade names but are used in the formulation of corrosion inhibitors. Each entry contains information including the following: CAS (Chemical Abstract Service), EINECS/ELINCS (European Inventory of Existing Commercial

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

Part III

Functional/Application Index is a powerful tool for locating the trade names and chemicals based on their function and/or industrial application area. By searching for key functional words related to corrosion protection such as corrosion inhibitor, corrosion remover, rust preventive, dispersant, film-former, neutralizer, oxygen scavenger, passivator, or specific application areas such as potable water, steam generators, boiler water treatment, recirculating water and cooling towers, oil fields, pipelines, storage tanks, coolants, coatings, etc., the user is directed to the trade names and/or chemicals that have that specific functional/application attribute. The generic component names are distinguished from the trade names by italic type.

Part IV

Manufacturers Directory contains detailed contact information for the more than 1700 worldwide manufacturers and their branches of trade name products and chemical components that are referenced in this handbook. Wherever possible, telephone, telefax, toll-free numbers, e-mail and internet addresses, and complete mailing addresses are included for each manufacturer.

Appendixes

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

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

Glossary contains definitions of terminology associated with corrosion inhibitors and their application areas.

We are confident that those involved in any aspect of the formulation of corrosion inhibitors will find this compendium an important addition to their reference library. We are also pleased to provide this reference as an electronic product.

This reference is the culmination of many years of research, investigation of product sources acquired through personal contacts and correspondences with major chemical manufacturers worldwide, as well as toxicological databases, chemical reference books, trade magazines and journals. We would especially like to express our gratitude to

Roberta Dakan for her contribution to standardizing the entry format and managing the trade name and chemical database that represents the basis of this and future chemical references. Her untiring efforts have been instrumental in the production of this source book.

M. & I. Ash

NOTE:

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

Abbreviations

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

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

Hz	hertz	mech.	mechanical
IARC	International Agency for Research on Cancer (United Nations)	med.	medium
i.b.p.	initial boiling point	MEK	methyl ethyl ketone
IDLH	immediately dangerous to life and health	mfg.	manufacture
I&I	industrial and institutional	mg	milligram(s)
IIR	isobutylene-isoprene rubber	MIBK	methyl isobutyl ketone
IM	intramuscular	microcryst.	microcrystalline
immisc.	immiscible	microgran.	microgranules, microgranular
in.	inch(es)	MID	Meat Inspection Division (USDA)
Inc.	Incorporated	MIL	Military Specifications
inc.	increases, increased	mil	$\frac{1}{1000}$ th inch
INCI	International Nomenclature Cosmetic Ingredient	min	minute(s)
incl.	including	min.	mineral
incompat.	incompatible	min.	minimum
incorp.	Incorporated, incorporation	MIPA	monoisopropanolamine, monoisopropanolamide
indent.	indentation	misc.	miscible, miscellaneous
ing.	ingestion	MITI	Japanese Inventory of Chemical Substances (list)
ingred(s).	ingredient(s)	mixt(s).	mixture(s)
inh.	inhalation	ml	milliliter(s)
inj.	injection	MLD	minimum lethal dose
inorg.	inorganic	mm	millimeter(s)
insol.	insoluble	MMW-HDPE	medium molecular weight high density polyethylene
Int'l.	International	mN	millinewton(s)
IP	intraperitoneal	mo, mos	month(s)
IPA	isopropyl alcohol	mod.	moderately
IPM	isopropyl myristate	mod.	modulus
IPP	isopropyl palmitate	monocl.	monoclinic
IR	isoprene rubber (synthetic), polyisoprene	m.p.	melting point
irreg.	irregular	mPa·s	millipascal-second(s)
IU	International Unit	mppcf	million particles per cubic foot
IV	intravenous	MRL	maximum residual limits
J	joule	MSDS	Material Safety Data Sheet
JCID	Japanese Cosmetic Ingredients Dictionary	MT	medium thermal
JP	Japanese Pharmacopoeia	mus	mouse
JSCI	Japanese Standard of Cosmetic Ingredients	MVTR	moisture vapor transmission rate
JSFA	Japan Standards for Food Additives	m.w.	molecular weight
k	kilo	N	normal
KB	Kauri-Butanol	nat.	natural
kg	kilogram(s)	NB	nonbreaking
KTPP	potassium triphosphate	N/B	nitrile-butadiene
KU	Krebs units	NBR	nitrile rubber, nitrile-butadiene rubber
l	liter(s)	NC	nitrocellulose
lb	pound(s)	NCI	National Cancer Institute
LC50	lethal concentration 50%	need.	needles
LCLo	lethal concentration low	neg.	negative
LD0	lethal dose 0%	neut.	neutral, neutralized
LD50	lethal dose 50%	NF	National Formulary
LDLo	lowest published lethal dose	NFPA	National Fire Protection Association
LDPE	low-density polyethylene	ng	nanogram
LED	light-emitting diode	NIOSH	National Institute for Occupational Safety and Health (U.S.)
lel	lower explosive level	nm	nanometer
lg.	large	no.	number
liq.	liquid	N ₂ O	nitrous oxide
LLDPE	linear low-density polyethylene	NOEL	no observed effect level
LMDPE	linear medium-density polyethylene	NOI	not otherwise indexed (U.S. DOT)
LOEL	lowest observed effect level	nonalc.	nonalcoholic
lt.	light	nonaq.	nonaqueous
Ltd.	Limited	nonbiodeg.	nonbiodegradable
LVP	low vapor pressure	nonflamm.	nonflammable
M	mega	nonyel.	nonyellowing
M	mole	N.O.S.	not otherwise specified (transport regulations)
m	milli	NO _x	nitrogen oxides
m	meter(s)	NR	natural rubber, isoprene rubber (natural)
m-	meta	NSF	National Sanitation Foundation, National Standards Foundation
manuf.	manufacturer	NTP	National Toxicology Program (U.S.)
max.	maximum	NV	nonvolatiles
mbar	millibar	o-	ortho
MCF	methyl chloroform	OBPA	oxybisphenoxarsine
MCT	medium chain triglycerides	OC	open cup
MD	machine direction, mold direction	ODC	ozone-depleting compound
MEA	monoethanolamine, monoethanolamide		

ODP	ozone-depletion potential	PTMEG	polytetramethylene ether glycol
OEL	occupational exposure limit	PU	polyurethane
OEM	original equipment manufacturer	PUF	polyurethane foam
OMS	odorless mineral spirits	PUR	polyurethane
org.	organic	PVA	polyvinyl alcohol
OSHA	Occupational Safety and Health Administration (U.S.)	PVAc	polyvinyl acetate
OTC	over-the-counter	PVAL	polyvinyl alcohol
o/w	oil-in-water	PVB	polyvinyl butyral
oz	ounce	PVC	polyvinyl chloride
p-	para	PVC-P	plasticized polyvinyl chloride
Pa	Pascal	PVC-U	unplasticized polyvinyl chloride
PBT	polybutylene terephthalate	PVDC, PVdC	polyvinylidene chloride
pbw	parts by weight	PVDF	polyvinylidene fluoride
PC	polycarbonate	PVM	polyvinyl methyl ether
PCB	polychlorinated biphenyl	PVM/MA	polyvinyl methyl ether/maleic anhydride
pcf	pounds per cubic foot	PVP	polyvinylpyrrolidone
PCP	Pest Control Product Act, 1972 (Canada)	q	quart
PCTFE	polychlorotrifluoroethylene	quat.	quaternary
PE	polyethylene	R&B	Ring & Ball
PEEK	polyetheretherketone	rbt	rabbit
PEG	polyethylene glycol	RCRA	Resource Conservation and Recovery Act (U.S. EPA 40CFR §261)
PEK	polyetherketone	R&D	research and development
PEL	permissible exposure level	rdsh.	reddish
perc	perchloroethylene	rec.	recommended
percut.	percutaneous	redsh.	reddish
PES	polyether sulfone	ref.	refractive
PET	polyethylene terephthalate	reg.	registry
petrol.	petroleum	regs.	regulations
PG	propylene glycol	REL	recommended exposure limit
pH	hydrogen-ion concentration	rep.	represents
Ph.	Pharmacopoeia	resist.	resistance, resistant, resistivity
pharm.	pharmaceutical	resp.	respectively
Ph.Eur.	European Pharmacopoeia	RFI	radio frequency interference
phr	parts per hundred of rubber or resin	r.h.	relative humidity
PIB	polyisobutylene	rhomb.	rhombic
PIN	product identification number	RIM	reaction injection molded/molding
Pk	peak concentration	RO	reverse osmosis
pkg.	packaging	rpm	revolutions per minute
pli	pounds per linear inch	RQ	reportable quantity
PM, P-M	Pensky-Martens	R.T.	room temperature
PMCC	Pensky-Martens closed cup	RTECS	Registry of Toxic Effects of Chemical Substances (U.S.)
PMMA	polymethyl methacrylate	RTM	resin transfer molding
PMOC	Pensky-Martens open cup	RTV	room temperature vulcanizing
PO	propylene oxide	s	second(s)
POC	particulate organic carbon	s-	secondary
POE	polyoxyethylene, polyoxyethylated	SADT	self accelerating decomposition temp.
polyunsat.	polyunsaturated	SAN	styrene-acrylonitrile
POM	polyoxymethylene	SAP	super absorbent polymer
POP	polyoxypropylene, polyoxypropylated	sapon.	saponification
POPs	persistant organic pollutants	SARA	Superfund Amendments & Reauthorization Act (U.S.)
powd.	powder	sat.	saturated
PP	polypropylene	S/B	styrene/butadiene
ppb	parts per billion	SBR	styrene/butadiene rubber
PPE	polyphenylene ether	SBS	styrene-butadiene-styrene
PPG	polypropylene glycol	SD	specialty denatured
pph	parts per hundred (percent)	SDA	specialty denatured alcohol
ppm	parts per million	SE	self-emulsifying
PPO	polyphenylene oxide	SEBS	styrene-ethylene/butylene-styrene
PPS	polyphenylene sulfide	sec.	secondary
ppt	parts per trillion	semicryst.	semicrystalline
pract.	practically	semiliq.	semiliquid
prep(s).	preparation(s)	semisyn.	semisynthetic
prod.	product(s), production	sl.	slight, slightly
props.	properties	sm.	small
PS	polystyrene	SMA	styrene maleic anhydride
ps	poise	SMC	sheet molding compound
psi	pounds per square inch	SNAP	Significant New Alternative Policy (U.S. EPA)
psia	pounds per square inch absolute	soften.	softening
psig	pounds per square inch gauge	sol.	soluble, solubility
pt.	point	solid.	solidification
Pt-Co	platinum-cobalt		
PTFE	polytetrafluoroethylene		

sol'n.	solution	UHF	ultra high frequency
solv(s).	solvent(s)	UHMW	ultra high molecular weight
sp.	specific	UHMWPE	ultra high molecular weight polyethylene
spec.	specification, specialty	UHT	ultra high temperature
SPF	sun protection factor	UL	Underwriter's Laboratory
spp.	non-specified species	UN No.	United Nations Substance Identification Number (for transport purposes)
SS	stainless steel	unsat.	unsaturated
SSU	Saybolt Universal Seconds	UPVC	unplasticized polyvinyl chloride
std.	standard	USDA	U.S. Department of Agriculture
STEL	short term exposure limit	USP	United States Pharmacopeia
Stod.	Stoddard solvent	UV	ultraviolet
STP	standard temperature and pressure	V	volt
str.	strength	VA	vinyl acetate
subcut.	subcutaneous	VAE	vinyl acetate ethylene
subl.	sublimes	VC	vinyl chloride
surf.	surface	VCI	volatile corrosion inhibitor(s)
SUS	Saybolt Universal Seconds	VdC, VDC	vinylidene chloride
susp.	suspension	veg.	vegetable
syn.	synthetic	visc.	viscous, viscosity
t	tertiary	VM&P	Varnish Makers and Painters
TAPPI	Technical Association of the Pulp & Paper Industry	VOC	volatile organic compounds
TBHQ	tert-butyl hydroquinone	vol.	volume
TCC	Tag closed cup	v/v	volume by volume
TCF	totally chlorine-free	wh.	white
TCLo	toxic concentration low	WHMIS	Workplace Hazardous Materials Information System (Canada)
TDI	toluene diisocyanate	WHO	World Health Organization (United Nations)
TDLo	toxic dose low	wks	weeks
TDS	total dissolved solids	w/o	water-in-oil
TEA	triethanolamine, triethanolamide	wt.	weight
tech.	technical	w/v	weight by volume
temp.	temperature	w/w	weight by weight
tens.	tensile, tension	XLPE	crosslinked polyethylene
tert	tertiary	X-PE	crosslinked polyethylene
THF	tetrahydrofuran	yel.	yellow
thru	through	ylish.	yellowish
TIPA	triisopropanolamine	yr	year
TKPP	tetrapotassium pyrophosphate	#	number
TLV	Threshold Limit Value	%	percent
TLV-CL	Threshold Limit Value/ceiling limit	±	plus or minus
TLV-STEL	Threshold Limit Value/short term exposure limit	<	less than
TLV-TWA	Threshold Limit Value/time weighted average	>	greater than
TMC	thick molding compound	≤	less than or equal to
TOC	Tag open cup, total organic carbon	≥	greater than or equal to
TOFA	tall oil fatty acid	@	at
TPE	thermoplastic elastomer	α	alpha
TPU	thermoplastic polyurethane	β	beta
TRI	Toxic Release Inventory	δ, Δ	delta
TSCA	Toxic Substances Control Act	ε	epsilon
tsp	teaspoon	γ	gamma
TSS	total suspended solids	ω	omega
TWA	time weighted average	μ	micron, micrometer
TWC	time weighted concentration	μg	microgram
typ.	typical	≈	approximately equal to
uel	upper explosive limits		
UF	urea formaldehyde		

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Part I

Trade Name Reference

Abundant

Chem. 100

CAS 100

Uses 100

Properties 100

Abundant

Chem. 100

CAS 100

Uses 100

Properties 100

Abundant

Chem. 100

CAS 100

Uses 100

Properties 100

Abundant

Chem. 100

CAS 100

Uses 100

Properties 100

AD 712

Chem. 100

CAS 100

Uses 100

Properties 100

Acetone

Chem. 100

CAS 100

Uses 100

Properties 100

Acetone

Chem. 100

CAS 100

Uses 100

Properties 100

Acetone

Chem. 100

CAS 100

Uses 100

Properties 100

Acetone

Chem. 100

CAS 100

Uses 100

Properties 100

Acetone

Chem. 100

CAS 100

Uses 100

Properties 100

Acetone

Chem. 100

CAS 100

Uses 100

Properties 100

Acetone

Chem. 100

CAS 100

Uses 100

Properties 100

Part I
Trade Name Reference

A

Ablumine C [Taiwan Surf.]

Chem. Descrip.: Coconut imidazoline

CAS 61791-38-6; EINECS/ELINCS 263-170-7

Uses: Surfactant; corrosion inhibitor and raw material for surfactant production

Properties: Paste; 100% solid; cationic

Ablumine O [Taiwan Surf.]

Chem. Descrip.: Oleic imidazoline

Uses: Surfactant; corrosion inhibitor for automotive body panels, etc.

Properties: Liq.; 100% solid; cationic

Ablumine T [Taiwan Surf.]

Chem. Descrip.: Tall oil imidazoline

CAS 61791-39-7; EINECS/ELINCS 263-171-2

Uses: Surfactant; corrosion inhibitor for automotive industry

Properties: Liq.; 100% solid; cationic

Ablunol GMO [Taiwan Surf.]

Chem. Descrip.: Glyceryl oleate

CAS 111-03-5; EINECS/ELINCS 203-827-7

Uses: Internal lubricant, antistat, antifogging agent for PVC film; mold release agent and rust preventive for compounded oils

Properties: Amber liq. to paste; nonionic

AC-71Z International [Nalco]

Chem. Descrip.: Sodium polyphosphates, glassy

CAS 10361-03-2; EINECS/ELINCS 233-782-9

Uses: Corrosion/scale inhibitor, sequestrant in drinking water treatment

Use Level: 11 mg/l max.

Regulatory: NSF certified

Accrolube [Accro-Seal]

Chem. Descrip.: Grease with Teflon®

Uses: Lubricant, antiwear agent, corrosion inhibitor for pneumatic cylinders, valves, hydraulic equip., conveyors, marine equip., bearings, etc.; high-efficiency lubricant which creates a boundary lubrication film that reduces wear between metal surfaces and protects against corrosion

Accrolube® MG [Accro-Seal]

Chem. Descrip.: Syn. grease with molybdenum disulfide

Uses: Lubricant, corrosion inhibitor that reduces wear between metal surfaces for wide variety of applics.; high film str., antiwear action, load carrying capabilities; suitable under severe high and low temps.

Acid Thickener [Tomah]

Chem. Descrip.: Surfactant

UN No. 2735

Uses: Thickener, visc. builder, wetting agent, corrosion inhibitor for acid-based cleaners, e.g., acid bowl cleaners, truck cleaners, building restoration cleaners; perfume solubilizer

Properties: Amber paste; sp.gr. 0.91; dens. 7.6 lb/gal; visc. 5000 cps (in 9.5% HCl with 3% Acid Thickener); pour pt. 80 F; flash pt. >200 F; cationic

Acitol EP [Schilling-Chemie]

Uses: Rust and scale remover; for removal of scale, rust, corrosion silicate and phosphate deposits as well as org. pollution in sealed water systems; emulsifier for fatty components; dispersant for insol. dirt particles; penetrates existing deposits and removes them from metallic surfaces; highly conc.; free of hydrochloric acid; not affected by frost or heat

Use Level: 10-20% conc.

Properties: Lt. yel. viscous liq.; sp.gr. 1.35 ± 0.05 g/cm³ (20 C); pH 2.1 ± 0.2 (1%)

Precaution: Do not use in systems with galvanized parts; keep away from glass, stone floors, and tiling

ACP-70 [Lakeland Labs Ltd]

Chem. Descrip.: Sodium cocaminopropionate

CAS 68608-68-4; EINECS/ELINCS 271-795-1

Uses: Emulsifier, corrosion inhibitor, lubricant for oil fields, slat/conveyor lubricants, microemulsions, water treatment; salt free; acid/alkali stable; hard water stable

Properties: Amber liq.; 70% act.; amphoteric

Environmental: Biodeg.

ACqua® 220 [Michelman]

Chem. Descrip.: Polyethylene wax emulsion

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

Uses: Corrosion inhibitor, mar/water resist. aid for can and coil coatings

Properties: 0.45 µ avg. particle size; 25% NV; anionic

Actrabase PS-470 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Med. m.w. petrol. sulfonate, sodium salt

Uses: Emulsifier and rust inhibitor for cutting and lube oils; dispersant for sol. oil and semisynthetics for metalworking fluids

Properties: Visc. liq.; oil-sol.; 100% conc.; anionic

Actracor 129, 856 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Carboxylic acid amine salt

Uses: Corrosion inhibitor for syn. and semisyn. metalworking fluids

Properties: Water-sol.

Actracor 401 [Georgia-Pacific/Actrachem]

Uses: Corrosion inhibitor for water-glycol hydraulic fluids

Properties: Water-sol.

Actracor 800 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Hydrocarbon

Uses: Corrosion inhibitor; metalworking additive

Properties: Oil- and solv.-sol.

Actracor 1987 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Amine carboxylate

Uses: Corrosion inhibitor for metalworking

Properties: Water-sol.

Actracor M [Georgia-Pacific/Actrachem]

Chem. Descrip.: Ethanolamine-borate ester

EINECS/ELINCS 233-829-3

Uses: Corrosion inhibitor in cutting oils

Properties: Water-sol.

Actracor T [Georgia-Pacific/Actrachem]

Chem. Descrip.: Triethanolamine borate ester

CAS 283-56-7; EINECS/ELINCS 206-003-5

Uses: Corrosion inhibitor in cutting oils

Properties: Water-sol.

Actrafos 110 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Complex aliphatic hydroxyl compd. phosphate ester

Uses: Pressure additive for cutting and rolling oils; hydrotrope for cleaning compds.; lubricant, emulsifier, and rust inhibitor, esp. for aluminum

Properties: Liq.; water-sol.; 100% conc.; anionic

Actrafos 110A [Georgia-Pacific/Actrachem]

Chem. Descrip.: Complex aliphatic hydroxyl compd. phosphate ester

Uses: Pressure additive for cutting and rolling oils; hydrotrope for cleaning compds.; lubricant, emulsifier, and rust inhibitor; exc. for aluminum; higher

m.p. than Actrafos 110

Properties: Liq.; water-sol.; 100% conc.; anionic

Actrafos SN-315 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Phosphate ester

Uses: Lubricant, emulsifier for metalworking; aluminum corrosion inhibitor

Properties: Liq.; oil-sol.; 100% conc.; anionic

Actrafos SP-407 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Phosphate ester

Uses: Lubricant and rust inhibitor for syn. metalworking fluids; low foaming

Properties: Water-sol.

Actralube Syn-153 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Soap

Uses: Lubricant and rust inhibitor for syn. cutting fluids; lt. duty; syn.

Properties: Liq.; water-sol.; 95% conc.; anionic

Actramide 202 [Georgia-Pacific/Actrachem]

Chem. Descrip.: 2:1 Tall oil fatty acid alkanolamide

Uses: Emulsifier for sol. oils, metalworking fluids and emulsion cleaners; corrosion inhibitor

Properties: Liq.; water-sol.; nonionic

Actramide 5264 [Georgia-Pacific/Actrachem]

Chem. Descrip.: Modified 2:1 tall oil fatty acid alkanolamide

Uses: Emulsifier; lubricant; rust inhibitor

Properties: Water-sol.

Actrasol SS [Georgia-Pacific/Actrachem]

Chem. Descrip.: Sulfated tall oil

CAS 61790-35-0; EINECS/ELINCS 273-604-7

Uses: Rust preventive; lubricant; metal polish

Properties: Solid; 75% conc.; anionic

Addco® CP-4 HWS [Gateway Addit.]

Chem. Descrip.: Mixt. of org. acid salts

Uses: Corrosion inhibitor for aq. systems, metalworking fluids, water/glycol or other aq. hydraulic fluids, hard surf. cleaners, forming and drawing compds.; temporary rust protectant for ferrous surfs.; lubricant at higher concs.; virtually nonfoaming; exc. stability in high hardness water (up to 3000 ppm as CaCO_3); DEA-free; contains no nitrites or borates

Use Level: 0.3-0.5%

Properties: Reddish-brn. clear to sl. hazy liq.; sol. in water; sp.gr. 1.06 (60 F); dens. 8.84 lb/gal (60 F); f.p. -22 F; pour pt. -17 F; flash pt. nonflamm.; pH 7.7-8.2 (neat)

Toxicology: Low order of toxicity; harmful if swallowed; may cause transient eye irritation; not known to be a skin irritant

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® CP-5 [Gateway Addit.]

Chem. Descrip.: Mixt. of org. acid salts

Uses: Corrosion inhibitor for metalworking fluids, water/glycol or other aq. hydraulic fluids, hard surf. cleaners, forming and drawing compds.; preservative for cast iron, steel alloys; temporary rust protectant for ferrous surfs.; virtually nonfoaming; mod. stability in hard water (< 1000 ppm as CaCO_3); DEA-free; contains no nitrites or borates

Use Level: 0.3-0.5%

Properties: Lt. amber clear liq.; sol. in water; sp.gr. 1.12 (60 F); dens. 9.3 lb/gal (60 F); flash pt. nonflamm.; pH 7.9-8.5 (1%)

Toxicology: Low order of toxicity; harmful if swallowed; may cause transient eye irritation; not known to be a skin irritant

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® CP-8-AB [Gateway Addit.]

Chem. Descrip.: Mixt. of org. acid salts

Uses: Intermediate for mfg. of syn. corrosion inhibitors for metalworking fluids, water/glycol or other aq. hydraulic fluids, hard surf. cleaners, forming and drawing compds.; lubricant at higher concs.; temporary rust protectant for ferrous surfs. when pH is adjusted to ≥ 8.5 ; relatively low pH, high acid content; provides freedom to choose an alkalinity source; virtually nonfoaming; exc. stability in hard water (up to 1500 ppm as CaCO_3); contains no nitrites, DEA

Use Level: 0.2-0.4%

Properties: Amber clear visc. liq.; sol. in water; sp.gr. 1.10 (60 F); dens. 9.1 lb/gal (60 F); flash pt. nonflamm.; pH 6.4-6.9 (1%)

Toxicology: Low order of toxicity; harmful if swallowed; may cause transient eye irritation; not known to be a skin irritant

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® CP-9 [Gateway Addit.]

Chem. Descrip.: Org. carboxylic acid salt mixt.

Uses: Corrosion inhibitor for metalworking fluids, water/glycol- or other water-based hydraulic fluids, hard surf. cleaners, and forming and drawing compds.; DEA-free

Properties: Lt. amber clear liq.; water-sol.; sp.gr. 1.145 (60 F); dens. 9.54 lb/gal (60 F); pH 8.0-8.4 (1%); nonflamm.

Toxicology: Low order of toxicity; harmful if swallowed; may cause transient eye irritation

Addco® CP-105 [Gateway Addit.]

Chem. Descrip.: Mixt. of org. acid salts

Uses: Corrosion inhibitor in metalworking fluids, water/glycol or other aq. hydraulic fluids, hard surf. cleaners, forming and drawing compds.; temporary rust protectant; preservative for cast iron, steel alloys; corrosion protectant on ferrous surfs. @ pH ≥ 8.0 and nonferrous metals; guards against galvanic corrosion; exc. for fluids that contact aluminum; virtually nonfoaming; mod. hard water stability (< 1000 ppm as CaCO_3); contains no MEA, DEA, TEA, nitrites, or borates

Use Level: 0.2-0.4%

Properties: Lt. amber clear liq.; sol. in water; sp.gr. 1.07 (60 F); dens. 9.0 lb/gal (60 F); visc. 233 cs (100 F); acid no. 165; flash pt. nonflamm.; pH 8.8 (1%)

Toxicology: Low order of toxicity; harmful if swallowed; may cause transient eye irritation; not known to be a skin irritant

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® CP-B [Gateway Addit.]

Chem. Descrip.: Boramide compd.

Uses: Corrosion inhibitor in aq. systems, metalworking fluids; relatively high pH; provides high amt. of reserve alkalinity

Use Level: 0.5-1.0%

Properties: Lt. amber clear visc. liq.; sol. in water; sp.gr. 1.16 (60 F); dens. 9.65 lb/gal (60 F); visc. 2500 SUS (100 F); flash pt. (PMCC) > 200 F; pH 9.4 (1%)

Toxicology: Sl. toxic by oral exposure; may be harmful if swallowed; avoid ing. and repeated skin contact

Precaution: Combustible; incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® CP-B-2 [Gateway Addit.]

Chem. Descrip.: Boramide compd., DEA-free

Uses: Corrosion inhibitor in aq. systems, metalworking fluids; relatively high pH; provides high amt. of reserve alkalinity

Use Level: 0.3-0.5%

Properties: Lt. amber clear visc. liq.; sol. in water; sp.gr. 1.21 (60 F); dens. 10.0 lb/gal (60 F); visc. 4500 SUS (100 F); flash pt. (PMCC) > 200 F; pH 9.6 (1%); 5.6% B

Toxicology: Sl. toxic by oral exposure; may be harmful if swallowed; avoid ing. and repeated skin contact

Precaution: Combustible; incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® CP-E-5 [Gateway Addit.]

Chem. Descrip.: Boron succinic ester

Uses: Emulsifier, corrosion inhibitor, lubricant for sol. oils and semisyn. metalworking fluids; wetting agent; dispersant; prevents soap buildup in the fluids; DEA-free; less susceptible to bacterial degradation

Properties: Sol. in water; disp. in oil; sp.gr. 1.11 (60 F); dens. 9.21 lb/gal (60 F); visc. 107 SUS (40 C); 550 SUS (100 F); acid no. 25-35; flash pt. (PMCC) > 200 F; pH 8 (1% aq.); 0.7% B

Toxicology: Sl. toxic from oral exposure; may be harmful if swallowed; avoid ing. and repeated skin contact

Precaution: Combustible; incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® CP-OB-5 [Gateway Addit.]

Chem. Descrip.: Imidazoline-based

Uses: Corrosion inhibitor for ferrous metals, cast iron, in sol. oils, semisynthetics; guards against galvanic corrosion; corrosion inhibitor in aq. sol'ns. contg. chloride

Use Level: 0.1-0.2%

Properties: Amber clear liq.; emulsifiable in water; sp.gr. 0.91 (60 F); dens. 7.6 lb/gal (60 F); visc. 1900 SUS (100 F); pour pt. < 25 F; flash pt. (PMCC) \approx 275 F; 16-24% free fatty acid

Toxicology: Mod. order of toxicity; harmful if swallowed; not known to be a skin or eye irritant

Precaution: Combustible; incompat. with strong oxidizers

Storage: Store @ 25-120 F

Addco® DF-1 [Gateway Addit.]

Chem. Descrip.: Tall oil fatty acid diisopropanolamide (1:1)

Uses: Lubricant, corrosion inhibitor, emulsifier in sol. oils, metalworking fluids for tapping, broaching, drilling, drawing, and other general machining operations; better solubility, lower foam, higher reserve alkalinity than conventional DEA-derived amides; stable in hard water; DEA-free

Properties: Amber clear liq.; sol. in oil; disp. in water; dens. 7.9 lb/gal (15.6 C); visc. 800 SUS (100 F); acid no. 8 max.; flash pt. > 250 F; pH 9.5-10.5 (1%)

Toxicology: Low order of toxicity; harmful if swallowed; eye irritant; not known to be skin irritant

Environmental: Biodeg.

Precaution: Combustible; incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® DF-2 [Gateway Addit.]

Chem. Descrip.: Tall oil fatty acid diisopropanolamide (2:1)

Uses: Lubricant, corrosion inhibitor, emulsifier in sol. oils, metalworking fluids for tapping, broaching, drilling, drawing, and other general machining operations; better solubility, lower foam, higher reserve alkalinity than conventional DEA-derived amides; stable in hard water; DEA-free

Properties: Amber clear liq. to semisolid; disp. in oil, water; dens. 8.0 lb/gal (15.6 C); visc. 1000 SUS (100 F); acid no. 8 max.; flash pt. > 250 F; pH 9.8-10.6 (1%)

Toxicology: Low order of toxicity; harmful if swallowed; eye irritant; not known to be skin irritant

Environmental: Biodeg.

Precaution: Combustible; incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® DF-3 [Gateway Addit.]

Chem. Descrip.: Tall oil fatty acid diisopropanolamide (1.5:1)

Uses: Lubricant, corrosion inhibitor, emulsifier in sol. oils, metalworking fluids for tapping, broaching, drilling, drawing, and other general machining operations; better solubility, lower foam, higher reserve alkalinity than conventional DEA-derived amides; stable in hard water; DEA-free

Properties: Amber clear liq.; sol. in oil; disp. in water; dens. 8.0 lb/gal (15.6 C); visc. 900 SUS (100 F); acid no. 8 max.; flash pt. > 250 F; pH 9.5-10.5 (1%)

Toxicology: Low order of toxicity; harmful if swallowed; eye irritant; not known to be skin irritant

Environmental: Biodeg.

Precaution: Combustible; incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® EP-1 [Gateway Addit.]

Chem. Descrip.: Polyalkylene glycol deriv.

Uses: EP agent, lubricant, mild rust inhibitor for aq. syn. metalworking fluids and coolants; nonfoaming; stable in hard water; does not leave a hard or tacky residue on evaporation; contains no chlorine or sulfur

Use Level: 0.5-2% (tapping, broaching, sawing, drilling, milling, turning for Al, brass, iron, steel); 0.3-1% (centerless grinding for Al, iron, steel); 0.25-0.75% (surf. grinding for Al, iron, steel)

Properties: Pale amber; mild odor; sol. in water; sp.gr. 1.09 (60 F); dens. 9.08 lb/gal (60 F); visc. 200 SUS (100 F); flash pt. none; pH 9.2 (neat); 0.3% P

Toxicology: LD50 (oral, rat) > 4 g/kg, (skin, rabbit) > 2 g/kg; LC50 (inh., rat) > 150 mg/m³; mod. toxic by oral exposure; harmful if swallowed, likely producing lethargy and diarrhea; may cause transient eye irritation; may cause lung damage

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® EP-10 [Gateway Addit.]

Chem. Descrip.: Polyalkylene glycol deriv.

Uses: Basestock lubricant, EP agent, mild corrosion inhibitor for heavy-duty syn. metalworking fluids, protecting ferrous and nonferrous metals; contains no sulfur, chlorine, phosphorus, nitrites, boron compds., biocides, or defoamers; hard water-stable

Properties: Gardner 3 max. color; sol. in water at all concs. and in hard water (to 1000 ppm); sp.gr. 1.07; dens. 8.9 lb/gal (68 F); visc. 560-645 SUS (100 F); pour pt. ≈ -25 F; flash pt. nonflamm.; pH 7.4-8.4 (10% aq.); 11-13%

water

Toxicology: LD50 (oral, rat) > 4 g/kg, (skin, rabbit) > 2 g/kg; LC50 (inh., rat) > 150 mg/m³; mod. toxic by oral exposure; harmful if swallowed, likely producing lethargy and diarrhea; may cause transient eye irritation; not known to be skin irritant

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® GO-122 [Gateway Addit.]

Uses: Multipurpose additive for gear oils and greases; EP agent, antiwear agent, corrosion inhibitor for lithium-based grease; produces finished prods. with improved thermal/oxidative stability, no odor, and light color

Use Level: 4% (lithium-based grease)

Properties: Lt. amber clear visc. liq.; sp.gr. 1.01 (60 F); dens. 8.45 lb/gal (60 F); visc. 485 cSt (40 C), 45 cSt (100 C); acid no. 59; flash pt. (PMCC) > 200 F; 19% S, 0.5% P

Toxicology: Sl. hazardous in neat form; may cause eye irritation; mists may cause eye/nose/throat/mucous membrane irritation; may be harmful if swallowed

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® MLB-10X [Gateway Addit.]

Chem. Descrip.: Polyalkylene glycol deriv.

Uses: Lubricant basestock, EP agent, mild corrosion inhibitor for heavy-duty metalworking fluids; stable in water to 1000 ppm hardness; contains no chlorine, sulfur, phosphorus, nitrites, boron compds., biocides, or defoamers

Properties: Gardner 3 max. color; sol. in water; sp.gr. 1.035 (20/20 C); dens. 8.61 lb/gal (60 F); visc. 600 SUS (100 F); pour pt. ≈ -31 F; flash pt. nonflamm.; pH 3.8-5.0 (10% in 60:40 IPA/water)

Toxicology: LD50 (oral, rat) > 4 g/kg; mod. toxic by oral exposure; harmful if swallowed, likely producing lethargy and diarrhea; may cause transient eye irritation; not known to be skin irritants

Precaution: Incompat. with strong oxidizers; avoid contact with nitrites

Storage: Store @ -1 to 49 C

Addco® MLB-10X-AF [Gateway Addit.]

Chem. Descrip.: Polyalkylene glycol deriv., amine-free

Uses: Lubricant basestock, EP agent, mild corrosion inhibitor for heavy-duty metalworking fluids; stable in water to 1000 ppm hardness; contains no chlorine, sulfur, phosphorus, nitrites, boron compds., biocides, or defoamers

Use Level: 0.5% (light duty machining)

Properties: Gardner 3 max. color; sol. in water after neutralization; sp.gr. 1.035 (20/20 C); dens. 8.61 lb/gal (60 F); visc. 600 SUS (100 F); pour pt. ≈ -31 F; pH 3.8-5.0 (10% in 60:40 IPA/water)

Toxicology: LD50 (oral, rat) > 4 g/kg; mod. toxic by oral exposure; harmful if swallowed, likely producing lethargy and diarrhea; may cause skin/eye irritation

Precaution: Incompat. with strong oxidizers

Storage: Store @ -1 to 49 C

Addco® MLB-20X [Gateway Addit.]

Chem. Descrip.: Polyalkylene glycol deriv.

Uses: Lubricant basestock, EP agent, mild corrosion inhibitor for heavy-duty metalworking fluids; stable in water to 1000 ppm hardness; contains no chlorine, sulfur, phosphorus, nitrites, boron compds., biocides, or defoamers

Properties: Gardner 3 max. color; sol. in water; sp.gr. 1.04 (20/20 C); dens. 8.65 lb/gal (60 F); visc. 5000 SUS (100 F); pour pt. ≈ -21 F; flash pt. nonflamm.; pH 3.8-5.0 (10% in 60:40 IPA/water)

Toxicology: LD50 (oral, rat) > 4 g/kg; mod. toxic by oral exposure; harmful if swallowed, likely producing lethargy and diarrhea; may cause transient eye irritation; not known to be skin irritants

Precaution: Incompat. with strong oxidizers; avoid contact with nitrites

Storage: Store @ -1 to 49 C

Addco® MLB-20X-AF [Gateway Addit.]

Chem. Descrip.: Polyalkylene glycol deriv., amine-free

Uses: Lubricant basestock, EP agent, mild corrosion inhibitor for heavy-duty metalworking fluids; stable in water to 1000 ppm hardness; contains no chlorine, sulfur, phosphorus, nitrites, boron compds., biocides, or defoamers

Use Level: 0.5% (light duty machining)

Properties: Gardner 3 max. color; sol. in water after neutralization; sp.gr. 1.04 (20/20 C); dens. 8.65 lb/gal (60 F); visc. 5000 SUS (100 F); pour pt. ≈ -21 F; pH 3.8-5.0 (10% in 60:40 IPA/water)

Toxicology: LD50 (oral, rat) > 4 g/kg; mod. toxic by oral exposure; harmful if swallowed, likely producing lethargy and diarrhea; may cause skin/eye irritation