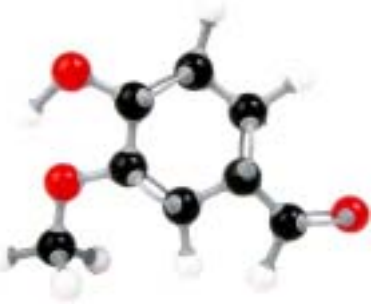
yamada



Air Operated Double-Diaphragm Pump

Corrosion Resistance Guide

Revised November 2001

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Yamada America, Inc.

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CORROSION RESISTANCE GUIDE

This booklet is intended as a general guide in the selection of proper pump construction materials. This listing includes the most common liquids used in industrial and processing applications. In using this guide, please take note of the following:

1. The chart data has been compiled from many sources believed to be reliable. NO GUARANTEE IS IMPLIED OR EXPRESSLY STATED HEREIN.

2. Because of the extensive scope of this field the tabulation is not complete nor conclusive. Corrosion rates may vary widely with concentration, temperature and the presence of abrasives. Impurities or other trace elements common in industrial liquids may inhibit or accelerate the reaction of the material being pumped and the effect on pump materials.

3. Chemicals or liquids may independently be compatible with a type of pump construction, the combination of several liquids may change the chemical compatibility with a given metal/plastic and elastomer. It is important that this is remembered when selecting acceptable materials of construction for a pump.

4. In the case of uncertainty regarding corrosion resistance, testing the materials of construction under conditions as close to actual as possible is recommended.

KEY TO RATINGS: **A** = Excellent, **B** = Good, **C** = Fair to Poor,
X = Not Recommended, **—** = No Data Available.

Data limited to % concentration and/or temperature (°F) shown; where not shown, temperature is 70°F.

Continue

HALOGENATED SOLVENTS

WARNING!

HALOGENATED HYDROCARBON SOLVENTS, SUCH AS 1, 1, 1 TRICHLOROETHANE AND METHYLENE CHLORIDE, SHOULD NOT BE USED IN ALUMINUM EQUIPMENT. A VIOLENT EXPLOSION COULD RESULT.

- Carbon Tetrachloride
- Chloroform
- Dichlorethylene
- Methyl Chloride
- Methylene Chloride
- Trichlorethylene

Continue

CHEMICAL	FORMULA	Elastomers							Metal				Plastic				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Acetaldehyde (Ethanal)	CH_3CHO	X	A	B	X	A	B	X	A	C	A	A	C	A	A/150°	A	A
Acetamide (Acetic Acid Amide)	CH_3COHN_2	B	A	-	B	A	B	B	A	B	X	A	A	-	A/140°	A	A
Acetate Solvents	CH_3COOR	X	-	-	X	A	B	X	A	X	A	-	X	A	A	A	A
Acetic Acid - 20%		C	A	X	B	A	A	C	B	X	A	C	B	A	A	A	-
30%		C	A	X	B	A	A	X	C	X	A	C	C	B	B	A	-
50%	CH_3COOH	C	A	-	C	A	A	C	X	X	A	C	C	B	B	A	-
Glacial	CH_3COOH	C	B	X	X	A	A	X	X	X	A	A	C	B	A/120°	A	A
Acetic Andydride (Acetic Oxide)	$(CH_3CO)_2O$	C	B	C	B	A	A	X	B	B 212° 90%	A	A	X	X	B/70°	A	A
Acetone (Dimethylketone)	CH_3COHO_3	X	A	C	X	A	A	X	B	A	B	A	X	B	X	A	A
Acetone Cyanohydrin	$(CH_3)_2C(OH)CH$	X	X	-	B	A	A	X	A	C	A	-	-	-	-	A	-
Acetonitrile (Methyl Cyanide)	CH_3CN	C	A	-	A	A	B	X	A	A	B	B	B/100°	A	A	A	-
Acetophenone (Phenyl Methyl Ketone)	$CH_6H_5COCH_3$	X	A	-	X	A	B	X	B	B	A	B	A/70°	-	A	A	A
Acetyl Acetone (2,4-Pentanedione)	$CH_3COCH_2COH^2$	X	A	-	X	A	B	X	B	X	B	-	-	-	-	A	-
Acetyl Chloride	CH_3COCl	X	C	X	X	A	B	B	X	X	B	A	X	-	A	A	A
Acetylene (Ethyne)	$HC = CH$	A	A	A	C	A	C	A	A	A	A	A	X	A	A	A	A
Acetyl Salicyclic Acid (Aspirin)	$(CH_3OCO)\ CH6_4COOH$	-	B	-	X	A	A	-	A	X	B	-	-	-	-	A	-
Acetylene Tetrabromide (Tetra Bromoethane)	$(CHBr_2)_2$	X	-	-	X	A	X	A	X	X	A	-	-	-	-	A	-
Acrolein (Acrylaldehyde)	$H_2C=CHCHO$	B	-	-	-	A	A	A	A	B	B	-	-	-	-	A	-
Acrylonitrile (Vinyl Cyanide)	$CH_2=CHCN$	X	X	-	X	A	A	X	A	B	A	A	B	-	A	A	-
Adipic Acid (1,4-Butanedicarboxylic Acid)	$H00C(CH_2)_4$ COOH	B	-	-	X	A	B	B	B	B	B	A	A	A	A	A	-

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Alcohols																	
Allyl Alcohol (2-Propen-1-ol)	R-OH	A	A	-	A	A	B	B	B	A	A	-	-	-	-	A	A
Amyl (1-Penatol)	$C_4H_9CH_2O$	B	A	A	B	A	A	B	B	A	A	A	B	A	A	A	-
Benzyl (Phenylcarbinol)	$C_6H_5CH_2OH$	X	B	-	B	A	A	A	B	A	A	A	A	A	A	A	A
Butyl (Butanol)	C_3H7CH_2OH	A	B	B	A	A	A	A	B	B	A	A	B	A	A	A	-
Decyl Alcohol (Decanol)		A	-	-	X	A	-	B	-	-	-	A	-	A	-	A	A
Denatured Alcohol		A	A	-	B	A	A	B	B	B	A	A	A	A	A	A	-
Diacetone (Tyranton)	$(CH_3)_2C(OH)\ CH_2COCH_3$	X	B	-	X	A	B	X	A	A	A	A	X	A	A	A	-
Ethyl (Ethanol)	CH_3CH_2OH	X	A	A	A	A	B	X	B	A	A	A	B	A	A	A	-
Ethyl Butyl Alcohol		A	A	-	A	A	A	B	B	A	A	A	A	A	A	A	-
Hexyl (1-Hexanol)	$C_5H_{11}CH_2OH$	A	B	-	B	A	B	B	A	A	A	A	$A/70^0$	A	A	A	-
Isoamyl Alcohol		A	A	-	B	A	B	A	A	A	A	A	A	A	A	A	-
Isobutyl (Isobutanol)		B	A	-	A	A	A	A	B	B	A	A	-	-	A	A	-
Isopropyl (Isopropanol)		B	A	-	B	A	A	B	B	B	A	A	A	-	$A/150^0$	A	-
Lauryl Alcohol (n-Dodecanol)		A	A	A	B	A	A	A	A	A	A	A	A	-	A	A	-
Methyl Amyl Alcohol		A	-	-	-	A	B	B	A	A	A	A	-	-	-	A	-
Methyl (Methanol)		A	A	-	A	A	A	A	B	B	A	A	$A/120^0$	-	A	A	-
Octyl (Caprylic Alcohol)		A	-	A	B	A	B	B	A	A	A	A	A	-	A	A	-
Propyl (Propanol)	$C_2H_5CH_2OH$	B	A	-	B	A	B	A	A	A	A	A	A	-	$A/120^0$	A	-
Tridecyl Alcohol		A	A	-	-	A	-	B	A	A	A	A	A	-	A	A	-
Allyl Bromide (3-Bromopropene)	H2C=CHCH2Br	B	-	-	X	A	-	B	X	X	-	A	-	-	-	A	-
Allyl Chloride (3-Chloropropene)	CH2=CHCH2Cl	X	X	-	X	A	-	B	X	X	B	A	$A/70^0$	-	A	A	-
Alkazene (Chlorethyl or Polyisopropyl benzenes)		X	-	-	X	A	X	A	X	-	B	A	$A/70^0$	A	-	A	-
Alum (Aluminum Potassium Sulfate (Dodecahydrate)	$KAl(SO_4)_2 * 12H_20$	X	-	-	X	A	B	-	-	-	-	-	-	-	-	A	-
Aluminum Acetate (Burow's Solution)		A	A	-	A	A	A	X	-	-	B	A	A	-	A	A	-
Aluminum Ammonium Sulfate (Alum)	$AlNH_4(SO_4)_2$	C	A	-	C	A	A	X	B	C	A	A	$A/100^0$	A	A	A	-
		B	-	-	B	A	A	A	-	-	-	-	A	-	A	A	-

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		Elastomers							Metal				Plastic				
CHEMICAL	**FORMULA**	BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Aluminum Bromide	$AlBr_3$	B	A	-	A	A	-	-	-	-	-	-	-	-	A	A	-
Aluminum Chloride	$AlCl_3$	A	A	B	A	A	A	A	X	C	B	A	A	B	A	A	-
Aluminum Fluoride	AlF_3	A	B	-	A	A	A	A	A/50%	C	C	A	A	X	A	A	-
Aluminum Hydroxide (Alumina Trihydrate)	$Al(OH)_3$	B	A	-	A	A	A	C	B/10%	B/30%	B	B	A	-	A	A	-
Aluminum Nitrate	$Al(NO_3)_3 * {}_9H_20$	A	A	-	A	A	A	A	X	-	A/10%	B	A	-	A	A	-
Aluminum Phosphate	$AlPO_4$	A	A	-	A	A	A	A	-	-		-	-	-	-	A	A
Aluminum Potassium Sulfate (Potash Alum)	$KAl(SO_4)_2$	A	A	-	A	A	A	A	A/10%	X	A	B	A	A	A	A	-
Aluminum Sodium Sulfate (Soda Alum)	$NaAl(SO_4)_2$	A	A	-	A	A	-	A	-	-	A	-	-	-	-	A	A
Aluminum Sulfate (Cake Alum)	$Al_2(SO_4)_3$	A	A	B	A	A	A	A	B/30%	X	A 167° 50%	A	A	B	A	A	-
Amines	$R\text{-}NH_2$	X	A	A/70%	B	A	A	X	A	-	A	A	B	C	X	A	-
Ammonia Anhydrous, Liquid	NH_3	B	A	X	B	A	A	X	A	A	A	-	A	X	A	A	-
Ammonia Gas - Cold		A	-	-	A	A	A	A	-	-	-	-	-	-	-	A	-
Ammonia Gas - Hot		C	-	-	B	A	A	X	-	-	-	-	-	-	-	A	A
Ammonia Liquors		-	-	-	A	A	A	X	A	A	A	A	-	-	-	A	-
Ammonia Cupric Sulfate	$(NH_4)_2Cu(SO_4)_2$	A	-	-	-	A	-	A	-	-	-	-	-	B	-	A	-
Ammonium Acetate	$CH_3CO_2NH_4$	-	-	-	A	A	A	A	A	B/50%	A/50%	-	-	-	-	A	-
Ammonium Bicarbonate	NH_4HCO	A	A	-	A	A	B	A	B	B	B/90%	-	-	-	-	A	-
Ammonium Bifluoride - 10%	NH_4HF_2	B	A	-	X	A	A	A	C	X	B	B	A	-	A	A	-
Ammonium Carbonate	$(NH_4)_2CO_3$	X	A	-	B	A	A	A	B	B	B 212° 70%	B	A	-	A	A	A
Ammonium Casenite		-	-	-	A	-	A	-	-	-	B	-	-	-	-	-	-

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CHEMICAL	**FORMULA**	BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Ammonium Chloride (Sal Ammoniac)	NH_4Cl	A	A	A	A	A	A	A	X	X	A/30%	A	A	-	A	A	-
Ammonium Dichromate	$(NH_4)_2Cr_2O^7$	A	A	A	A	A	A	-	A	A	B	-	-	X	-	A	-
Ammonium Fluoride	NF_4F	B	A	-	B	A	-	A/20%	B/10%	B/20%	A/50%	A	B	-	A	A	-
Ammonium Hydroxide (Aqua Ammonia)	NH_4OH	B	A	-	B	A	A	B	B/30%	B/30%	B	A	A	-	A	A	-
Ammonium Metaphosphate		A	A	-	A	A	-	A	B/90%	B	A	A	A	B	A	A	A
Ammonium Nitrate		A	A	-	A	A	A	A	B	A	-	A	A	-	A	A	-
Ammonium Nitrite	NH_4NO_2	A	-	-	A	A	A	-	-	-	A	-	A/70%	A	A	A	A
Ammonium Oxalate	$(NH_4OOC)_2$	A	-	-	A	-	A	-	-	-	-	A	B	-	B	A	-
Ammonium Persulfate	$(NH_4)_2S_2O_8$	B	A	-	A	A	A	A	C	X	A	-	A	-	A	A	-
Ammonium Phosphate, Monobasic	$(NH_4)H_2PO_4$	A	A	B	A	A	A	A	X	X	B	A	A	A	A	A	-
Ammonium Phosphate, Di Basic	$(NH_4)_2HPO_4$	A	-	-	A	A	A	A	B	-	A	A	A	B	A	A	A
Ammonium Phosphate, Tri-Basic	$(NH_4)_2PO_4 * 3H_20$	A	-	-	A	A	A	A	X	-	B	B	A	-	A	A	-
Ammonium Sulfate	$(NH_4)_2SO_4$	A	A	C	A	A	A	A	X	B	A 212⁰ 80%	B	A	B	A	A	A
Ammonium Sulfide	$(NH_4)2_S$	A	-	A	A	-	A	B	C	B	B	-	A	-	A	A	
Ammonium Sulfite	$(NH_4)_2SO * {}_3H_2O$	A	-	-	-	A	-	A	C	X	B	A	A	X	A	A	-
Ammonium Thiocyanate	NH_4SCN	A	A	-	A	A	-	A	C	C	A/50%	A	B		A	-	A
Ammonium Thiosulfate	$(NH_4)_2S_20_3$	A	A	-	A	A	A	A	A/40%	X	A/10%	A	-	-	B	A	-
n-Amyl Amine (1-Aminopentane)	$CH_3CO_2C_3H_{11}$	C	X	-	X	A	-	X	-	-	-	-	-	-	-	A	-
Amyl Borate	$C_5H_{11}B0_3$	A	X	-	B	A	B	A	-	-	-	B	-	-	-	A	

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Amyl Chloride (Chloropentane)	$CH_3(CH_2)_4Cl$	C	X	-	X	A	C	A	X	A	A	B	X	A	A	A	-
Amyl Chloronaphthalene		X	-	-	X	A	C	A	-	-	-	-	-		-	A	-
Amyl Naphtalene	$C_{15}H_{18}$	X	X	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Amyl Phenol	$C_6H_4(OH)C_5H_{11}$	X	-	-	-	A	-	A	A	A	A	A	-	A	-	A	-
Anilene (Anilene Oil) (Amino Benzene)	$C_6H_5NH_2$	X	C	X	X	A	A	B	B	A	A	B	A	B	A	A	A
Anilene Dyes		X	C	-	X	A	B	B	B	C	B	-	A	-	A	A	-
Anilene Hydrochloride	$C_3H_5NH_2$ * HCl	C	-	-	X	A	A	B	X	X	X	-	X	-	A	A	-
Animal Gelatin		A	A	-	A	A	A	A	-	-	A	A	A	-	A	A	-
Anisole (Methylphenyl Ether)	$C_6H_5OCH_3$	C	-	-	X	A	-	X	B	B	B	-	-	B	-	A	-
Ansul Ether		C	-	-	X	A	X	X	-	-	-	B	-	-	-	A	-
Anthraquinone	$C_{14}H_80_2$	A	-	-	-	A	-	-	B	B	B	-	-	A	-	A	-
Anti-Freeze - Alcohol Base Glycol Base		A A	A A	A A	A B	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	A A	- -
Antimony Pentachloride	$SbCl_3$	X	-	-	-	A	-	-	A	A	A	A	-	A	-	A	-
Antimony Trichloride	$SbCl_5$	B	A	-	-	A	-	A	B	A	A	A	A	B	A	A	-
Aqua Regia (Nitric & Hydrochloric Acid)		X	X	-	X	A	X	B	X	X	X	C	C	C	A	A	X
Aroclor	PCB Mixtures	C	X	-	X	A	-	A	A	B	A	-	-	-	-	A	-
Aromatic Hydrocarbons	C_6H_5R	X	X	C	X	A	C	A	A	A	A	A	X	-	A	A	-
Aromatic Solvents (Benzene, etc.)		C	X	X	X	A	-	A	A	B	A	A	B	-	A	A	-

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Arsenic Acid	AsH_3O_4	B	A	-	A	A	A	A	A	X	B	B	A	B	A	A	A
Arsenic Trichloride (Arsenic Butter)	$AsCl_3$	C	X	-	A	A	B	X	B	B	X	B	-	-	-	A	-
Absorbic Acid	$C_6H_80_6$	-	-	-	-	A	-	A	A	X	A	-	-	-	-	A	-
Askarel (Pyranol)	PCB Mixtures	B	X	-	X	A	X	C	-	-	A	-	-	-	-	A	-
Asphalt	Hydrocarbons	B	X	-	C	A	B	A	A	B	A	-	A	-	A	A	-
Asphalt Topping		B	-	-	A	A	-	B	-	A	A	-	-	B	A	A	-
ASTM - Ref Motor Fuel																	
A (Aliphatic)		A	X	A/158⁰	B	A	C	A	A	A	A	A	-	-	-	A	-
B (30% Aromatic)		A	X	A/158⁰	X	A	X	A	A	A	A	A	-	-	-	A	-
C (50% Aromatic)		B	X	C	X	A	X	A	A	A	A	A	-	-	-	A	-
ASTM - Ref Oil																	
#1 (High Anilene)		A	X	A/212⁰	B	A	B	A	A	A	A	A	-	-	-	A	-
#2 (Medium Anilene)		A	X	A	B	A	-	A	A	A	A	A	-	-	-	A	-
#3 (Low Anilene)		A	X	A/212⁰	C	A	-	A	A	A	A	A	-	-	-	A	-
#4 (High Anilene)		B	X	-	X	A	-	A	A	A	A	A	-	-	-	A	-
Aviation Gasoline		A	X	-	C	A	X	A	A	A	A	A	-	-	-	A	-
Barbeque Sauce	Water, oils, spices	A	-	-	A	A	B	-	-	X	A	-	A	-	A	A	-
Barium Carbonate	$BaCO_5$	A	A	-	A	A	A	A	X	B	B	B	A	-	A	A	A
Barium Chloloride Dihydrate	$BaCl_2 * 2H_2O$	A	A	-	A	A	-	A	B/50%	B	B/212⁰	B	A	A	A	A	A
Barium Cyanide	$Ba(CN)_2$	C	-	X	A	-	A	A	-	-	A	-	X	-	-	A	-
Barium Hydroxide (Barium Hydrate)	$Ba(OH)_2$	A	A	B	A	A	A	A	X	B	B	122⁰	A B	A	A	A	-
Barium Nitrate	$Ba(NO_3)_2$	A	-	-	A	A	A	-	B	A	A	-	A	B	A	A	A
Barium Sulfate (Blanc Fixed)	$BaSO_4$	A	A	X	A	A	A	A	B	B	B	-	A	B	A	A	A
Barium Sulfide	BaS	A	A	-	A	A	A	A	X	-	B	-	A	-	A	A	-

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CHEMICAL	FORMULA	Elastomers							Metal				Plastic				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Beef Extract		A	-	-	A	A	-	A	-	X	A	-	-	-	-	A	-
Beer	Water, Carbonate	C	A	B	A	A	A	A	A	X	A	-	A/75^0	A	A/175^0	A	A
Beet Sugar Liquors (Sucrose)		A	A	-	A	A	A	A	A	B	A	-	A	B	A	A	-
Benzaldehyde	C6H5CHO	X	B	B	X	A	B	X	A	A	A	-	X	-	A	A	A
Benzene (Benzol)	C6H6	X	X	C/70^0	X	A	C	B	B	B	A/167^0	B	X	A	B	A	A
Benzene Sulfonic Acid	C6H5DO3H	X	C	-	A	A	-	A	C	A	A	-	X	-	B/100^0	A	A
Benzoic Acid (Benzene Carboxylic Acid)	C6H5COOH	X	B	-	B	A	A	A	B	X	B	-	X	B	A	A	A
Benzoyl Chloride	C6H2COCl	X	X	-	X	A	A	X	X	X	B	-	A	A	A	A	A
Benzyl Acetate	CH3CO2 CH2C6H5	X	-	-	-	A	A	X	A	A	A	-	-	-	-	A	-
Benzyl Benzoate	C6H5CO2CH2C6H5	X	B	-	X	A	C	A	A	B	B	-	-	-	-	A	-
Benzyl Chloride (Chlorotoluene)	C6H5CH2Cl	X	X	-	X	A	C	A	X	A	B	-	X	-	A	A	-
Benzyl Dichloride (Benzal Chloride)	C6H5CHCl	X	X	-	X	A	-	A	X	B	A	-	B	-	A	A	-
Benzol (Benzene)	C6H6	X	X	C/70^0	X	A	B	B	B	B	-	B	X	A	B	A	A
Biphenyl (Diphenyl)	$C_6H_5C_8H_5$	X	X	-	X	A	-	A	A	A	-	-	-	-	-	A	-
Bismuth Subcarbonate (Bismuth Carbonate)	$(Bi0)_2CO_3$	A	A	-	A	A	-	A	-	-	B/10%	-	B	-	A	A	-
Black Sulfate Liquor		B	A	B	A	A	B	A	C	B	A	B	-	-	-	A	-
Blast Furnace Gas	CO,H_2,CH_4,CO_2,N_2	C	-	B	A	A	-	A	-	-	-	-	-	-	-	A	-
Bleach Solutions	Water, chlorine, oxygen	X	A	X	X	A	B	B	X	-	B	A	B/3%	-	A	A	-
Borax (Sodium Borate)	$B_4Na_20_2$	B	A	A	A	A	A	A	B	B	A	A	A	B	A	A	A
Bordeaux Mixture	Copper sulfate salts	A	A	B	A	A	A	-	-	-	A	A	-	-	-	A	-
Boric Acid (Boracic Acid)	H_3BO_3	A	A	A	A	A	A	A	A	X	A/30%	A	A	C	A	A	A

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Brake Fluid (non-petroleum base)	Silcones or glycols	X	A	-	A	A	A	-	A	A	A	A	X	-	-	A	-
Brewery Slop		A	-	-	A	A	A	A	-	A	A	-	-	-	-	A	-
Brine (Sodium Chloride)	Salt Water	A	A	B	A	A	A	A	-	X	A	A	A	-	A	A	-
Bromine - Anhydrous	Br_2	X	C	X	X	A	C	A	B	C	X	A	X	-	A/150°	A	-
Bromine Trifluoride	BrF_3	X	X	-	X	A	C	X	A	-	B	-	X	-	-	A	-
Bromine Water		X	X	-	B	A	B	B	X	-	X	A	C	-	A	A	-
Bromobenzene	C65H5Br	X	X	-	X	A	X	B	X	X	A	B	X	-	-	A	-
Bromochloromethane	BrCH2Cl	X	B	-	X	A	-	C	X	B	B	B	-	-	-	A	-
Bromotoluene	C6H4BrCH3	X	-	-	-	A	-	B	X	B	A	A	-	-	-	A	-
Bronzing Liquid		X	B	-	X	A	A	X	-	-	A	A	-	-	-	A	-
Butadiene	C4H6	X	C	-	C	A	A	C	A	-	A	A	X	-	A	A	A
Butane (LPG) (Buty Hydride)	C4H10	A	X	A	B	A	C	A	A	A	A	-	X	B	A	A	A
Butter	Fats	A	A	B	C	A	A	A	A	X	A	A	A	-	-	A	-
Buttermilk	Fats, water	A	-	-	A	-	A	A	A	X	A	-	A	-	A/100°	A	-
Butyl Acetate	CH3CO2(CH2)3CH3	X	B	-	X	A	C	X	A	A	A	-	X	-	B	A	-
n-Butyl Acetate	CH3CO2(CH2)3CH3	X	B	-	X	A	B	X	A	A	A	A	-	-	-	A	-
Butyl Acetyl Ricinoleate	C24H4405	C	C	-	X	A	B	B	-	A	-	-	-	-	-	A	-
Butyl Acrylate	CH2CHCO2C4H9	X	X	-	X	A	C	X	-	-	-	-	-	-	C	A	-
Butyl Amine (Aminobutane)	CH3(CH2)CH2NH2	B	X	-	X	A	A	X	A	A	A	-	X	C	B/70°	A	A
Butyl Benzoate	C6H5COO (CH2)3CH3	-	B	X	X	A	C	A	B	B	B	B	-	-	-	A	-

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Butyl Butyrate	$CH_3(CH_2)_2$ $CH_2CO_2C^4H_2$	X	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Butyl Carbitol	$CH_3(CH^2)_3OCH$ $CH_2OCH_2CH_2OH$	A	A	-	B	A	B	A	-	-	-	-	-	-	-	A	-
Butyl Cellosolve	$HOCH_2CH_2OC_4H_9$	B	A	-	C	A	A	C	A	A	A	A	A	A	B	A	-
Butyl Chloride (Chlorobutane)	$CH_3(CH_2)_3CL$	X	-	-	-	A	-	A	X	B	B	B	X	-	A	A	-
Butyl Ether (Dibutyl Ether)	$(CH_3(CH_2)_3CL$	A	-	-	B	A	-	C	A	B	A	A	X	-	A/100⁰	A	A
Butyl Oleate	$C_{22}H_{42}0_2$	-	C	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Butyl Stearate	CH3(CH2)16 CO2(CH2)3CH3	A	C	-	X	A	C	B	B	B	B	B	-	-	A	A	-
Butylene (Butene)	C4H8	B	X	-	X	A	X	B	A	-	A	A	X	-	A	A	A
Butyraldehyde	$CH_3(CH_2)^2CH0$	X	C	-	X	A	C	X	A	A	A	A	-	-	B	A	-
Butyric Acid	$CH_3(CH_2)C0_2H$	C	C	B	X	A	C	X	A	A	A	A	A	-	A	A	-
Butyric Anhydride	$(CH_3CH_2CH_2CO)_2O$	C	C	B	X	A	A	C	A	X	B	A	-	X	A	A	A
Butyronitrile	$CH_3CH_2CH_2CN$	C	A	-	-	A	-	-	A	-	A	A	-	A	-	-	A
Calcium Acetate Hydrate	$Ca(CH_3COO)_2 * H_20$	X	A	X	C	X	A	X	C	-	B	-	-	-	-	-	A
Calcium Bisulfite	$Ca(HSO_3)_2$	B	A	-	C	A	-	X	C	C	B	B	-	-	-	A	-
Calcium Carbonate (Chalk)	$CaCO_3$	A	A	-	A	A	-	A	C	B	A/90⁰	A	A	X	A	A	A
Calcium Chlorate	$Ca(ClO_3)_2$	A	A	-	A	A	A	A	C	B	B	B	A	A	A	A	-
Calcium Chloride (Brine)	$CaCl_2 * 6H_20$	A	A	-	A	A	-	A	B/30%	B	A/30%	B	A	-	A	A	-
Calcium Hydrosulfide (Calcium Sulfhydrate)	$Ca(HS)_2 * 6H_20$	A	A	-	A	A	A	A	-	A	A	A	A	X	A	A	A
Calcium Hydroxide (Slaked Lime)	$Ca(OH)0_2$	A	A	-	A	A	A	A	X	B	B	-	A	-	A	A	-
Calcium Hypochlorite 20% (Calcium Oxichloride)	$Ca(ClO)_2$	C	B	X	X	A	A	A	X	X	B	B	A	A	A	A	A

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Calcium Nitrate	$Ca(NO3)_2$	A	A	-	A	A	A	A	B 212° 40%	B 212° 30%	B 212° 40%	B	A	X	A	A	A
Calcium Oxide (Unslaked Lime)	CaO	A	A	B	A	A	B	A	A	A	A	A	B	-	A	A	-
Calcium Silicate	$Ca2SiO_4$	A	-	-	-	A	-	A	A	B	A	A	-	-	-	A	-
Calcium Sulfate (Gypsum)	$CaSO_4$	A	A	-	A	A	A	A	C	B/10%	A/10%	A	A	X	A	A	A
Calcium Sulfide	CaS	A	A	-	B	A	A	A	A/20%	B	B	A	A/120°	-	A	A	-
Calcium Sulfite	$CaSO_3 * 2H_2O$	A	-	-	-	A	A	A	B/10%	B	A/10%	-	B/70°	-	B/70°	A	-
Calgon	$(NaPO_3)_6$	A	-	-	A	-	A	-	-	X	A	-	A	-	-	A	-
Cane Juice	Sucrose, water	A	-	-	A	-	A	A	B	A	A	-	X	-	-	A	-
Cane Sugar Liquors		A	A	B	A	A	A	B	A	A	A	-	A	-	A	A	-
Capryl Alcohol (Octanol)	$CH_3(CH_2)_6CH_2OH$	A	C	-	B	A	-	B	A	A	A	A	-	-	-	A	-
Caprylic Acid (Octanoic Acid)	$CH_3(CH_2)_6$ COOH	C	-	-	-	A	-	-	A	-	A	A	-	-	A	A	-
Carbamate	H_2NCO_2R	C	C	-	C	A	A	A	-	-	-	-	-	-	-	A	-
Carbitol	$CH_3CH_2OCH_2CH_2$ OCH_2CH_2OH	B	C	-	C	A	B	C	A	A	A	A	-	-	-	A	-
Carbolic Acid (see Phenol)	C_6H_5OH	X	C	X	C	A	A	A	B	A	B	A	C	X	A/150°	A	-
Carbon Dioxide (Carbonic Acid Gas)	CO_2	A	B	A	A	A	B	A	A	A	A	A	A	A	A	A	A
Carbon Disulfide (Carbon Bisulfide)	CS_2	X	X	C	X	A	X	A	A	B	A/90°	-	X	B	A	A	A
Carbon Monoxide	CO	C	C	A	A	A	A	C	A	A	A	A	A	B	A	A	-
Carbon Tetrachloride R10 (Tetrachloromethane)	CCL_4	C	X	X	X	A	X	A	X	C	B	A	X	B	A	A	A
Carbonated Beverages	$C0_2/H_20$	B	B	A/50%	X	A	A	A	X	X	A	A	A	A	A	A	A

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Carbonic Acid (liquid)	H_2CO_3	B	-	C	A	A	A	A	A	X	B	A	A	A	A	A	A
Casein	a phosphoprotein	A	A	-	A	A	-	A	B	-	B	B	-	-	-	A	-
Catsup (Ketchup)		A	A	-	C	A	A	A	B	X	A	A	A	-	-	A	-
Cellosolve (Glycol Ethers)	$HOCH_2CH_2OR$	C	C	X	C	A	C	B	A	-	A	A	A/100⁰	A	A	A	A
Cellulose Acetate	$C_8H_{12}O_5$	B	-	-	B	A	-	C	B	B	A	A	C	-	A	A	-
Cellelube Hydraulic Fluids (Phosphate Esters)		X	A	C	X	A	X	B	A	A	A	A	-	-	-	A	-
Chlorinated Lime - 35% Bleach	$CA(ClO)_2$	C	A	X	X	A	X	A	-	X	A	-	-	-	-	A	-
Chlorinated Water		C	-	X	C	A	-	A	X	X	B	-	B	X	A	A	-
Chlorine - Dry	CL_2	C	-	X	C	A	-	A	X	-	B	-	X	-	A	A	-
Wet	Cl_2/H_20	C	X	X	X	A	C	A	B	C	A	A	X	X	A	A	X
Anhydrous Liquid	Cl_2	X	-	-	X	A	C	A	X	X	X	A	-	A	A	-	
Chlorine Dioxide	ClO_2	X	C	-	X	A	X	B	B	-	X	B	X	-	A	A	-
Chlorine Trifluoride	ClF_3	X	X	-	X	A	X	B	A	-	A	-	X	-	-	-	-
Chloroacetic Acid (Monochloroacetic Acid)	$ClCH_2COOH$	X	B	X	C	A	-	C	X	X	X	A	A	X	A	A	A
Chloroacetone (Monochloroacetone)	$ClCH_2COCH_3$	X	A	-	C	A	C	C	X	B	B	B	X	-	-	A	-
Chlorobenzene (Monchlorobenzene)	C6H5Cl	X	X	X	X	A	C	A	X	B	B	B	X	A	A/150⁰	A	A
Chlorobutadiene (Chloroprene)	C4H5CL	X	X	-	X	A	C	A	X	B	B	B	X	-	-	A	-
Chlorobromomethane	ClCH2Br	X	-	-	X	A	X	A	X	B	B	-	X	-	-	A	-
Chloroform	$CHCl_3$	X	X	X	X	A	X	A	X	A	A	A	X	A	A	A	A
1-Chloronaphthalene	$C_{10}H_7Cl$	X	X	-	X	A	X	C	X	B	B	A	X	-	-	A	-

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Chlorosulfonic Acid	HSO_3CL	X	X	X	X	A	A	X	B	B	B	A	X	-	X	A	X
o-Chlorophenol	C_6H_5ClO	X	X	-	X	A	-	B	B	B	B	B	-	B	A	A	A
Chlorothene (Chlorinated Solvents)	CH_3CCL_3	X	-	-	X	A	-	C	X	X	A	A	-	-	-	A	-
Chlorotrifluoroethylene	C_2H_2ClF	X	-	-	-	A	-	-	B	B	B	B	-	-	-	A	-
Chlorox		C	A	X	B	A	B	A	-	X	A	B	B	-	A	A	-
Chocolate Syrup	Corn Syrup, water, sugar	A	-	-	A	A	A	-	-	X	A	-	A	-	-	A	-
Chromic Acid - to 25% Over 25%	H_2CrO H_2CrO_4	X X	A C	X X	X X	A A	A A	A A	B/10% X	B B	X X	B B	C C	X X	A/120% A/120%	A A	A A
Cider (Apple Juice)	Sucrose, water	A	B	B	A	A	A	A	B	X	A	A	-	-	-	A	-
Citric Acid	$C_6H_8O7 * H_20$	B	A	A	A	A	A	A	B	X	A/30%	A	B	B	A	A	A
Citrus Pectin Liquor		A	-	-	A	A	-	A	-	-	A	A	A	-	-	A	-
Cobalt Chloride	$CoCl_2 * 6H_20$	A	C	-	A	A	A	A	X	-	-	-	A	-	-	A	-
Coffee	Fatty oils, acids. cellulose, water	A	-	-	A	A	A	-	A	-	A	A	A	-	-	A	-
Coke Oven Gas	H_2(53%),CH_4(26%)N_2(11%),CO(7%)&hydrocarbons (3%)	C	-	-	C	A	B	A	-	-	-	-	-	-	A	A	-
Copper Acetate	$Cu(C_2H_2O_2)_2 * CuO * 6H_20$	B	A	-	C	A	A	A	X	A/90%	B/10%	B	A	-	A	A	-
Copper Chloride	$CuCl_2 * 2H_2O$	A	A	A	A	A	A	A	X	X	X	B	A	-	A	A	-
Copper Cyanide	CuCN	A	A	-	A	A	A	A	X	A	A/10%	A	A	-	A	A	A
Copper Fluoroborate		B	-	-	A	-	A	A	X	X	X	B	-	-	-	A	-
Copper Nitrate Hexahydrate	$Cu(NO_3)2 * 6H_20$	A	A	-	A	A	A	A	X	X	A	B	A	A	A	A	A
Copper Sulfate (Blue Copperas)	$CuSO_4 * {}_5H_20$	A	A	A	A	A	A	A	X	X	A/10%	A	A	A	A	A	A
Copper Sulfide	CuS	A	-	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Cream		A	-	-	C	A	A	A	-	X	A	-	A	-	-	A	-

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Creosote, Wood-Tar	Mixture of phenols	A	X	X	B	A	B	A	B	B	A	-	X	X	-	A	-
Cresylic Acid (cresol)	$C_8H_{10}O_2$	C	X	-	X	A	B	A	B	C	A	B	X	X	A/150°	A	-
Crotonaldehyde	$CH_3CHCHCHO$	X	-	-	A	A	-	A	A	A	A	A	-	-	-	A	-
Cumeme (Isopropylbenzene)	$C_6H_5CH(CH_3)_2$	X	X	-	X	A	-	A	B	B	B	B	-	-	-	A	-
Cyclohexane	C_6H_{12}	B	X	A	X	A	C	A	B	B	B	B	X	A	A	A	A
Cyclohexanol	$C_6H_{11}OH$	B	X	-	A	A	B	A	C	B	A	A	B	A	A/150°	A	A
Cyclohexanone	$C_6H_{10}0$	X	C	-	X	A	C	X	B	B	B	B	X	A	A	A	A
Cyclopentane	C_5H_{10}	B	X	-	A	A	-	A	B	B	B	B	-	-	-	A	-
Cymene (Isopropyltoluene)	$C_{10}H_{14}$	C	X	-	X	A	-	A	-	-	-	-	-	-	-	A	-
Decahdronaphthalene (Decalin)	$C_{10}H_{18}$	X	X	-	X	A	-	A	-	-	-	-	-	-	-	A	-
Decanal	CH3(CH2)8CHO	X	X	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Decane	$CH_3(CH_2)_8CH_3$	B	C	-	X	A	C	A	-	-	-	-	A/70%	-	A	A	-
Detergent Solutions		A	A	B	A	A	A	A	B	-	A	-	A	A	-	A	A
Developing Fluids & Solutions		A	C	X	A	A	B	A	-	X	A	A	-	-	-	A	-
Dextrose	$C_6H1_2O_6$	B	A	B/140%	B	A	B	A	A	X	A	A	A	-	A	A	-
Dibenzyl Ether	$(C_6H_5CH_2)_2O$	X	C	-	X	A	C	C	B	B	B	B	-	-	C	A	-
Dibenzyl Sebecate	$C_{24}H_30^4$	X	C	A	X	A	C	B	-	-	-	-	-	-	-	A	-
Dibutyl Amine	$(C_4H_9)_2NH$	C	C	X	-	X	A	C	X	-	A	A	A	X	B/70%	A	-
Dibutyl Phthalate (DBP)	$C_6H_4(CO_2C_4H_9)_2$	X	A	A	A	X	A	A	B	A	A	A	B	X	-	X	A
Dibutyl Sebecate (DBS)	$C_{18}H_{34}O_4$	X	C	-	X	A	B	C	-	A	A	-	C	-	-	A	-
Dichloroacetic Acid	$Cl_2CHCOOH$	X	-	-	X	A	B	X	-	-	-	-	-	-	-	A	-
o-Dichlorobenzene	$C_6H_4Cl_2$	X	X	X	X	A	X	A	X	B	B	A	B	-	A/150%	A	-

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CHEMICAL	FORMULA	Elastomers							Metal				Plastic				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Dichlorobutane	$C_4H_8Cl_2$	X	-	-	-	A	-	A	X	B	B	-	-	-	-	A	-
Dichchloroethyl Ether	$[ClCH_2CH_2]_2O$	X	-	-	-	A	-	-	B	-	-	-	-	-	-	A	-
Dichloro Isopropyl Ether	$C_6H_{12}OCl_2$	X	X	-	X	A	X	X	-	-	-	-	X	-	-	A	-
Dichclohexylamine	$(C6H_{11})_2NH$	X	X	-	X	A	B	B	-	-	-	A	-	-	-	A	-
Diethanol Amine	$(HOCH_2CH_2)_2NH$	B	-	-	A	A	-	-	-	A	A	A	A	-	-	A	-
Diethyl Amine	$(CH_3CH_2)_2NH$	C	C	-	C	A	-	X	B	B	A	A	A	-	A	A	-
Diethyl Benzene	$C_6H_4(C2H_5)_2$	X	X	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Diethyl Carbonate	$(C_2H_5O)_2CO$	X	-	-	X	A	-	-	-	A	-	-	-	-	-	A	-
Diethyl Ether (Ether)	$(CH^3CH_2)_2O$	B	X	C	C	A	A	X	B	A	A	A	X	A	A	A	A
Diethyl Phthalate (DEP)	$C_6H_4(CO_2C_2H_5)_2$	X	-	-	-	-	-	C	A	A	A	A	-	-	-	-	-
Diethyl Sebecate	$C_{14}H_{26}0_4$	X	C	A	X	A	B	B	A	A	A	A	A/120⁰	-	A/120⁰	A	-
Diethylene Ether (Dioxane)	$C_4H_8O_2$	X	A	-	X	A	B	X	A	A	A	-	-	-	-	A	-
Diethylene Glycol (DEG)	$HOCH_2CH_2OCH_2$	A	A	A	A	A	A	A	A	A	A	A	A	-	-	A	-
Diethylene Triamine	$(NH_2C_2H_4)_2NH$	B	-	-	-	A	-	-	A	A	A	A	-	-	-	A	-
Dilsobutyl Ketone	$C_4H_9COC_4H_9$	X	B	-	X	A	-	X	A	A	A	A	B	-	-	A	-
Diisobutylene	$[HC=C(CH_2)_2]$	B	-	-	C	A	C	C	-	-	-	-	A	-	A	A	A
Diisodecyl Adipate (DIDA)	$C_{26}H_50O_4$	X	-	-	-	A	-	C	-	-	-	-	-	-	-	A	-
Diisodecyl Phthalate (DIDP)	$C_{28}H_{47}O_4$	X	A	-	X	A	-	C	-	-	-	-	-	-	-	A	-
Diisooctyl Adipate (DIOA)	$C_{22}H_{42}O_4$	X	-	-	-	A	-	C	A	A	A	A	-	-	-	A	-
Diisooctyl Phthalate (DIOP)	$C_{24}H_{39}O_4$	X	-	-	-	A	-	C	-	-	-	-	-	-	-	A	-

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Diisooctyl Sebecate (DIOS)	$C_{26}H_{46}O_4$	-	B	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Diisopropyl Amine	$[(CH_3)_2CH]_2NH$	B	-	-	-	A	-	-	-	-	-	-	-	-	-	A	-
Diisopropyl Benzene	$C_6H_4 * [CH(CH_3)_2]_2$	X	X	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Diisopropyl Ketone	$[(CH_3)_2CH]_2CO$	X	A	-	X	A	C	X	-	-	A	-	-	-	-	A	-
N, N-Dimethylaniline	$C_6H_5N(CH_3)_2$	X	C	-	X	A	B	X	B	B	-	-	X	-	A	A	A
Dimethyl Ether	CH_3OCH_3	A	-	-	B	A	-	A	B	B	B	B	-	-	-	A	-
N,N-Dimethyl Formamide (DMF)	$HCON(CH_3)_2$	C	B	C	X	A	A	X	A	-	A	A	A/120°	B	A/120°	A	A
Dimethyl Phthalate	$C_6H_4(CO_2CH_3)_2$	X	C	B	X	A	A	C	-	-	-	-	-	-	A/70°	A	A
Dimethyl Sulfate	$(CH_3)_2SO_4$	X	-	-	-	A	-	X	-	A	-	-	-	-	-	A	-
Dimethyl Sulfide	$(CH_3)_2S$	X	-	-	-	A	-	-	A	A	A	A	-	-	-	A	-
Dinitrotoluene (DNT)	$CH_3C_6H_3(NO_2)_2$	X	X	-	X	A	B	C	-	-	A	-	-	-	-	A	-
Dioctyl Phtahalate (DOP)	$C_{24}H_{38}O_4$	X	B	A	X	A	B	B	A	A	A	A	-	-	-	A	-
Dioctyl Sebecate	$C_{26}H_{50}O_4$	X	C	-	X	A	C	C	A	A	A	A	-	-	-	A	-
Dioxolanes (Dioxolans)	Glycol ethers	X	B	-	X	A	C	C	-	-	-	-	-	-	-	A	-
Dipentene (Limonene)	$C_{10}H_{16}$	C	X	-	X	A	C	A	A	A	A	A	-	-	-	A	-
Diphenyl Oxides (Phenyl Ether)	$C_6H_5OC_6H_5$	X	C	-	X	A	C	A	B	A	A	A	-	-	A	A	-
Dipropylamine	$(CH_3CH_2CH_2)_2$ NH	B	-	-	-	A	-	-	-	-	-	-	-	-	-	A	-
Dipropylene Glycol	$(C_3H_6OH)_2O$	A	-	-	-	A	A	A	-	-	-	-	A	-	A	A	-
Dipropyl Ketone (Butyrone)	$(C_3H_7)_2CO$	X	-	-	-	A	-	-	-	-	-	-	-	-	-	A	-
Divinyl Benzene (DVB)	$C_6H_4(CH=CH_2)_2$	X	-	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Dodecyl Benzene (Alkane)	$C_6H_5(CH_20_{11}CH3$	X	-	-	-	A	-	A	A	A	A	-	-	-	-	A	-

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Dow Corning (Silicones)	$[(CH_3)_2SiO]_2$	A	-	-	A	A	A	A	A	-	A	-	-	-	-	A	-
Dowtherm (Biphenyl & Phenyl Ether)	$(C_6H_5)_2$ AND $(C_6H_5)_2O$	X	X	-	X	A	X	A	A	B	A	A	-	-	-	A	-
Dry Cleaning Fluids	Chlorinated hydrocarbons	C	-	-	X	A	X	A	A	A	A	-	X	-	-	A	-
Dyes		-	-	-	C	-	B	A	B	-	A	-	-	-	-	A	-
Epichlorohydrin	C_3H_5ClO	X	B	X	X	A	B	X	A	A	A	A	A	A	X	A	A
Epsom Salts (Magnesium Sulfate)	$MgSO_4 * 7H_20$	A	A	-	A	A	A	A	A	-	A	B	A	-	A	A	-
Ethane	C_2H_6	A	X	-	C	A	C	A	A	A	A	A	C	A	-	A	-
Ethanolamine (Aminoethanol)	H_2NCH_2 CH_2OH	B	B	-	C	A	A	X	B	A	A	-	X	X	C	A	A
Ethyl Acetate	CH_3COOC H_2CH_3	X	B	C	X	A	A	X	A	A	A	A	C	A	A	A	-
Ethyl Acetoacetate (Acetoacetic Ester)	CH_3COCH_2 $COOCH_2CH_3$	X	C	-	X	A	C	X	A	A	A	A	-	-	A/70°	A	-
Ethyl Acrylate	CH_2CHCO CH_2CH_3	X	C	-	X	A	C	X	A	A	A	A	B	-	B/70°	A	-
Ethyl Aluminum Dichloride	$CH_3CH_2AlCl_2$	X	-	-	-	A	-	B	-	-	-	-	-	-	-	A	-
Ethyl Amine (Monoethylamine)	CH_3CH_2NH	X	A	-	C	A	-	X	B	B	A	-	-	-	-	A	-
Ethyl Benzene	$CH_3CH_2C_6H_5$	X	X	-	X	A	X	A	B	B	B	A	X	A	A	A	-
Ethyl Benzoate	$C_6H_5CO_2CH_2CH_3$	X	C	-	X	A	C	A	A	A	A	A	B	-	-	A	-
Ethyl Bromide (Bromoethane)	CH_3CH_2Br	X	B	-	B	A	X	-	X	A	A	-	-	-	-	A	-
Ethyl Butyl Acetate	$CH_3CO_2CH_2$ $CH(_2H_5)_2$	X	-	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Ethyl Butyl Ketone	$CH_3CH_2COC_4H_9$	X	-	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Ethyl Butyraldehyde	$C_6H_{12}O$	X	-	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Ethyl Butyrate	$CH_3CH_2CH_2$ $CO_2C_2H_5$	X	X	-	X	A	-	C	B	A	A	A	B	-	-	A	A

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Ethyl Caprylate	$CH_3(CH_2)_5\ CO_2C_2H_5$	X	X	-	X	A	-	-	-	-	-	-	-	-	-	A	-
Ethyl Cellosolve	$C_2H_5O(CH_2)_2OH$	C	B	-	C	A	B	X	-	-	-	-	-	-	-	A	-
Ethyl Cellulose (Ethocel)		B	B	B	B	A	A	C	B	A	B	B	C	-	-	A	B
Ethyl Chloride (Chloroethane)	C_2H_5Cl	A	A	X	C	A	X	A	X	B	A	B	X	A	A	A	A
Ethyl Chlorocarbonate (Ethyl Chloroformate)	$ClCO_2C_2H_5$	-	-	-	C	A	A	A	-	-	-	-	-	-	-	A	-
Ethyl Cyanide (Propionitrile)	C_2H_5CN	X	A	-	B	A	-	X	-	-	-	-	-	-	-	A	-
Ethyl Formate	$HCOOCH_2\ CH_3$	X	C	-	B	A	B	A	B	A	B	B	-	-	-	A	-
Ethylexyl Acetate	$CH_3CO_2CH_2\ CH(C_2H_5)C_4H_9$	X	-	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Ethylhexyl Alcohol (Ethylhexanol)	$C_8H_{17}OH$	A	-	-	-	A	-	B	A	A	A	A	-	-	-	A	-
Ethyl Iodide	CH_3CH_2I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-
Ethyl Isobutyrate	$(CH_3)_2$	X	X	-	X	A	-	-	-	-	-	-	-	-	-	A	-
Ethyl Mercaptan (Ethanethiol)	CH_3CH_2SH	X	X	-	C	A	C	B	B	A	B	B	-	-	-	A	-
Ethyl Oxalate	$C_2H_502C\ CO_2C_2H_5$	X	A	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Ethyl Pentachlorobenzene	$C_2H_5C_6Cl_5$	X	-	-	X	A	X	A	X	-	-	-	X	-	-	A	-
Ethyl Propionate	$CH_3CH_2\ COOCH_2CH_3$	X	X	-	X	A	-	-	A	A	A	A	-	-	-	A	-
Ethyl Silicate	$Si(OCH_2CH_3)_4$	A	A	-	A	A	B	A	B	A	A	A	-	-	-	A	-
Ethyl Sulfate	$C_2H_5OSO_2OH$	A	-	-	-	A	B	A	-	-	X	-	-	-	-	A	-
Ethylene (Ethene)	C_2H_4	B	C	-	A	A	C	A	A	A	A	-	-	-	-	A	-
Ethylene Chlorohydrin	$ClCH_2CH_2OH$	X	A	X	B	A	C	B	-	B	A	A	X	-	A/70°	A	-
Ethylene Diamine	$(CH_2)_2(NH_2)_2$	B	A	-	A	A	A	X	C	A	A	A	A	A	B	A	A

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Ethylene Dibromide (Ethylene Bromide)	$Br(CH_2)Br$	X	C	-	X	A	-	B	X	X	B	B	X	-	A	A	-
Ethylene Glycol (Ethylene Alcohol (Glycol)	$Cl(CH_2)2Cl$	A	A	A	A	A	A	A/70⁰	A	A	A	A	A/120⁰	A	A	A	A
Ethylene Glycol Monobutyl Ether (Butyl Cellosolve)	$C_4H_9OCH_2CH_2OH$	B	B	-	X	A	-	C	A	A	A	A	-	-	-	A	-
Ethylene Glycol Monobutyl Ether Acetate (Cellosolve Acetate)	$C_2H_50(CH_2)_2\ O_2CCH_3$	C	B	-	X	A	-	C	A	A	A	A	-	A	-	A	-
Ethylene Glycol Monomethyl Ether (Methyl Cellosolve)	$CH_3O(CH_2)_2OH$	C	B	-	C	A	-	X	B	B	A	A	-	-	-	A	-
Ethylene Oxide	$(CH_2)_2O$	X	X	A	X	A	A	C	A	B	A	A	C	-	A	A	X
Ethylene Trichloride (Triclorothene)	$ClCHCCl_2$	X	X	-	X	A	X	A	X	A	A	A	X	-	-	A	-
Ethylidene Chloride	CH_3CHCl_2	X	X	-	X	A	-	-	X	B	A	B	-	-	-	A	-
Fatty Acids	$C_8H_20+1COOH$	B	X	B	C	A	B	A	A/90⁰	X	A	A	B	A	A	A	-
Ferric Chloride	$FeCl_3$	A	A	B	A	A	A	A	X	X	X	A	A	A	A	A	A
Ferric Hydroxide	$FeHO_2$	B	A	-	-	A	-	C	-	-	A	B	-	A	-	A	-
Ferric Nitrate	$Fe(NO_3)_3$	A	A	-	A	A	A	A	X	X	B	A	A	A	A	A	A
Ferric Sulfate	$Fe_2(SO_4)_3$	A	A	-	A	A	A	A	C	X	B	A	A	A	A	A	A
Ferrous Chloride	$FeCl_2$	A	A	X	A	A	A	A	X	X	B/20%	B	A	A	A	A	A
Ferrous Sulfate	$FeSO_4$	A	A	A	A	A	A	A	A/10%	C	B	A	A	A	A	A	A

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Fluoboric Acid (Flouroboric Acid)	HBF_4	A	A	X	B	A	A	C	X	X	A/30%	-	A	A	A	A	A
Fluorine (Liquid)	F_2	X	C	X	C	A	X	B	A	-	A	-	X	A	A/70°	A	-
Fluorobenzene	FC_6H_5	X	X	-	X	A	C	A	-	-	-	-	X	A	-	A	-
Fluosilicic Acid (Sand Acid)	H_2SiF_6	B	B	-	A	A	A	A	X	X	A/212°	B	A	A	A	A	A
Formaldehyde (Formalin)	HCHO	B	A	C/40°	C	A	A	A	A	C	A/90%	A	A	A	A/120°	A	A
Formamide	$HCONH_2$	A	A	-	A	A	-	X	A	B	B	B	-	A	-	A	-
Formic Acid	HCOOH	C	B	C	B	A	A	C	X	X	C	A	A/70%	A	A	A	A
Freon 11 (Trichlorofluoromethane)	CCl_3F	C	X	A	C	A	C	B	B	A	A	-	B	A	A	A	A
Freon 12 (Dichlorofluoromethane)	Cl_2CF_4	B	B	B	B	A	X	B	A	A	A	-	-	A	A	A	-
Freon 13 (Chlororfluoromethane)	$ClCF_3$	A	A	C	A	A	X	A	A	A	A	A	-	A	-	A	-
Freon 13B1 (Bromotrifloromethane)	$BrCF_3$	A	A	-	A	A	-	A	-	-	-	-	-	A	-	A	-
Freon 14 (Tetrafluoromethane)	CF_4	X	B	-	X	A	-	-	-	-	-	-	-	A	-	A	-
Freon 21 (Dichlorofluoromethane)	$FCHCl_2$	X	X	-	B	A	X	X	A	-	-	-	-	A	A	A	-
Freon 22 (Chlorofluoromethane)	$HCClF_2$	X	C	X	B	A	X	X	A	A	A	A	-	A	A	A	-
Freon 113 (Trichlorotetrafluoroethane)	$Cl3CCF_3$	B	X	A/130°	A	A	X	B	B	-	A	-	-	A	A	A	-
Freon 114 (Dichlorotetrafluoroethane)	$C2Cl2F_4$	A	C	A	A	A	X	A	B	-	A	-	-	A	A	A	-

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Freon 114B2 (Dibromotetrafluoroethane)	$C_2Br_2F_4$	B	X	-	A	A	X	B	-	-	-	-	-	A	-	A	-
Freon 115 (Chloropentafluoroethane)	C_2ClF_5	A	A	-	A	A	X	B	A	-	-	-	-	A	-	A	-
Fruit Juices	Water, sucrose	A	A	B	A	A	A	A	A/10%	X	A	A	A	A	A	A	A
Fumaric Acid (Boletic Acid)	Hydrocarbons	C	-	-	B	A	A	A	-	-	-	-	-	A	-	A	-
Furan (Furfuran)	C_4H_40	X	X	X	X	A	B	C	-	-	-	-	C	A	X	A	A
Furfuryl Alcohol	$C_5H_60_2$	X	B	B	-	A	A	X	A	A	A	A	-	A	B/100^0	A	-
Gallic Acid	$C6H_2(OH)_3$ COOH	B	B	X	C	A	B	A	A/20%	X	B	B	A/70^0	A	A/70%	A	A
Gasoline (unleaded)	C_4 to C_{12} hydrocarbons	X	X	-	X	A	X	A	A	A	A	A	C	A	A	A	A
Gasoline (Petrol)	Hydrocarbons	A	X	A	C	A	X	A	A	A	A	A	C	A	A	A	A
Gelatin	Water solube proteins	A	A	B	A	A	A	B	A	A	A	-	A	B	A	A	-
Glauber's Salt (Sodium Sulfate Decahydrate)	Na_2so_4 * $10H_20$	A	B	B	A	A	-	A	-	-	-	-	-	-	-	A	-
Gluconic Acid	$C_6H_{12}O_7$	C	-	-	-	A	-	A	B	C	A/50%	A	-	-	-	A	-
Glucose (Corn Syrup)	$C_6H_{12}O_6$	A	A	B	A	A	A	A	A	A	A	-	A	A	A	A	-
Glue		A	B	B	A	A	A	A	A	A	B	A	A	B	-	A	-
Glycerol (Glycerine)	$C_3H_8O_3$	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	A
Glycolic Acid	$HOCH_2COOH$	A	A	-	A	-	A	A	-	-	-	A	A	-	A	A	A

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Glycols		A	A	A	A	A	A	A	A	B	A	B	A	A	A	A	A
Gold Monocyanide	AuCN	A	-	-	A	-	A	A	-	-	X	X	-	-	-	A	-
Grape Juice	Water, sucrose	C	-	-	X	A	A	A	-	X	A	-	A	-	A	A	-
Grease		A	-	A	X	A	B	A	A	-	A	-	-	-	-	A	-
Green Sulfate Liquor		B	A	X	B	A	A	A	B	C	A	B	A	-	-	A	-
Halowax	Chlorinated naphthalenes	X	X	X	-	-	X	A	X	-	-	-	-	-	-	-	-
Heptanal	$CH_3(CH_2)_5CHO$	A	-	-	-	-	-	A	A	A	A	A	A	C	-	A	A
Heptane	C_7H_{16}	A	X	-	C	A	X	A	A	A	A	A	C/140⁰	A	A	A	A
Hexanal	$CH_3(CH_2)_4CHO$	B	B	-	B	A	-	C	A	B	A	B	-	-	-	A	-
Hexalin (Cyclohexanol)	$C_6H_{11}OH$	B	C	-	A	A	-	A	-	-	-	-	-	-	-	A	-
n-Hexane	C_6H_{14}	A	X	A	B	A	B	A	A	A	A	A	C/140⁰	C	A	A	A
n-Hexane 1 (Hexylene)	$H_2CCH(CH_2)_2CH_3$	A	X	-	B	A	X	A	-	-	-	-	-	-	-	A	-
Hexylene Glycol (Brake fluid)	$C_6H_{12}(OH)_2$	A	C	-	A	A	-	A	A	A	A	A	-	-	-	A	-
Honey		-	-	-	A	A	A	-	A	A	A	-	A	-	-	A	-
Hydrazine (Diamine)	H_2NNH_2	C	A	X	C	A	A	X	A	X	A	A	X	B	X	A	-
Hydrobromic Acid	HBr	X	A	-	C	A	A	A	X	X	X	-	B	X	A	A	A
Hydrochloric Acid																	
10%	HCl	B	A	-	B	A	A	A	X	C	X	B	A	X	A	A	A
20%	HCl	C	A	X	B	A	A	A	X	C	X	A	A	X	A	A	A
37% (Conc.)	HCl	C	A	X	C	A	A	B	X	X	X	A	B	X	A	A	A

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Hydrocyanic Acid (Formonitrile)	HCN	B	A	X	C	A	A	A	A/10%	X	A	B	A	X	A	A	-
Hydrofluoric Acid (Conc.) Cold	HF 49%	X	B	X	X	A	X	B	X	X	X	B	X	X	A	A	A
Hydrogen Fluoride (Anhydrous)	HF	X	C	X	C	A	-	A	X	X	X	A	A	-	A	A	-
Hydrogen Peroxide																	
3%	H_2O_2	B	B	X	B	A	A	A	A	-	-	-	A	-	A/120°	A	X
10%	H_2O_2	C	B	X	C	A	A	A	A	B	A	A	A	-	A/120°	A	X
30%	H_2O_2	C	B	X	X	A	A	A	A	X	B	A	A	-	A/120°	A	X
90%	H_2O_2	X	C	X	B	A	X	A	A	X	A	-	-	-	A/120°	A	X
Hydrogen Sulfide (Wet)	H_2S	X	A	A	C	A	A	X	A/90%	X	A/167°	A	A	C	A	A	A
Hydroquinone	$C_6H_4(OH)_2$	C	-	-	X	A	A	C	A/90%	B	A/10%	B	-	-	A	A	-
Hydroxyacetic Acid - 10%	$HOCH_2COOH$	X	-	-	X	A	A	-	B	-	B	-	-	-	-	A	-
Hypochlorous Acid	HClO	X	B	-	X	A	A	A	X	X	X	A	A	-	A	A	-
Ink		A	-	-	A	A	A	A	C	X	A	A	B	-	A	A	-
Iodine	I_2	B	B	B	B	A	A	A	A	X	X	A	A	-	A/150%	A	X
Idoform	CHI_3	-	A	-	-	A	B	-	A	A	A	A	-	-	A	A	-
Isoamyl Acetate	$CH_3CO_2CH_2CH_2CH\ (CH_3)^2$	X	B	-	X	A	-	X	A	A	A	A	-	-	-	A	-
Isoamyl Butyrate	$C_9H_{18}O_2$	X	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Isoamyl Chloride	$(CH_3)_2\ CHCH_2CH_2Cl$	X	X	-	X	A	-	A	X	-	-	-	-	-	-	A	-
Isobutyl Acetate	$CH_3CO_2CH_2\ CH(CH)$	X	C	-	X	A	-	X	A	A	A	A	-	-	-	A	-
Isobutyl Amine	$(CH_3)_2\ CHCOOH$	X	-	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Isobutyl Chloride	$(CH_3)_2\ CHCH_2Cl$	X	-	-	-	A	-	B	X	B	B	B	-	-	-	A	-

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Isobutyric Acid	$(CH_3)_2$ CHCOOH	X	A	-	B	A	-	-	A	-	-	A	-	-	-	A	-
Isododecane	$(CH_3)_2$ $CH(CH_2)_8CH_3$	B	X	-	A	A	-	A	B	B	B	-	-	-	-	A	-
Isooctane (Trimethylpentane)	C_8H_{18}	A	X	A	B	A	C	A	A	A	A	A	A	-	A	A	A
Isopentane	$(CH_3)_2$ $CHCH_2CH_3$	A	-	-	-	A	-	A	-	-	-	A	-	-	-	A	-
Isophorone	$C_9H_{14}0$	X	C	-	X	A	B	X	A	A	A	-	-	-	-	A	-
Isopropyl Acetate	CH_3COOCH $(CH_3)_2$	X	B	-	X	A	B	X	A	A	A	A	B	-	-	A	-
Isopropyl Amine	$C_3H_7NH_2$	X	-	-	-	A	-	X	-	A	A	-	-	-	-	A	-
Isopropyl Chloride	$(CH_3)_2CHCl$	X	X	-	X	A	C	B	X	A	A	A	X	-	-	A	-
Isopropyl Ether	$(CH_3)_2CHOCH$	C	X	-	C	A	B	C	B	-	A	-	X	-	A/70%	A	-
Jet Fuels (JP1 to JP6) (ASTM-A, A1 & B)		A	X	X	C	A	X	A	A	A	A	A	X	A	A	A	A
Kerosine (Kerosene)	Hydrocarbons	A	X	A	C	A	X	A	A	A	A	A	X	A	A	A	A
Lacquers		X	X	X	X	A	C	X	A	B	A	A	-	B	-	A	-
Lacquer Solvents		X	X	C	X	A	C	X	A	B	A	A	C	B	X	A	-
Lactic Acid	CH_3CHOH COOH	B	A	X	B	A	A	A	A	X	A/70%	A	A	C	A	A	A
Lactol (Aliphatic Naptha Solvent)	CH_3CHOH CO_3C10H_7	C	-	-	X	A	-	A	A	A	A	A	-	-	-	A	-
Latex	Rubber emulsion	A	A	A	A	A	A	A	A	-	A	-	A	B	-	A	-
Lead Acetate (Sugar of Lead)	$Pb(CH_3CO_2)_2$	B	A	-	A	A	A	X	X	-	B	B	A	-	A	A	A
Lead Chloride	$PbCl_2$	-	-	-	B	A	-	-	X	-	B	B	A	-	A	A	-
Lead Nitrate	$Pb(NO_3)_2$	B	A	-	A	A	-	A	X	B	B	A	A	A	A	A	-
Lead Sulfamate		B	-	-	A	A	A	A	-	-	-	B	A	-	-	A	-

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Ligroin (Ligroine (Benzene)	Petroleum fraction	A	X	-	B	A	B	A	-	A	A	-	X	-	-	A	-
Lignin Liquor	Blend of natural aromatic oils	A	-	-	A	A	-	A	-	-	A	-	-	-	-	A	-
Lime Bleach		A	A	-	C	A	A	A	X	-	-	-	B	-	-	A	-
Lime Slurries		B	-	C	A	A	B	B	B	-	B	-	-	-	-	A	-
Lime, Soda (Slaked lime & soda ash)	CaO	B	A	-	B	A	A	B	-	-	-	-	-	-	-	A	-
Lime Sulfur	$CaS + CaSO_4$	A	A	-	A	A	B	A	X	-	A	-	A	-	-	A	-
Limonene	$C_{10}H_{16}$	C	X	-	X	A	-	A	-	-	-	-	-	-	-	A	-
Linoleic Acid	$C_{18}H_{32}0_2$	B	X	-	X	A	B	B	A	-	A	A	A	-	A	A	-
Lindol (Tritolyl Phosphate)	$C_{21}H_{21}O_4P_4$	X	-	-	C	A	A	B	-	-	-	-	-	-	-	A	-
Lithum Bromide	$LiBrH_20$	A	-	-	X	A	-	A	-	A	-		-	A	A	A	A
Lye (Potassium Hydroxide)	KOH	C	A	X	B	A	A	B	-	-	A	-	A	X	A/150°	A	A
Magnesium Carbonate	$MgCO_3$	A	C	A	A	A	A	A	A	B	B	B	A	A	A	A	-
Magnesium Chloride	$MgCO_2O$	A	A	A	A	A	A	A	A/20%	B/30%	B/40%	A	A	B	A	A	A
Magnesium Hydroxide (Milk of Magnesia)	$Mg(OH)_2$	B	A	C	B	A	A	A	A/10%	A	A	A	A	A	A	A	A
Magnesium Nitrate	$Mg(NO_3)_2 * 6H_20$	A	A	-	A	A	A	A	B/50%	B	A	B	A	-	A	A	A
Magnesium Oxide	MgO	A	-	-	A	A	A	B	A/10%	A	A	A	-	-	-	A	-
Magnesium Sulfate (Epsom Salts)	$MgSO_4 * 7H_2O$	A	A	B	A	A	A	A	A/70%	A	A/40%	A	A	A	A	A	A
Maleic Acid	$(CHCOOH)_2$	X	X	-	A	A	A	A	A/20%	B/60%	B	A	A	-	A	A	-
Maleix Anydride	$C_4H_2O_3$	-	X	-	-	A	-	A	A/20%	B	A	A	-	-	-	A	-
Malic Acid (Apple acid)	C_4H6O_5	B	X	-	C	A	A	A	B	-	A	B	-	-	-	A	-
Maple Sugar Liquors (Sucrose)	Water, sucrose	A	A	-	A	A	B	A	-	-	A	-	-	-	-	A	-

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Mayonnaise	Water, fats, oils	A	-	-	A	A	A	-	X	X	A	A	A	-	-	A	-
Mercuric Chloride	$HgCl_2$	A	A	-	B	A	A	A	X	X	X	B	A	B	A	A	-
Mercuric Cyanide	$Hg(CN)_2$	B	A	-	B	A	A	A	X	B	B	B	A	-	A	A	-
Mercurous Nitrate	$Hg_2(NO_3)_2 * 2H_2O$	B	A	-	B	A	-	A	X	B	B/212^0	B	A	-	A	A	-
Mercury	Hg	A	A	A	A	A	A	A	X	A	A	A	A	C	A	A	-
Mesityl Oxide	$(CH_3)_2c = CHCOCH_3$	X	B	-	X	A	C	X	A	A	A	A	-	-	-	A	-
Methane	CH_4	A	X	B	B	A	X	A	A	A	A	A	B	A	A	A	-
Methyl Acetate		X	C	C	C	A	B	X	A	A	A	A	C	B	-	A	-
Methyl Acetoacetate	CH_3COCH_2 $COOCH_3$	X	-	-	-	A	-	X	-	A	A	A	-	-	-	A	-
Methyl Acrylate	$CH_2CHCO_2CH_3$	-	C	-	C	A	B	X	-	A	A	-	-	-	A/70^0	A	-
Methyl Acrylic Acid (Crotonic Acid)	$CH_3(CH)_2COOH$	-	C	-	C	A	-	X	-	-	-	-	-		-	A	-
Methyl Amine (Monomethylamine)	CH_3NH_2	B	A	-	A	A	B	A/90%	B	B	A	B	X	-	C	A	-
Methyl Amyl Acetate	$C_8H_{16}O_2$	A	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Methyl Aniline	$C_6H_5NH(CH_3)$	A	A	-	A	A	-	-	-	-	-	-	-	-	-	A	-
Methyl Bromide (Bromo Methane)	CH_3Br	C	A	X	X	A	X	A	X	A	A	B	X	-	A	A	-
Methyl Butyl Ketone (2-hexanone)	$CH_3COC_4H_9$	X	B	-	X	A	C	X	-	-	A	-	X	-	-	A	-
Methyl Butyrate	$CH_3(CH_2)_2$ CO_2CH_3	X	X	-	X	A	-	-	A	A	A	A	-	-	-	A	-
Methyl Cellosolve	CH_3OCH_2 CH_2O	X	-	-	X	A	A/70^0	X	A	-	-	-	A	-	A	A	-
Methyl Chloride	CH_3Cl	X	C	X	X	A	X	B	X	A	A	A	X	B	A	A	A
Methyl Cyclopentane	C_6H1_2	B	X	-	X	A	C	A	-	-	A	-	-	-	-	A	-
Methyl Dichloride	CH_2Cl_2	X	-	-	X	-	X	A	X	-	-	-	X	-	-	A	-

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Methyl Ethyl Ketone (Butanone)	$CH_3C0 * CH_2CH_3$	X	A	C	X	A	A	X	A	A	A	A	X	B	X	A	A
Methyl Formate	$HCOOCH_3$	X	C	-	B	A	B	X	A	A	A	-	-	-	-	A	-
Methyl Hexane	C_7H_{16}	A	X	-	A	A	-	A	-	-	-	-	-	-	-	A	-
Methyl Iodide	CH_3I	X	A	-	X	A	A/70%	-	X	A	A	A	-	-	-	A	-
Methyl Isobutyl Ketone (Hexone)	$CH_3COCH_2CH\ (CH3)_2$	X	B	X	X	A	C	X	A	B	B	A	C/70%	A	A/70%	A	A
Methyl Isopropyl Ketone	$CH_3COCH(CH_3)_2$	X	C	X	X	A	C	X	-	-	A	-	C	-	A/70%	A	-
Methyl Methacrylate	$CH_2C(CH_3)\ CO_2CH_3$	X	X	-	X	A	B	C	B	-	A	-	A	-	A/70%	A	-
Methyl Oleate	C19H36O2	X	C	-	X	A	C	B	-	-	-	-	-	-	-	A	-
Methyl Propyl Ketone	$CH_3CH_2\ CH_2COCH_3$	X	B	-	X	A	-	X	-	-	-	-	-	-	-	A	-
Methyacrylic Acid	$CH_3CHCHCO_2H$	-	-	-	B	A	A	B	-	-	-	-	-	-	-	A	-
Methylamine	CH_3NH_2	B	A	-	A	A	A	A/90%	B	B	A	B	A	-	-	A	-
Methyl Bromide	CH_2Br_2	X	-	-	X	A	-	B	X	A	A	A	-	-	A	A	-
Methylene Chloride	CH_2Cl_2	X	X	X	X	A	X	B	X	B	A/90%	A	X	-	B/100°	A	A
Milk		B	A	B	A	A	A	A	A	X	A	A	A	A	A	A	-
Mine Water		A	-	-	-	A	B	-	B	-	B	A	-	-	-	A	-
Mixed Acids (Sulfuric & Nitric)	H_2SO_4, HNO_3	X	B	-	X	A	-	A	X	X	B	B	X	A	A	A	-
Molasses		A	A	B	A	A	A	A	A	A	A	A	A	-	A	A	A
Monochlorobenzene	C_6H_5Cl	X	-	C	X	A	X	A	X	A	A	-	X	B	A/100%	A	A
N-Methyl Aniline	$C_6H_5NHCH_3$	X	-	-	X	A	-	C	-	-	-	-	C	A	-	A	-
Monoethanolamine	$NH_2C_2H_4OH$	B	-	-	C	A	A	C	B	A	A	-	X	-	X	A	A
Monomethylether		A	-	-	B	A	-	A	-	-	-	A	-	X	-	A	-

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Monovinyl Acetylene		A	-	-	B	A	-	A	-	-	-		-	-	-	A	-
Mustard		C	-	B	A	A	A	X	B	X	A	A	A	A	-	A	-
Naptha (Petroleum spirits) (Thinner)	Petroleum fractions	A	X	A	X	A	X	A	A	B	A	A	X	A	A	A	A
Naphtha Coal Tar (Benzol)	Hydrocarbons	X	X	-	X	A	-	A	A	B	A	A	-	-	-	A	-
Naphthalene (Tar Camphor)	$C_{10}H_8$	X	X	C	X	A	C	A	B	A	A	A	A	A	A	A	A
Naphthoic Acid	$C_{11}H_8O_2$	B	X	-	-	A	-	A	B	B	A	B	-	-	-	A	-
Neohexane (2, 2-dimethylbuane)	C_6H_{14}	A	-	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Neosol		A	B	-	A	A	-	C	B	B	A	A	-	-	-	A	-
Neville Acid		C	C	-	C	A	A	B	-	-	-	-	-	-	-	A	-
Nickel Acetate	$Ni(CH_3CO_2)_2$	B	A	-	B	A	A	X	B/10%	-	A	-	A	-	A	A	-
Nickel Chloride	$NiCl_2$	A	A	X	A	A	A	A	X	X	B	A	A	B	A	A	A
Nickel Nitrate	$Ni(NO_3)_2 * 6H_20$	A	A	-	A	A	-	A	X	-	A	B	A	-	A	A	A
Nickel Sulfate	$NiSO_4$	A	A	-	A	A	A	A	X	X	A/40%	B	A	A	A	A	A
Nitrana (Ammonia Fertilizer)		B	-	-	B	A	-	C	-	-	A	-	-	-	-	A	-
Nitric Acid																	
10%	HNO_3	X	B	C	B	A	A	A	A	X	A	A	A	-	A	A	X
25%	HNO_3	X	B	X	C	A	B	A	X	X	A	A	A	-	A	A	X
35%	HNO_3	X	C	X	X	A	B	A	X	X	A	A	B	-	A	A	X
50%	HNO_3	X	X	X	X	A	X	A	X	X	A	X	C	-	A	A	X
70%	HNO_3	X	X	X	X	A	X	A	-	X	A	X	X	-	A	A	X
Concentrated	HNO_3	X	X	X	X	A	X	B	A	X	A	A	X	-	A/120°	A	X
Red Fuming		X	X	X	X	A	X	B	A	X	A	B	X	-	C	A	-
Nitrobenzene	$C_6H_5NO_2$	X	X	X	X	A	A	B	A	A	A	B	B	B	A/70°	A	-

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		Elastomers							Metal				Plastic				
CHEMICAL	**FORMULA**	BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Nitroethane	$C_2H_5NO_2$	X	C	-	C	A	A	X	A	A	A	A	C	-	A/70%	A	-
Nitrogen Tetroxide	N_2O_4	X	X	B/50%	X	A	-	C	A	B	A	A	X	-	C	A	-
Nitromethane	CH_3N0_2	X	C	X	C	A	A	X	A	A	A	A	C	-	A/120°	A	A
1-Nitropropane	$CH_3(CJ_2)_2NO_2$	X	A	-	C	A	-	X	A	A	A	A	-	-	-	A	-
Octadecane	$CH_3(CH_2)_{16}CH_3$	A	X	-	B	A	B	A	-	-	-	-	-	-	-	A	-
n-Octane	C_8H_{18}	A	X	-	-	A	B/70%	A	-	-	-	-	X	-	A	A	-
Octyl Acetate	$CH_3COO\ (CH_2)^7CH_3$	X	-	-	-	A	-	X	A	-	A	-	-	-	-	A	-
Octachlorotoulene	C_7Cl_8	X	-	-	X	A	-	A	X	-	-	A	X	-	-	A	-
Oils (A thru D)																	
Almond Oil (artificial)		X	B	-	X	A	-	X	-	-	-	-	-	-	-	A	-
Amyl Acetate (Banana Oil)		X	A	C	X	A	B	X	A	B	A	B	B	X	A/120°	A	A
Animal Fats & Oil		A	B	B	C	A	-	A	A	X	A	A	-	-	A	A	-
Bunker Oil (fuel #5, #6, #7		A	X	-	B	A	B	A	A	A	A	A	-	-	-	A	-
Castor Oil		A	B	B	A	A	B	A	A	B	A	A	-	-	-	A	-
Cinnamon Oil		-	-	-	C	A	C	-	-	X	A	-	-	-	-	A	-
Citric Oils		C	B	-	X	A	C	A	-	X	A	-	A	-	-	A	-
Clove Oil (eugenol)		-	-	-	C	A	C	-	-	X	A	-	-	-	-	A	-
Coconut Oil (Coconut Butter)		B	A	-	B	A	B	A	B	A	A	-	-	-	-	A	-
Cod Liver Oil (Fish Oil)		B	A	-	B	A	B	A	A	X	A	-	-	-	-	A	-
Corn Oil (Maize Oil)		A	C	A	C	A	C	A	B	C	B	-	A	-	A	A	-
Cotton Seed Oil		A	A	A	C	A	B	A	A	C	A	-	A	B	A	A	A
Creosote, Coal-Tar (Tar Oil)		A	X	X	C	A	B	A	B	B	B	B	X	X	-	A	-
Cutting Oil (water soluble)		C	-	-	X	A	-	A	A	A	A	A	-	-	-	A	-
Cutting Oil (Sulfur Base)		A	-	-	C	A	-	-	A	A	A	A	-	-	-	A	-
Diesel Oil (Fuel ASTM #2)		A	X	A	C	A	C	A	A	A	A	A	B	-	A	A	-
Diester Synthetic Oils		B	X	-	X	A	-	A	A	A	A	A	-	-	-	A	-
Dispersing Oil #10		X	X	-	X	A	-	C	A	A	A	A	-	-	-	A	-

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Oils (E thru H)																	
Ethylene Dichloride (Dutch Oil)		X	X	X	X	A	X	B	X	B	B	B	X	B	A	A	A
Fish Oil		A	-	-	-	A	B	A	-	-	-	A	-	B	-	A	A
Fluorolube (Flourocarbon Oils)		C	A	-	A	A	X	B	A	A	A	A	X	-	-	A	-
Fuel Oils (ASTM #1 thru #9)		A	X	B	C	A	C	A	A	A	A	A	C	C	A	A	A
Furfual (Ant Oil)		X	B	-	B	A	C	C	A	B	A/20%	B	X	B	B/120°	A	A
Fusel Oil (Grain Oil)		A	A	-	A	A	-	A	-	-	-	-	-	-	-	A	-
Ginger Oil		-	-	-	A	A	C	A	-	X	A	-	-	-	-	A	-
Grapefruit Oil		X	-	-	X	A	-	-	-	X	A	-	-	-	-	A	-
Halowax Oil		X	X	-	X	A	X	A	X	-	-	-	-	-	-	A	-
Hydraulic Oil (Petroleum Base)		A	X	X	B	A	X	A	A	A	A	A	X	C	-	A	-
Oils (L thru N)																	
Lard (lard Oil)		A	X	B	C	A	B	A	A	A	B	A	A	B	A	A	A
Lavender Oil		B	X	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Lemon Oil (Cedro Oil)		-	-	-	C	A	C	A	A	-	A	-	-	-	-	A	-
Linseed Oil (Flaxseed Oil)		A	C	B	A	A	B	A	A	A	A	A	A	A	A	A	A
Lubricating Oils (petroleum)		A	X	A	B/150°	A	-	A	A	A	A	A	A	A	A	A	A
Methyl Salicylate (Betula Oil)		X	C	-	X	A	B	B	A	A	-	-	-	-	-	A	-
Mineral Oil (petroleum)		A	X	A	B	A	C	A	A	A	A	A	B	A	A	A	A
Neatsfoot Oil		A	C	-	-	A	B	A	-	-	A	-	-	-	-	A	-
Oils (O thru Q)																	
Oleic Acid (Red Oil)		C	C	A	X	A	-	B	A	C	B	A	B	B	A	A	A
Olive Oil		A	C	-	C	A	B	A	A	A	A	A	A	A	A	A	A
Palm Oil		A	-	-	C	A	B	A	-	A	A	A	-	-	-	A	-
Peanut Oil		A	X	-	B	A	B	A	-	A	A	A	A/70°	-	A	A	-
Peppermint Oil		X	-	-	X	A	C	A	-	-	A	-	-	-	-	A	-
Petroleum (Crude Oil) (Sour)		B	X	C	C	A	X	A	B	B	A	A	X	A	A	A	-
Oils (R thru S)																	
Rape-Seed Oil (Colza Oil)		B	A	-	C	A	B	A	-	A	A	A	-	-	-	A	-
Rose Oil		-	-	-	C	A	A	A	-	-	A	-	-	-	-	A	-
Rosin Oil (Rosinol)		A	-	-	A	A	-	A	-	-	-	-	-	-	-	A	-

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Oils (R thru S) continued																	
Sesame Seed Oil		A	-	-	C	A	B	A	-	A	A	-	-	-	-	A	-
Silicone Oils (Versilube, etc.)		A	A	A	C	A	C	A	B	B	A	A	A	-	A	A	A
Soybean Oil		A	C	A	A	A	B	A	A	A	A	A	B	B	-	A	A
Sperm Oil (Whale Oil)		A	-	-	X	A	B	A	-	A	A	A	-	-	-	A	-
Oils (T thru Z)																	
Transformer Oil (Petroleum)		B	X	-	C	A	X	A	A	A	A	A	B	C	-	A	-
Tung Oil (Wood Oil)		A	X	B	C	A	B	A	A	-	A	A	A	-	-	A	-
Vegetable Oils		B	A	A	C	A	A	A	A	B	A	A	X	-	-	A	A
Walnut Oil		A	-	-	B	A	-	A	-	-	-	-	-	-	-	A	-
White Oil (Mineral) (Petroleum)		A	X	-	C	A	C	A	-	-	A	A	-	-	-	A	-
Oleum (Fuming sulfuric acid)	H_2SO_4/SO_3	C	-	X	X	A	X	A	X	X	A	-	X	-	X	A	-
Olein (Triolene)	$C_{57}H10_4O_6$	B	-	-	C	A	X	-	-	-	-	-	-	-	-	A	-
0-Dicholobenzene	$C_6H_4Cl_2$	X	-	-	X	A	X	A	X	A	A	-	X	-	-	A	-
Oxalic Acid	$(COOH)_2$	C	A	X	B	A	A	C	B	X	B/90%	B	A	B	A/120^0	A	A
Ozone	O_3	X	A	C	B	A	X	A	A/10%	A/10%	A	A	X	A	A	A	-
Paints & Solvents		X	-	-	X	A	-	-	A	-	A	A	-	A	-	A	-
Paint Thinner, DUCO	Hydrocarbons	A	X	-	C	A	C	B	A	-	A	A	X	A	-	A	-
Palmitic Acid	$CH_3(CH_2)_4$ COOH	B	B	A	C	A	A	B	B	B	A	-	A	-	A	A	-
Paraffins (Paraffin Oil)	Hydrocarbons	A	-	-	-	A	A	-	A	-	A	A	A	A	-	A	-
Paraformaldehyde	$(CH_20)_8$	B	-	-	B	A	-	C	A/10%	A	A	A	-	A	-	A	-
Paraldehyde	$C_6H_{12}O_3$	C	A	-	B	A	-	X	A	A	A	A	-	A	-	A	-
Pentachlorethane (Pentalin)	Cl_2 $CHCCl_3$	X	-	-	X	A	-	A	X	A	A	A	-	A	-	A	-
Pentachlorophenol (PCP)	C_6Cl_5OH	X	X	-	X	A	-	A	A	A	A	A	-	A	-	A	-
Pentane (Amyl Hydride)	C_5H1_2	A	X	B	B	A	B	A	A	B	B	A	-	-	-	A	-

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Perchloric Acid	$HClO_4$	X	B	X	B	A/70%	X	A	X	X	B	-	-	C	A	A	A
Perchloroethylene (Tetrachloroethylene)	C_2Cl_4	X	X	X	X	A	X	A	X	B	A/90%	B	X	A	A	A	A
Phenethyl Alcohol (Benzyl Carbinol)	$C_6H_5(CH_2)OH$	X	B	-	X	A	-	X	A	A	A	A	-	-	-	A	-
Phenol (Carbolic Acid)	C_6H_5OH	X	C	X	C	A	C	A	B	A	B	A	C	X	A/100%	A	A
Phenol Sulfonic Acid	$C_6H_4(OH)SO_3H$	X	-	-	-	A	-	X	B	B	B	-	-	-	-	A	-
Phenyl Acetate	$CH_3COOC_6H_5$	X	B	-	X	A	-	X	-	-	-	-	-	-	-	A	-
Phenylbenzene	C_6H_5	X	-	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Phenyl Ethyl Ether (Phenetole)	$C_6H_5OC_2H_5$	X	X	-	X	A	C	C	-	-	-	-	-	-	-	A	-
Phenyl Hydrazine	$C_6H_5NHNH_2$	X	X	-	X	A	B	A	A	X	-	-	X	-	A/120°	A	-
Phorone (Diisopropylidene Acetone)	$C_9H_{14}O$	X	C	-	X	A	B	A	-	-	-	-	-	-	-	A	-
Phosphoric Acid																	
10%	H_3PO_4	A	A	-	B	A	A	A	X	X	A	-	A/120°	-	A	A	A
20%	H_3PO_4	C	A	-	B	A	A	A	X	X	A/212°	A	A/120°	-	A	A	A
50%	H_3PO_4	X	A	-	B	A	A	A	X	X	A	C	A/120°	-	A	A	A
Concentrated	H_3PO_4	X	B	X	B	A	C	A	X	X	A/212°	-	A/120°	-	A	A	A
Phosphorus Oxychloride	$POCl_3$	-	-	-	X	A	-	-	B	B	B	B	-	-	-	A	-
Phosphorus Trichloride	PCl_3	X	A	-	X	A	A	A	C	B	A	A	X	-	A	A	A
Photographic Developer		A	-	X	A	-	A	A	C	X	A	A	A	C	A	A	A
Pickling Solution		-	X	X	X	A	A	B	-	-	-	A	-	-	-	A	-
Picric Acid (Carbazotic Acid)	$(NO_2)_3\ C_6H_2OH$	B	B	X	B	A	X	A	A	C	A	B	B	-	A	A	-
Pinene	$C_{10}H_{16}$	B	X	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Piperidine	$C_5H_{11}N$	X	X	-	X	A	B	X	-	-	-	-	-	-	-	A	-

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Plating Solution																	
Cadmium		B	-	-	B	A	A	-	-	-	A	-	X	-	B	A	-
Chrome		X	C	-	X	A	A	A	-	-	-	-	X	X	B	A	X
Lead		B	-	-	B	A	A	-	-	-	-	-	A	A	B	A	X
Others		A	A	-	C	A	A	B	-	-	A	-	-	-	-	A	-
Polyvinyl Acetate Emulsion	$PVac = H_20$	-	A	-	C	A	A	-	-	B	B	-	A	-	A	A	-
Potassium Acetate	CH_3CO_2K	B	A	-	B	A	A	X	B/10%	A	B	-	A	-	A	A	-
Potassium Bicarbonate	$KHCO_3$	A	-	-	A	A	A	A	B	B/40%	A/30%	B	A	-	A	A	A
Potassium Bisulfate	$KHSO_4$	A	-	-	A	A	-	A	A/10%	X	A/10%	B	A	-	A	A	-
Potassium Bisulfite	$KHSO_3$	A	-	-	A	A	-	A	B/10%	-	B/10%	-	-	-	-	A	-
Potassium Bromide	KBr	A	A	-	A	A	A	A	A	B/80% 212°	B/90% 212°	A	A	-	A	A	A
Potassium Carbonate (Potash)	K2CO3	A	A	-	A	A	A	A	X	B	B	A	A	B	A	A	A
Potassium Chlorate	$KClO_3$	A	A	-	A	A	A	A	X	B	A/60%	A	A	B	A	A	A
Potassium Chloride	KCl	A	A	-	A	A	A	A	X	B	A	A	A	B	A	A	A
Potassium Chromate	K_2CrO_4	A	-	-	A	A/40%	A	A	A	A	A	-	A	-	A	A	-
Potassium Copper Cyanide	$K_3[Cu(CN)_4]$	A	A	-	A	A	-	A	-	-	-	-	A	-	-	A	-
Potassium Cyanide	KCN	A	A	-	A	A	A	A	C	B	B/90% 212°	B	A	C	A	A	A
Potassium Dichromate	K_2Cr_2O	A	A	-	A	A	A	A	A	A	A	B	A	C	A	A	A
Potassium Hydroxide (Caustic Potash) (Lye)	KOH	B	A	X	B	A	A	B	X	B	A	B	A	C	A/150°	A	A
Potassium Iodide	KI	A	A	-	A	A	A	A	B/10%	-	B	B	A	-	A	A	-
Potassium Nitrate (Saltpeter)	KNO_3	A	A	-	A	A	A	A	A/80%	B	B/80% 212°	B	A	B	A	A	A

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Potassium Nitrite	KNO_2	A	A	B	A	A	A	A	B	B	B	B	A/70°	-	-	A	-
Potassium Permanganate (Purple Salt)	$KMnO_4$	C	A	X	C	A	A	B	A/10%	B	B/30% 212°	A	B	A	A	A	A
Potassium Phosphate	KH_2PO_4	A	A	-	A	A	-	A	X	X	B/30%	B	-	-	-	A	-
Potassium Silicate	K_2Sii2O_5	A	A	-	A	A	-	A	B	B	B	B	-	-	-	A	-
Potassium Sulfate	K_2SO_4	A	A	B	A	A	A	A	B	B	A	A	A	B	A	A	A
Potassium Sulfide	K_2S	A	A	-	A	A	-	A	X	B	B	B	A	-	A	A	A
Potassium Sulfite	$K_2SO_32H_2O$	A	A	-	A	A	-	A	A	X	B/50%	-	A	-	A	A	-
Propane (LPG)	C_3H_8	A	X	B	B	A	X	A	A	A	A	A	X	A	A	A	-
Propionaldehyde (Propanal)	C_2H_5CHO	X	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Propionic Acid (Methylacetic Acid)	$CH_3CH_2CO_2H$	X	A	-	X	A	A	X	A	X	B	A	B	-	-	A	-
n-Proply Acetate	$CH_3COO\ (CH_2)_2CH_3$	X	A	-	X	A	B	X	A	-	A	A	C	-	A	A	-
Propyl Alcohol (1-Propanol)	$CH_3CH_2CH_2OH$	B	A	-	B	A	A	A	A	A	A	A	A	A	A	A	A
n-Propyl Nitrate (NPN)	$CH_3(CH_2)2NO_3$	A	B	-	-	A	B	C	A	X	-	-	-	-	-	A	-
Propylene	C_3H_6	X	X	-	X	A	B	A	A	A	A	A	-	-	-	A	-
Propylene Dichloride	$CH_3CH(Cl)CH_2Cl$	X	X	-	X	A	-	B	X	A	A	B	-	-	-	A	-
Propylene Glycol (Methyl Glycol)	$C_3H_6(OH)_2$	A	A	A	C	A	A	A	A	A	A	A	A	A	A	A	A
Propylene Oxide	C_3H_6O	-	C	-	X	A	A	X	B	B	A	-	X	-	X	A	-
Pydraul (Phosphate Ester Base Fluid)		X	B	A	X	A	B	A	-	A	A	A	-	-	-	A	-
Pyranol		A	-	-	X	A	-	A	-	-	-	-	-	-	-	A	-
Pyridine	$N(CH)_4CH$	X	C	X	X	A	A	X	A	B	A	A	C	X	X	A	A

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CHEMICAL	FORMULA	Elastomers							Metal				Plastic				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Pyroligneous Acid (Wood Vinegar)		C	C	-	C	A	-	A	B	X	A/10%	-	A	-	A	A	-
Pyrrole (Azole)		X	X	-	X	A	C	C	-	-	-	-	-	-	-	A	-
Quaternary Ammonium Salts		A	-	-	A	A	-	A	-	X	A	-	-	-	-	A	-
Rosin	$C_{20}H30_2$	A	-	-	C	A	A	-	A	-	A	A	A	-	-	A	-
Rotenone	$C_{23}H_{22}0$	A	A	-	A	A	-	A	-	-	-	-	-	-	-	A	-
Rubber Latex Emulsions	$(C_5H_8)n/H_20$	-	-	-	-	A	-	A	A	-	A	A	-	-	-	A	-
Rubber Solvents (Petroleum Distillate)	Hydrocarbons	X	-	-	C	A	-	X	A	-	A	A	-	-	-	A	-
Rum	Alcoholic liquor from molasses	A	A	-	A	A	A	B	-	-	A	A	-	-	-	A	-
Rust Inhibitors		A	-	-	C	-	B	A	-	-	A	-	A	-	-	A	-
Salad Dressing	Fats, oils, water	A	-	-	-	-	A	A	B	X	A	-	A	-	-	A	-
Sal Ammonian (Ammonium Chloride)	NH_4Cl	A	-	A	A	A	A	A	X	X	A	A	-	X	-	A	A
Sal Soda (Sodium Carbonate)	$NaCO_3$	A	A	-	A	A	B	A	X	A	A	A	-	-	-	A	-
Salicyclic Acid	$HOC_6\ H_4COOH$	B	A	-	B	A	-	B	A	X	B	A	A	-	A	A	-
Salt Water (Brine)	$NaCl/H_20$	A	A	A	B	A	A	A	B	X	A	A	A	-	A	A	-
Sea Water	(Brine)	A	A	A	B	A	A	A	A	C	A	A	A	A	A	A	A
Sewage		A	C	B	B	A	A	A	B	B	A	A	A	-	A	A	-
Silicate Esters	$Si(OR)_4$	B	X	C	A	A	B	A	-	-	-	-	-	-	-	A	-
Silver Cyanide	AgCN	-	-	-	A	A	-	-	X	A	A	A	A	-	A	A	-
Silver Nitrate	$AgNO_3$	B	A	-	A	A	A	A	X	X	A/60%	A	A	A	A	A	A
Skydrol Hydraulic Fluid (Phosphate Ester Base)		X	A	A	X	A	A	C	A	A	A	A	-	-	-	A	-

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Soap Solutions	Salt of fatty acid in H_2O	A	A	A	B	A	A	A	C	X	A	A	A	A	A	A	A
Soda Ash (Sodium Carbonate)	Na_2CO_3	A	A	B	A	A	A	A	X	A	A	A	-	-	-	A	-
Sodium Acetate	CH_3COONa	C	A	-	C	A	A	X	A	A	A	A	A	A	A	A	A
Sodium Aluminate	$Na_2AL_2O_4$	A	-	-	A	A	A	A	-	A/40%	A/40%	B	A	-	A	A	-
Sodium Bicarbonate (Baking Soda)	$NaHCO_3$	A	A	B	A	A	A	A	B	C	A/20%	A	A	X	A	A	A
Sodium Bisulfite (Niter Cake)	$NaHSO_4$	A	A	B	A	A	A	A	B/50%	C	B/50%	B	A	C	A	A	A
Sodium Bisulfate	NaHSO3	C	A	B	A	A	A	A	B	B/20%	A/50%	B	A	X	A	A	-
Sodium Borate	$Na_2B_4O_7$	A	A	B	A	A	A	A	B	-	A	A	A/140%	C	A	A	A
Sodium Bromide	NaBr	-	-	-	-	A	-	-	C	C	B/30%	B	A	-	A	A	-
Sodium Chlorate	$NaClO_3$	A	A	-	B	A	A	A	B/70% 212⁰	B	B	B	A	B	A	A	A
Sodium Chloride (Table Salt)	NaCl	A	A	A	A	A	A	A	B	B/30%	A	A	A	A	A	A	A
Sodium Chromate	Na_2CrO_4	A	-	A	A	A	A	A	A/80% 212⁰	A/60%	A/60%	A	A	-	A	A	-
Sodium Cyanide	NaCN	A	A	A	A	A	A	A	X	A	A	-	A	C	A	A	A
Sodium Dichromate (Sodium Bichromate)	$Na_2Cr_2O_7 * 2H_2O$	-	A	X	B	A	-	A	-	-	-	-	A	-	A	A	A
Sodium Fluoride	NaF	A	A	-	A	A	-	A	B/30%	-	B/10%	B	A	-	A	A	-
Sodium Hexametaphosphate (Calgon)	$(NaPO_3)$	B	B	-	B	A	-	A	C	B	B	A	A	-	A	A	-
Sodium Hydroxide (Caustic Soda) (Lye)	NaOH	B	A	X	B	A	A	X	X	B/50%	A/50%	B	A	X	A	A	X
Sodium Hypochlorite	NaClO	X	B	X	B	A	A	B	X	X	X	B	X	X	A	A	X

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Sodium Metaphosphate (Kurrol's Salt)	$Na(PO_3)H$	B	A	-	C	A	A	A	X	-	B	A	A/70%	B	-	A	-
Sodium Metasilicate	Na_2SiO_3	A	A	-	A	-	A	A	B	-	A	A	A	B	A	A	-
Sodium Nitrate (Chile Saltpeter)	$NaNO_3$	C	A	B	B	A	A	A	A/90%	A/90%	A/90%	A	A	A	A	A	A
Sodium Nitrite	$NaN0_2$	A	-	-	X	A	-	A	A	A	A	A	A	-	A	A	-
Sodium Perborate	$NaBO_3$	C	A	B	B	A	A	A	X	B/10%	A	B	A	B	A	A	-
Sodium Peroxide (Sodium Dioxide)	Na_2O_2	B	B	B	B	A	B	A	B/10%	A/90%	B/10%	B	B	X	A	A	-
Sodium Phosphate (Tribasic (TSP)	Na_3PO_4	B	A	B	B	A	A	A	X	B/167%	B	A	A	-	A	A	-
Sodium Silicates (Water Glass)	$Na_2O * SiO_2$	A	A	A	A	A	A	A	A	A	A	B	A	-	A	A	A
Sodium Sulfate (Salt Cake) (Thenardite)	Na_3SO_4	A	A	A	B	A	A	A	B/30%	B	A	A	A	-	A	A	A
Sodium Sulfide (Pentahydrate)	$Na_2S * {}_5H_2O$	A	A	A	A	A	A	A	A/30% 212°	B	A/30% 167°	B	A	A	A	A	A
Sodium Sulfite	Na_2SO_3	A	A	A	A	A	-	A	A/30%	X	A/30%	B	A	A	A	A	A
Sodium Tetraborate	$Na_2B_4O_7\ {}_{10}H_2O$	A	-	B	-	A	A	A	-	-	A	-	C	-	A	A	A
Sodium Thiosulfate (Antichlor)	$Na_2s_2O_3$	A	A	-	A	A	-	A	A	C	A/122°	B	A	B	A	A	A
Sorgum		A	-	-	A	A	A	-	-	A	A	A	-	-	-	A	-
Soy Sauce	Fermented soya bean/wheat	A	-	-	A	A	A	-	-	X	A	-	-	-	-	A	-
Stannic Chloride (Tin Chloride)	$SnCl_4$	A	B	B	B	A	A	A	X	C	A/10%	A	A	-	A	A	-
Stannous Chloride (Tin Salt)	SnCl4	A	B	B/15%	A	A	-	A	X	B	A/10%	B	A	-	A	A	A
Starch	$C_6H_{10}O_5$	A	B	B	A	A	A	C	A	C	A	A	A	B	-	A	A
Stearic Acid	$CH_3(CH_2)_{16}\ CO_2H$	B	B	B	B/158°	A	A	A	C	C	A	B	A	C	A	A	-
Stoddard Solvent	Petroleum distillate	A	X	A	C	A	X	-	A	A	A	X	A	A	X	A	-

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		Elastomers							Metal				Plastic				
CHEMICAL	**FORMULA**	BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Styrene (Vinylbenzene)	$C_6H_5CHCH_2$	X	X	X	X	A	C	A	A	A	A	A	-	-	A	A	-
Sucrose Solution (Sugar)	$C_{12}H_{22}O_{11}/H_20$	A	A	A	A	A	A	A	A	A	A	A	-	-	-	A	-
Sulfamic Acid	H_2NSO_3H	B	-	A	A	A	-	-	A/10%	X	X	-	X	-	X	A	-
Sulfite Liquors		A	C	B	B	A	A	A	-	-	-	A	-	-	-	A	-
Sulfur	S	X	A	A	B	A	A	A	A	A	A	B	A	A	A	A	A
Sulfur Chloride	S_2Cl_2	C	X	C	X	A	X	A	B	X	B	A	X	-	A	A	-
Sulfur Dioxide	SO_2	X	B	X	A	A	A	A	A	B	A/10%	A	A	B	A	A	A
Sulfur Hexafluoride	SF_6	B	A	A	A	A	B	A	-	-	-	-	-	-	-	A	-
Sulfur Trioxide	SO_3	C	C	X	C	A	C	A	B	B	B	B	X	-	X	A	-
Sulfuric Acid																	
10%	H_2SO_4	B	A	X	A	A	A	A	X	X	A	A	A	-	A	A	-
25%	H_2SO_4	C	B	X	B	A	A	A	X	X	B	A	A	-	A/150°	A	X
50%	H_2SO_4	C	B	X	B	A	A	A	X	X	X	A	A	-	A/150°	A	X
60%	H_2SO_4	X	B	X	C	A	A	A	X	X	X	A	A	-	A/150%	A	X
75%	H_2SO_4	X	C	X	X	A	A	A	X	C	C	A	A	-	A/150%	A	X
95%	H_2SO_4	X	C	X	X	A	A	A	X	B	A	A	X	-	A/120°	A	X
Concentrated	H_2SO_4	X	C	X	X	A	B	A	X	B	B	A	X	-	A/120°	A	-
Fuming	H_2SO_2	X	X	X	X	A	-	B	C	X	B	B	-	-	-	A	-
Sulfurous Acid	H_2SO_3	B	A	C	X	A	A	A	B	X	B	B	A	X	A	A	A
Tall Oil (Liquid Rosin)	Rosin acids	A	X	-	B	A	A	A	X	B/212°	B	A	A	-	A	A	-
Tallow	Fat from cattle, sheep	A	-	-	-	A	B	A	A	-	A	-	B	C	-	A	-
Tannic Acid	$C_{76}H_{52}O_{46}$	C	C	A/10%	B	A	A	A	A	A	A	B	A	X	A	A	A
Tanning Liquors	Tannic acid	A	-	-	B	A	A	-	A	-	A	A	A	X	-	A	-
Tar, Bituminous (Coal Tar) (Pitch)	Mixture of aromatic & phenolic hydrocarbons	B	X	B	C	A	B	A	A	-	A	A	A	A	-	A	-

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Tartaric Acid	$C_4H_6O_6$	B	B	B	A	A	A	A	A/20%	X	A	A	A	X	A	A	A
Terpenes	C_{10} hydrocarbons	C	X	-	X	A	-	A	A	X	-	-	-	-	-	A	-
Terpineol (Terpilenol)	$C_{10}H_{18}O$	C	C	-	X	A	B	A	A	A	A	A	X	-	B/120°	A	-
Teritary Butyl Alcohol	$(CH_3)_3COH$	A	-	-	A	A	B	B	-	-	-	-	B	-	-	A	-
Teritary Butyl Catechol	$C_9H_{14}O_2$	X	-	-	B	A	B	A	C	B	B	-	-	-	-	A	-
Teritary Butyl Mercaptan	$C_4H_{10}S$	X	-	-	X	A	B	A	B	-	-	-	-	-	-	A	-
Tetra Bromomethane	CBr_4	X	-	-	X	A	X	A	X	-	-	-	X	-	-	A	-
Tetrabutyl Titanate	$Ti(C_4H_9)$	B	B	-	A	A	B	A	-	-	-	-	-	-	-	A	-
Tetrachloroethylene	$Cl_2C = CCl_2$	-	-	-	-	A	X	A	B	-	A	A	X	-	A	A	-
Tetrachlorodifluoroethane	$(Cl_2FC)_2$	X	-	-	X	A	-	-	-	-	-	-	-	-	-	A	-
Tetrachloroethane (Acetylene Tetrachloride)	$(Cl_2HC)_2$	X	X	-	X	A	X	A	X	A	C	A	X	A	A	A	-
Tetraethyl Lead	$Pb(C_2H_5)_4$	B	X	-	X	A	C	B	B	A	A	-	A	-	A	A	-
Tetraethylene Glycol (TEG)	$HOCH_2\ (CH_2OCH_2)_3CH_2OH$	A	-	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Tetrahdrofuran (THF)	C_4H_8O	X	C	C	X	A	X	X	-	-	A	-	C/100°	A	B/70°	A	A
Tetrahydronaphthalene (Tetralin)	$C_{10}H_{12}$	X	X	-	X	A	-	A	A	A	A	A	C	-	-	A	A
Thionyl Chloride	$SOCl_2$	X	X	-	X	A	B	B	X	X	X	A	B	B	X	A	-
Thiopene	C_4H_4S	X	X	-	X	A	-	C	-	-	-	-	-	-	-	A	-
Titanium Tetrachloride	$TiCl_4$	C	X	-	X	A	X	A	X	A	B	B	B	-	B	A	-
Toluene (Toluol)	C_7H_8	C	X	C	X	A	X	B	A	A	A	A	X	B	A	A	A
Toluene Diisocyanate	$CH_3C6H_3\ (NCO)_2$	-	A	B	X	A	B	A	A	-	-	-	-	-	-	A	-
Toluidine	$CH_3C_6\ H_4NH_2$	X	-	-	-	A	-	B	A	A	A	A	-	-	-	A	-
Tomato Pulp & Juice		A	-	-	-	A	A	-	B	-	A	A	A	-	A	A	A

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Toothpaste		A	A	-	C	A	-	A	-	X	A	A	A	-	-	A	-
Transmission Fluid (Type A)		A	X	B	C	A	C	A	A	A	A	A	-	-	-	A	-
Triacetin	C_3H_5 $(OCOCH_3)_3$	A	A	-	B	A	A	X	B	-	-	-	-	-	-	A	-
Triallyl Phosphate	$P(OC_3H5)_3$	X	A	-	C	A	-	A	-	-	-	-	B	-	A	A	-
Triaryl Phosphate	$(C_6H_50)_3PO$	X	-	-	C	A	-	A	-	-	-	-	-	-	-	A	-
Tributoxyl Ethyl Phosphate	$(C_4H_9O)_3P(C_2H_5)$	X	A	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Tributyl Phosphate (TBP)	$(C_4H_9)_3PO_4$	X	C	C	X	A	B	X	A	A	A	-	B/100^0	-	A/100^0	A	-
Tributyl Mercaptan	$(C_4H_9)_2S$	X	-	-	X	A	-	A	-	-	-	-	-	-	-	A	-
Trichloracetic Acid (TCA)	CCl_3COOH	C	C	X	B	A	B	B	X	X	X	B	B	-	B	A	A
Trichlorobenzences	$C_6H_3Cl_3$	X	-	-	X	A	-	B	X	A	A	B	-	-	-	A	-
Tricloroethane	$C_2H_3Cl_3$	X	X	-	X	A	X	B	X	A	A	A	X	-	A	A	A
Trichloroethylene (Ex-Tri) (Hi-Tri)	C_2HCl_3	X	X	X	X	A	X	C	X	B	A/90% 167^0	A	X	B	A	A	A
Trichloropropane	CH_2ClCH $ClCH_2Cl$	X	-	-	X	A	X	B	X	X	A	A	X	-	-	A	-
Tricesyl Phosphate (Lindol) (TCP)	$(CH_3C_6H_4O)_3$ PO	X	A	C	C	A	B	C	-	A	B	A	B	-	X	A	-
Triethanol Amine (TEA)	$C_{12}H_{25}$ CH_2OH	X	B	X	A	A	A	C	A	A	A	A	A	B	X	A	A
Trethyl Aluminum (ATE)	$N(C_2H_4OH)_3$	X	-	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Triethyl Amine	$(CH_3CH_2)_3N$	A	-	-	B	A	-	-	-	A	A	A	C	-	A/120^0	A	-
Triethyl Borane	$(C_2h_5)_3B$	X	-	-	X	A	B	A	-	-	-	-	-	-	-	A	-
Triethylene Glycol (TEG)	$(CH_2OCH_2CHOH)_2$	A	-	-	-	A	-	A	A	-	A	-	A	-	-	A	-
Trimethylene Glycol	$HO(CH_2)_3OH$	A	A	-	-	A	-	A	A	-	A	A	-	-	-	A	-
Trinitrotoluene (TNT)	$CH_3C_6H_2(NO_2)_3$	X	X	-	B	A	A	B	-	-	-	-	-	-	-	A	-

Rating Key: (A) Excellent (B) Good (C) Fair to Poor
(X) Not Recommended (-) No Data Available

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CHEMICAL	FORMULA	Elastomers							Metal				Plastic				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
Trioctyl Phosphate	$(C_8H_{17}0)_3PO$	X	A	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Turpentine	$C_{10}H_{16}$	A	X	B	X	A	X	A	A	A	A	A	X	A	A	A	A
Unsymmetrical Dimethyl Hydrazine (UDMH)	$H_2NN(CH_3)_2$	C	A	-	C	A	B	X	-	-	-	-	-	A	A	A	-
Urea (Carbamide)	$CO(NH_2)_2$	B	A	B	B	A	A	A	B	-	B/50%	-	A	-	A	A	A
Urine		A	-	-	X	A	A	A	A	A	A	A	A	A	A	A	-
Valeric Acid	$CH_3(CH_2)COOH$	X	A	-	X	A	-	-	A	-	-	-	-	-	-	A	-
Vanilla Extract (Vanillin)	$C_6H_3(CH0)\ (OCH_3)(OH)$	A	-	-	X	A	-	X	-	-	A	-	-	-	-	A	-
Varnish	Oil,gum resins, oil of turpentine	B	X	-	C	A	-	A	A	-	A	A	A	A	A	A	-
Vegetable Juices		A	-	-	C	A	A	-	C	-	A	-	A	-	-	A	-
Vinegar	Dilute acetic acid	C	A	C	B	A	A	A	C	X	A	A	A	A	A	A	A
Vinyl Acetate	$CH_2C00C\ HCH_2$	X	A	-	B	A	-	X	B	A	A	A	B	-	A	A	-
Vinyl Chloride (Chlorethylene)	CH_2CHCI	X	C	-	X	A	X	A	X	A	A	A	X	-	B	A	-
Water																	
Distilled	H_2O	A	A	A	B	A	A	A	A	C	A	A	A	A	A	A	A
Fresh	H_2O	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A
Waxes	Hydrocarbons	A	X	-	A	A	-	-	A	-	A	A	-	A	-	A	-
Weed Killers		B	-	-	C	-	B	A	X	-	A	-	-	-	-	A	-
Whiskey	Ethanol, esters, acids	B	A	B	A	A	A	A	A	X	A	A	A	B	A	A	-
White Sulfate Liquor		B	A	-	A	A	-	B	B	C	A	B	A	-	A	A	-
Wines		A	A	A	A	A	A	B	C	X	A	A	A	-	A	A	-
Wort, Distillery	Sugar solution from malt	-	-	-	A	A	-	A	A	A	B	A	A	B	-	A	-
Xylene (Xylol)	$C_6H_4(CH_3)_2$	X	X	C	X	A	X	A	A	B	B	A	X	-	A	A	A

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Xylidines (Xylidin)	$(CH_3)_2C_6H_3NH_2$	-	X	-	X	A	C	X	B	B	-	-	-	-	-	A	-
Zeolite	Hydrated alkali aluminum silciates	C	A	-	C	A	A	A	-	-	A	A	-	-	-	A	-
Zinc Acetate	$Zn(C_2H_3O)_2$	C	A	-	B	A	A	X	C	-	-	-	A	-	A	A	-
Zinc Carbonate	$ZnCO_3$	A	-	-	-	A	-	A	B	B	B	B	-	-	-	A	-
Zinc Chloride	$ZnCl_2$	B	A	A	B	A	A	A	A/10%	B	A/10%	A	A	B	A	A	A
Zinc Hydrosulfite	ZnHSO3	A	-	-	A	A	A	A	X	-	A	-	-	-	-	A	-
Zinc Sulfate	ZnSO4	A	A	X	A	A	A	B	B/20%	X	B	B	A	B	A	A	A

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Proper Pump Material Selection

One of the more difficult tasks in selecting a pump for long, trouble free service is the proper choice of both wetted and non-wetted pump components. Pump components wear, and the objective is to get the longest life from the wearing parts. Knowing how to handle abrasive and corrosive fluids will lead to proper wetted materials selection.

When selecting a pump for corrosive service most use chemical compatibility charts and graphs for selecting and recommending pump materials of construction. These charts; at best, are meant as ever so general guidelines. Practical experience, and past history will dictate the use of certain materials with various fluids.

On slightly aggressive fluids it may be more beneficial from a service life/dollar view point to use a material which; while not the optimal material, has been determined capable of offering satisfactory results. When discussing diaphragm pumps, Teflon®; for example, while the preferred material when handling Amyl-Alcohol has a lower flex life rating than Neoprene® which has a “B” vs. “A” chemical compatibility rating but, offers the higher flex life of the two. The “B” rating indicates the Neoprene will perform, however; shorten flex life will be a result. When lesser rated materials offer the same life expectancy as the preferred materials, they may be the viable alternative for the investment, as with the case of Amyl-Alcohol where the replacement price of Teflon is quadruple that of the Neoprene.

When discussing pump components which see corrosive fluids at high velocities erosion will occur faster than the lower velocity areas of a pump. Erosion is accelerated by corrosion. When faced with choosing a “B” rated material versus an “A” rated material the affects of erosion as related to specific pump components should be considered.

A common misconception when handling abrasives and solids in suspension is their sharpness; ability to cut. When selecting diaphragms and valve balls for a diaphragm pump, sharp particulate will have a tendency to cut a Teflon diaphragm and embed in a Teflon valve ball. Should the diaphragm pump incorporate metallic valve seats the Teflon valve ball with embedded solids will accelerate valve seat wear. Elastomeric balls and seats being resilient will permit

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(Continued)
sharp particulate to “bounce” or reflect off their surface. While cutting and embedding can occur it will be reduced.

For diaphragm and plunger pumps using ball and valve seat arrangements the hardness of the ball and seat materials will affect their ability to pull a vacuum. A hard valve ball checking on a hard metallic valve seat is noisy and does not offer the sealing ability of hard to soft; Teflon or metal, to elastomeric combination.

The application itself will dictate the choice of materials on occasion. Should high static lifts and vacuums be experienced the chances of cavitation exist. A progressive cavity pump when
addressed with cavitation will result in pitting and removal of material from the elastomeric stator. Operated dry for a short period of time the rotor, stator combination will be completely destroyed. The same is true with coatings and linings of pump components. When encountering the
implosions created during cavitation expensive coatings are cratered and linings a pulled from their base.

A statement commonly made in the positive displacement pump circle is “oversize, operate slower”. While there is some merit to the verbiage, it must be made with a degree of knowledge of the application and the equipment. There is no doubt a larger pump operating at lower speeds;
providing it meets all the application criteria, will out service a smaller pump running faster.
Recognizing the competitive marketplace both user and manufacturer are faced with, it is not
practical, nor financially beneficial to merely substitute large for small. However; when the service life versus investment ratio becomes to high, the decision can now be justified. Unfortunately; faced with the risk of losing business, or exceeding a budget, many of those recommending and supplying positive displacement pumps recognize only the investment portion of the equation.

These scenarios are typical when selecting materials of construction. Decisions should be based on a materials estimated life expectancy, down-time, complexity of repair, and costs; not
necessarily in this order.

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