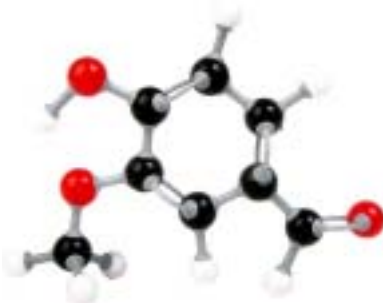


Yamada

Air Operated
Double-Diaphragm Pump



Corrosion
Resistance Guide

Revised November 2001

Yamada America, Inc.

About this Guide

Contact Yamada

Warning

About Yamada

Material Selection

Jump to Chemical

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
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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.

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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

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Acetaldehyde (Ethanal)	CH ₃ CHO	X	A	B	X	A	B	X	A	C	A	A	C	A	A/150°	A	A
Acetamide (Acetic Acid Amide)	CH ₃ COHN ₂	B	A	-	B	A	B	B	A	B	X	A	A	-	A/140°	A	A
Acetate Solvents	CH ₃ COOR	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 ₃ COOH	C	A	-	C	A	A	C	X	X	A	C	C	B	B	A	-
Glacial	CH ₃ COOH	C	B	X	X	A	A	X	X	X	A	A	C	B	A/120°	A	A
Acetic Anhydride (Acetic Oxide)	(CH ₃ CO) ₂ O	C	B	C	B	A	A	X	B	B 212° 90%	A	A	X	X	B/70°	A	A
Acetone (Dimethylketone)	CH ₃ COHO ₃	X	A	C	X	A	A	X	B	A	B	A	X	B	X	A	A
Acetone Cyanohydrin	(CH ₃) ₂ C(OH)CH	X	X	-	B	A	A	X	A	C	A	-	-	-	-	A	-
Acetonitrile (Methyl Cyanide)	CH ₃ CN	C	A	-	A	A	B	X	A	A	B	B	B/100°	A	A	A	-
Acetophenone (Phenyl Methyl Ketone)	CH ₆ H ₅ COCH ₃	X	A	-	X	A	B	X	B	B	A	B	A/70°	-	A	A	A
Acetyl Acetone (2,4-Pentanedione)	CH ₃ COCH ₂ COH ²	X	A	-	X	A	B	X	B	X	B	-	-	-	-	A	-
Acetyl Chloride	CH ₃ COCl	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 Salicylic Acid (Aspirin)	(CH ₃ OCO) CH ₆ ₄ COOH	-	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 ₂ C=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)	H ⁰⁰ C(CH ₂) ₄ COOH	B	-	-	X	A	B	B	B	B	B	A	A	A	A	A	-

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

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[Back to Chemical Index](#)

		Elastomers						Metal				Plastic					
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Alcohols																	
Allyl Alcohol (2-Propen-1-ol)	R-OH	A	A	-	A	A	B	B	B	A	A	-	-	-	-	A	A
Amyl (1-Pentanol)	C ₄ H ₉ CH ₂ O	B	A	A	B	A	A	B	B	A	A	A	B	A	A	A	-
Benzyl (Phenylcarbinol)	C ₆ H ₅ CH ₂ OH	X	B	-	B	A	A	A	B	A	A	A	A	A	A	A	A
Butyl (Butanol)	C ₃ H ₇ CH ₂ OH	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) ₂ C(OH)CH ₂ COCH ₃	X	B	-	X	A	B	X	A	A	A	A	X	A	A	A	-
Ethyl (Ethanol)	CH ₃ CH ₂ OH	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 ₅ H ₁₁ CH ₂ OH	A	B	-	B	A	B	B	A	A	A	A	A	A	A	A	-
Isoamyl Alcohol		A	A	-	B	A	B	B	A	A	A	A	A	A	A	A	-
Isobutyl (Isobutanol)		B	A	-	A	A	A	B	B	A	A	A	A	-	A	A	-
Isopropyl (Isopropanol)		A	A	A	B	A	A	A	A	A	A	A	A	-	A	A	-
Lauryl Alcohol (n-Dodecanol)		A	-	-	-	A	B	B	A	A	A	A	-	-	-	A	-
Methyl Amyl Alcohol		A	A	-	A	A	A	A	B	B	A	A	A	A	A	A	-
Methyl (Methanol)		A	-	A	B	A	B	B	A	A	A	A	A	-	A	A	-
Octyl (Caprylic Alcohol)		B	A	-	B	A	B	A	A	A	A	A	A	-	A	A	-
Propyl (Propanol)	C ₂ H ₅ CH ₂ OH	A	A	-	-	A	-	B	A	A	A	A	A	-	A	A	-
Tridecyl Alcohol		B	-	-	X	A	-	B	X	X	-	A	-	-	-	A	-
Allyl Bromide (3-Bromopropene)	H ₂ C=CHCH ₂ Br	X	X	-	X	A	-	B	X	X	B	A	A/70°	-	A	A	-
Allyl Chloride (3-Chloropropene)	CH ₂ =CHCH ₂ Cl	X	-	-	X	A	X	A	X	-	B	A	A/70°	A	-	A	-
Alkazene (Chlorethyl or Polyisopropyl benzenes)		X	-	-	X	A	B	-	-	-	-	-	-	-	-	A	-
Alum (Aluminum Potassium Sulfate (Dodecahydrate))	KAl(SO ₄) ₂ * 12H ₂ O	A	A	-	A	A	A	X	-	-	B	A	A	-	A	A	-
Aluminum Acetate (Burow's Solution)		C	A	-	C	A	A	X	B	C	A	A	A/100°	A	A	A	-
Aluminum Ammonium Sulfate (Alum)	AlNH ₄ (SO ₄) ₂	B	-	-	B	A	A	A	-	-	-	-	A	-	A	A	-

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 ₂ O	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-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) ₂ Cu(SO ₄) ₂	A	-	-	-	A	-	A	-	-	-	-	-	B	-	A	-
Ammonium Acetate	CH ₃ CO ₂ NH ₄	-	-	-	A	A	A	A	A	B/50%	A/50%	-	-	-	-	A	-
Ammonium Bicarbonate	NH ₄ HCO	A	A	-	A	A	B	A	B	B	B/90%	-	-	-	-	A	-
Ammonium Bifluoride - 10%	NH ₄ HF ₂	B	A	-	X	A	A	A	C	X	B	B	A	-	A	A	-
Ammonium Carbonate	(NH ₄) ₂ CO 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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Ammonium Chloride (Sal Ammoniac)	NH ₄ Cl	A	A	A	A	A	A	A	X	X	A/30%	A	A	-	A	A	-
Ammonium Dichromate	(NH ₄) ₂ Cr ₂ O ₇	A	A	A	A	A	A	-	A	A	B	-	-	X	-	A	-
Ammonium Fluoride	NF ₄ F	B	A	-	B	A	-	A/20%	B/10%	B/20%	A/50%	A	B	-	A	A	-
Ammonium Hydroxide (Aqua Ammonia)	NH ₄ OH	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 ₄ NO ₂	A	-	-	A	A	A	-	-	-	A	-	A/70%	A	A	A	A
Ammonium Oxalate	(NH ₄ OOX) ₂	A	-	-	A	-	A	-	-	-	-	A	B	-	B	A	-
Ammonium Persulfate	(NH ₄) ₂ S ₂ O ₈	B	A	-	A	A	A	A	C	X	A	-	A	-	A	A	-
Ammonium Phosphate, Monobasic	(NH ₄)H ₂ PO ₄	A	A	B	A	A	A	A	X	X	B	A	A	A	A	A	-
Ammonium Phosphate, Di Basic	(NH ₄) ₂ HPO ₄	A	-	-	A	A	A	A	B	-	A	A	A	B	A	A	A
Ammonium Phosphate, Tri-Basic	(NH ₄) ₂ PO ₄ * 3H ₂ O	A	-	-	A	A	A	A	X	-	B	B	A	-	A	A	-
Ammonium Sulfate	(NH ₄) ₂ SO ₄	A	A	C	A	A	A	A	X	B	A 212° 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) ₂ SO * 3H ₂ O	A	-	-	-	A	-	A	C	X	B	A	A	X	A	A	-
Ammonium Thiocyanate	NH ₄ SCN	A	A	-	A	A	-	A	C	C	A/50%	A	B		A	-	A
Ammonium Thiosulfate	(NH ₄) ₂ S ₂ O ₃	A	A	-	A	A	A	A	A/40%	X	A/10%	A	-	-	B	A	-
n-Amyl Amine (1-Aminopentane)	CH ₃ CO ₂ C ₃ H ₁₁	C	X	-	X	A	-	X	-	-	-	-	-	-	-	A	-
Amyl Borate	C ₅ H ₁₁ B ₃	A	X	-	B	A	B	A	-	-	-	B	-	-	-	A	

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Amyl Chloride (Chloropentane)	CH ₃ (CH ₂) ₄ Cl	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 ₆ H ₄ (OH)C ₅ H ₁₁	X	-	-	-	A	-	A	A	A	A	A	-	A	-	A	-
Anilene (Anilene Oil) (Amino Benzene)	C ₆ H ₅ NH 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 ₃ H ₅ NH 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 ₆ H ₅ OCH ₃	C	-	-	X	A	-	X	B	B	B	-	-	B	-	A	-
Ansul Ether		C	-	-	X	A	X	X	-	-	-	B	-	-	-	A	-
Anthraquinone	C ₁₄ H ₈ O 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 ₆ H ₅ R	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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[Back to Chemical Index](#)

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Arsenic Acid	AsH ₃ O 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 ₆ H ₈ O 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) B (30% Aromatic) C (50% Aromatic)		A A B	X X X	A/158° A/158° C	B X X	A A A	C X X	A A A	A A A	A A A	A A A	A A A	- - -	- - -	- - -	A A A	- - -
ASTM - Ref Oil #1 (High Anilene) #2 (Medium Anilene) #3 (Low Anilene) #4 (High Anilene)		A A A B	X X X X	A/212° A A/212° -	B B C X	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 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 Chloride Dihydrate	BaCl ₂ * 2H ₂ O	A	A	-	A	A	-	A	B/50%	B	B/212°	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	122°	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	-

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

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Beef Extract		A	-	-	A	A	-	A	-	X	A	-	-	-	-	A	-
Beer	Water, Carbonate	C	A	B	A	A	A	A	A	X	A	-	A/75°	A	A/175°	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°	X	A	C	B	B	B	A/167°	B	X	A	B	A	A
Benzene Sulfonic Acid	C6H5DO3H	X	C	-	A	A	-	A	C	A	A	-	X	-	B/100°	A	A
Benzoic Acid (Benzene Carboxylic Acid)	C6H5COOH	X	B	-	B	A	A	A	B	X	B	-	X	B	A	A	A
Benzoyl Chloride	C6H2COCI	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°	X	A	B	B	B	B	-	B	X	A	B	A	A
Biphenyl (Diphenyl)	C6H5C8H5	X	X	-	X	A	-	A	A	A	-	-	-	-	-	A	-
Bismuth Subcarbonate (Bismuth Carbonate)	(BiO)2CO3	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,H2,CH4,CO2,N2	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)	B4Na2O2	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)	H3BO3	A	A	A	A	A	A	A	A	X	A/30%	A	A	C	A	A	A

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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	C6H5Br	X	X	-	X	A	X	B	X	X	A	B	X	-	-	A	-
Bromochloromethane	BrCH ₂ Cl	X	B	-	X	A	-	C	X	B	B	B	-	-	-	A	-
Bromotoluene	C6H4BrCH ₃	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	CH ₃ CO ₂ (CH ₂) ₃ CH ₃	X	B	-	X	A	C	X	A	A	A	-	X	-	B	A	-
n-Butyl Acetate	CH ₃ CO ₂ (CH ₂) ₃ CH ₃	X	B	-	X	A	B	X	A	A	A	A	-	-	-	A	-
Butyl Acetyl Ricinoleate	C ₂₄ H ₄₄ O ₅	C	C	-	X	A	B	B	-	A	-	-	-	-	-	A	-
Butyl Acrylate	CH ₂ CHCO ₂ C ₄ H ₉	X	X	-	X	A	C	X	-	-	-	-	-	-	C	A	-
Butyl Amine (Aminobutane)	CH ₃ (CH ₂) ₂ NH ₂	B	X	-	X	A	A	X	A	A	A	-	X	C	B/70°	A	A
Butyl Benzoate	C ₆ H ₅ COO (CH ₂) ₃ CH ₃	-	B	X	X	A	C	A	B	B	B	B	-	-	-	A	-

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Butyl Butyrate	CH ₃ (CH ₂) ₂ CH ₂ CO ₂ C ⁴ H ₂	X	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Butyl Carbitol	CH ₃ (CH ₂) ₃ OCH CH ₂ OCH ₂ CH ₂ OH	A	A	-	B	A	B	A	-	-	-	-	-	-	-	A	-
Butyl Cellosolve	HOCH ₂ CH ₂ OC ₄ H ₉	B	A	-	C	A	A	C	A	A	A	A	A	A	B	A	-
Butyl Chloride (Chlorobutane)	CH ₃ (CH ₂) ₃ CL	X	-	-	-	A	-	A	X	B	B	B	X	-	A	A	-
Butyl Ether (Dibutyl Ether)	(CH ₃ (CH ₂) ₃ CL	A	-	-	B	A	-	C	A	B	A	A	X	-	A/100°	A	A
Butyl Oleate	C ₂₂ H ₄₂ O ₂	-	C	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Butyl Stearate	CH ₃ (CH ₂) ₁₆ CO ₂ (CH ₂) ₃ CH ₃	A	C	-	X	A	C	B	B	B	B	B	-	-	A	A	-
Butylene (Butene)	C ₄ H ₈	B	X	-	X	A	X	B	A	-	A	A	X	-	A	A	A
Butyraldehyde	CH ₃ (CH ₂) ² CHO	X	C	-	X	A	C	X	A	A	A	A	-	-	B	A	-
Butyric Acid	CH ₃ (CH ₂)CO ₂ H	C	C	B	X	A	C	X	A	A	A	A	A	-	A	A	-
Butyric Anhydride	(CH ₃ CH ₂ CH ₂ CO) ₂ O	C	C	B	X	A	A	C	A	X	B	A	-	X	A	A	A
Butyronitrile	CH ₃ CH ₂ CH ₂ CN	C	A	-	-	A	-	-	A	-	A	A	-	A	-	-	A
Calcium Acetate Hydrate	Ca(CH ₃ COO) ₂ * H ₂ O	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/90°	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 ₂ O	A	A	-	A	A	-	A	B/30%	B	A/30%	B	A	-	A	A	-
Calcium Hydrosulfide (Calcium Sulfhydrate)	Ca(HS) ₂ * 6H ₂ O	A	A	-	A	A	A	A	-	A	A	A	A	X	A	A	A
Calcium Hydroxide (Slaked Lime)	Ca(OH) 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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Calcium Nitrate	Ca(NO ₃) 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	Ca ₂ SiO 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 ₂ O	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) ₆ CH ₂ OH	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 ₂ NCO ₂ R	C	C	-	C	A	A	A	-	-	-	-	-	-	-	A	-
Carbitol	CH ₃ CH ₂ OCH ₂ CH ₂ OCH ₂ CH ₂ OH	B	C	-	C	A	B	C	A	A	A	A	-	-	-	A	-
Carbolic Acid (see Phenol)	C ₆ H ₅ OH	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	CO ₂ /H ₂ O	B	B	A/50%	X	A	A	A	X	X	A	A	A	A	A	A	A

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Carbonic Acid (liquid)	H ₂ CO 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 ₂ CH ₂ OR	C	C	X	C	A	C	B	A	-	A	A	A/100 ^o	A	A	A	A
Cellulose Acetate	C ₈ H ₁₂ O ₅	B	-	-	B	A	-	C	B	B	A	A	C	-	A	A	-
Cellulube 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 Wet Anhydrous Liquid	CL ₂	C	-	X	C	A	-	A	X	-	B	-	X	-	A	A	-
	Cl ₂ /H ₂ O	C	X	X	X	A	C	A	B	C	A	A	X	X	A	A	X
	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 ₂ COOH	X	B	X	C	A	-	C	X	X	X	A	A	X	A	A	A
Chloroacetone (Monochloroacetone)	ClCH ₂ COCH ₃	X	A	-	C	A	C	C	X	B	B	B	X	-	-	A	-
Chlorobenzene (Monchlorobenzene)	C ₆ H ₅ Cl	X	X	X	X	A	C	A	X	B	B	B	X	A	A/150 ^o	A	A
Chlorobutadiene (Chloroprene)	C ₄ H ₅ CL	X	X	-	X	A	C	A	X	B	B	B	X	-	-	A	-
Chlorobromomethane	ClCH ₂ Br	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 ₇ Cl	X	X	-	X	A	X	C	X	B	B	A	X	-	-	A	-

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[Back to Chemical Index](#)

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CHEMICAL	FORMULA																
Chlorosulfonic Acid	HSO ₃ CL	X	X	X	X	A	A	X	B	B	B	A	X	-	X	A	X
o-Chlorophenol	C ₆ H ₅ ClO	X	X	-	X	A	-	B	B	B	B	B	-	B	A	A	A
Chlorothene (Chlorinated Solvents)	CH ₃ CCL ₃	X	-	-	X	A	-	C	X	X	A	A	-	-	-	A	-
Chlorotrifluoroethylene	C ₂ H ₂ ClF	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 ₂ CrO H ₂ CrO 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 ₆ H ₈ O ₇ * H ₂ O	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 ₂ O	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 ₂ H ₃ O ₂) ₂ * CuO * 6H ₂ O	B	A	-	C	A	A	A	X	A/90%	B/10%	B	A	-	A	A	-
Copper Chloride	CuCl ₂ * 2H ₂ O	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 ₂ O	A	A	-	A	A	A	A	X	X	A	B	A	A	A	A	A
Copper Sulfate (Blue Copperas)	CuSO ₄ * 5H ₂ O	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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[Back to Chemical Index](#)

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Creosote, Wood-Tar	Mixture of phenols	A	X	X	B	A	B	A	B	B	A	-	X	X	-	A	-
Cresylic Acid (cresol)	C ₈ H ₁₀ O ₂	C	X	-	X	A	B	A	B	C	A	B	X	X	A/150°	A	-
Crotonaldehyde	CH ₃ CHCHCHO	X	-	-	A	A	-	A	A	A	A	A	-	-	-	A	-
Cumeme (Isopropylbenzene)	C ₆ H ₅ CH(CH ₃) ₂	X	X	-	X	A	-	A	B	B	B	B	-	-	-	A	-
Cyclohexane	C ₆ H ₁₂	B	X	A	X	A	C	A	B	B	B	B	X	A	A	A	A
Cyclohexanol	C ₆ H ₁₁ OH	B	X	-	A	A	B	A	C	B	A	A	B	A	A/150°	A	A
Cyclohexanone	C ₆ H ₁₀ O	X	C	-	X	A	C	X	B	B	B	B	X	A	A	A	A
Cyclopentane	C ₅ H 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	CH ₃ (CH ₂) ₈ CHO	X	X	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Decane	CH ₃ (CH ₂) ₈ CH 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 ₆ H ₁₂ O ₆	B	A	B/140%	B	A	B	A	A	X	A	A	A	-	A	A	-
Dibenzyl Ether	(C ₆ H ₅ CH ₂) ₂ O	X	C	-	X	A	C	C	B	B	B	B	-	-	C	A	-
Dibenzyl Sebecate	C ₂₄ H ₃₀ O ⁴	X	C	A	X	A	C	B	-	-	-	-	-	-	-	A	-
Dibutyl Amine	(C ₄ H ₉) ₂ NH	C	C	X	-	X	A	C	X	-	A	A	A	X	B/70%	A	-
Dibutyl Phthalate (DBP)	C ₆ H ₄ (CO ₂ C ₄ H 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 ₂ CHCOOH	X	-	-	X	A	B	X	-	-	-	-	-	-	-	A	-
o-Dichlorobenzene	C ₆ H ₄ Cl ₂	X	X	X	X	A	X	A	X	B	B	A	B	-	A/150%	A	-

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(X) Not Recommended (-) No Data Available

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Dichlorobutane	C ₄ H ₈ Cl ₂	X	-	-	-	A	-	A	X	B	B	-	-	-	-	A	-
Dichchloroethyl Ether	[ClCH ₂ CH ₂] ₂ O	X	-	-	-	A	-	-	B	-	-	-	-	-	-	A	-
Dichloro Isopropyl Ether	C ₆ H ₁₂ OCl ₂	X	X	-	X	A	X	X	-	-	-	-	X	-	-	A	-
Dichlohexylamine	(C ₆ H ₁₁) ₂ NH	X	X	-	X	A	B	B	-	-	-	A	-	-	-	A	-
Diethanol Amine	(HOCH ₂ CH ₂) ₂ NH	B	-	-	A	A	-	-	-	A	A	A	A	-	-	A	-
Diethyl Amine	(CH ₃ CH ₂) ₂ NH	C	C	-	C	A	-	X	B	B	A	A	A	-	A	A	-
Diethyl Benzene	C ₆ H ₄ (C ₂ H ₅) ₂	X	X	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Diethyl Carbonate	(C ₂ H ₅ O) ₂ CO	X	-	-	X	A	-	-	-	A	-	-	-	-	-	A	-
Diethyl Ether (Ether)	(CH ³ CH ₂) ₂ O	B	X	C	C	A	A	X	B	A	A	A	X	A	A	A	A
Diethyl Phthalate (DEP)	C ₆ H ₄ (CO ₂ C ₂ H ₅) ₂	X	-	-	-	-	-	C	A	A	A	A	-	-	-	-	-
Diethyl Sebecate	C ₁₄ H ₂₆ O ₄	X	C	A	X	A	B	B	A	A	A	A	A/120°	-	A/120°	A	-
Diethylene Ether (Dioxane)	C ₄ H ₈ O ₂	X	A	-	X	A	B	X	A	A	A	-	-	-	-	A	-
Diethylene Glycol (DEG)	HOCH ₂ CH ₂ OCH ₂	A	A	A	A	A	A	A	A	A	A	A	A	-	-	A	-
Diethylene Triamine	(NH ₂ C ₂ H ₄) ₂ NH	B	-	-	-	A	-	-	A	A	A	A	-	-	-	A	-
Dilsobutyl Ketone	C ₄ H ₉ COC ₄ H 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 ₅₀ O 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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		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	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Diisooctyl Sebecate (DIOS)	C ₂₆ H ₄₆ O ₄	-	B	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Diisopropyl Amine	[(CH ₃) ₂ CH] ₂ NH	B	-	-	-	A	-	-	-	-	-	-	-	-	-	A	-
Diisopropyl Benzene	C ₆ H ₄ * [CH(CH ₃) ₂] ₂	X	X	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Diisopropyl Ketone	[(CH ₃) ₂ CH] ₂ CO	X	A	-	X	A	C	X	-	-	A	-	-	-	-	A	-
N, N-Dimethylaniline	C ₆ H ₅ N(CH ₃) ₂	X	C	-	X	A	B	X	B	B	-	-	X	-	A	A	A
Dimethyl Ether	CH ₃ OCH 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 ₆ H ₄ (CO ₂ CH ₃) ₂	X	C	B	X	A	A	C	-	-	-	-	-	-	A/70°	A	A
Dimethyl Sulfate	(CH ₃) ₂ SO ₄	X	-	-	-	A	-	X	-	A	-	-	-	-	-	A	-
Dimethyl Sulfide	(CH ₃) ₂ S	X	-	-	-	A	-	-	A	A	A	A	-	-	-	A	-
Dinitrotoluene (DNT)	CH ₃ C ₆ H ₃ (NO ₂) ₂	X	X	-	X	A	B	C	-	-	A	-	-	-	-	A	-
Diocetyl Phtahalate (DOP)	C ₂₄ H ₃₈ O ₄	X	B	A	X	A	B	B	A	A	A	A	-	-	-	A	-
Diocetyl 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 ₆ H ₅ OC ₆ H ₅	X	C	-	X	A	C	A	B	A	A	A	-	-	A	A	-
Dipropylamine	(CH ₃ CH ₂ CH ₂) ₂ NH	B	-	-	-	A	-	-	-	-	-	-	-	-	-	A	-
Dipropylene Glycol	(C ₃ H ₆ OH) ₂ O	A	-	-	-	A	A	A	-	-	-	-	A	-	A	A	-
Dipropyl Ketone (Butyrone)	(C ₃ H ₇) ₂ CO	X	-	-	-	A	-	-	-	-	-	-	-	-	-	A	-
Divinyl Benzene (DVB)	C ₆ H ₄ (CH=CH ₂) ₂	X	-	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Dodecyl Benzene (Alkane)	C ₆ H ₅ (CH ₂) ₁₁ CH ₃	X	-	-	-	A	-	A	A	A	A	-	-	-	-	A	-

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[Back to Chemical Index](#)

CHEMICAL	FORMULA	Elastomers							Metal				Plastic				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
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)	$MgSO_4 \cdot 7H_2O$	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)	$H_2NCH_2CH_2OH$	B	B	-	C	A	A	X	B	A	A	-	X	X	C	A	A
Ethyl Acetate	$CH_3COOC_2H_5$	X	B	C	X	A	A	X	A	A	A	A	C	A	A	A	-
Ethyl Acetoacetate (Acetoacetic Ester)	$CH_3COCH_2COOCH_2CH_3$	X	C	-	X	A	C	X	A	A	A	A	-	-	A/70°	A	-
Ethyl Acrylate	$CH_2=CHCO_2CH_2CH_3$	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)	$CH_3CH_2NH_2$	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	$CH_3CO_2CH_2CH_2C_4H_9$	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	$CH_3CH_2CH_2CO_2C_2H_5$	X	X	-	X	A	-	C	B	A	A	A	B	-	-	A	A

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Ethyl Caprylate	CH ₃ (CH ₂) ₅ CO ₂ C ₂ H ₅	X	X	-	X	A	-	-	-	-	-	-	-	-	-	A	-
Ethyl Cellosolve	C ₂ H ₅ O(CH ₂) ₂ OH	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 ₂ H ₅ Cl	A	A	X	C	A	X	A	X	B	A	B	X	A	A	A	A
Ethyl Chlorocarbonate (Ethyl Chloroformate)	ClCO ₂ C ₂ H ₅	-	-	-	C	A	A	A	-	-	-	-	-	-	-	A	-
Ethyl Cyanide (Propionitrile)	C ₂ H ₅ CN	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 ₃ CO ₂ CH ₂ CH(C ₂ H ₅)C ₄ H ₉	X	-	-	-	A	-	X	-	-	-	-	-	-	-	A	-
Ethylhexyl Alcohol (Ethylhexanol)	C ₈ H ₁₇ OH	A	-	-	-	A	-	B	A	A	A	A	-	-	-	A	-
Ethyl Iodide	CH ₃ CH ₂ I	-	-	-	-	-	-	-	-	-	-	-	-	-	-	A	-
Ethyl Isobutyrate	(CH ₃) ₂	X	X	-	X	A	-	-	-	-	-	-	-	-	-	A	-
Ethyl Mercaptan (Ethanethiol)	CH ₃ CH ₂ SH	X	X	-	C	A	C	B	B	A	B	B	-	-	-	A	-
Ethyl Oxalate	C ₂ H ₅ O ₂ C CO ₂ C ₂ H ₅	X	A	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Ethyl Pentachlorobenzene	C ₂ H ₅ C ₆ Cl ₅	X	-	-	X	A	X	A	X	-	-	-	X	-	-	A	-
Ethyl Propionate	CH ₃ CH ₂ COOCH ₂ CH ₃	X	X	-	X	A	-	-	A	A	A	A	-	-	-	A	-
Ethyl Silicate	Si(OCH ₂ CH ₃) ₄	A	A	-	A	A	B	A	B	A	A	A	-	-	-	A	-
Ethyl Sulfate	C ₂ H ₅ OSO ₂ OH	A	-	-	-	A	B	A	-	-	X	-	-	-	-	A	-
Ethylene (Ethene)	C ₂ H ₄	B	C	-	A	A	C	A	A	A	A	-	-	-	-	A	-
Ethylene Chlorohydrin	ClCH ₂ CH ₂ OH	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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[Back to Chemical Index](#)

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CHEMICAL	FORMULA																
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) ₂ Cl	A	A	A	A	A	A	A/70°	A	A	A	A	A/120°	A	A	A	A
Ethylene Glycol Monobutyl Ether (Butyl Cellosolve)	C ₄ H ₉ OCH ₂ CH ₂ OH	B	B	-	X	A	-	C	A	A	A	A	-	-	-	A	-
Ethylene Glycol Monobutyl Ether Acetate (Cellosolve Acetate)	C ₂ H ₅ O(CH ₂) ₂ O ₂ CCH ₃	C	B	-	X	A	-	C	A	A	A	A	-	A	-	A	-
Ethylene Glycol Monomethyl Ether (Methyl Cellosolve)	CH ₃ O(CH ₂) ₂ OH	C	B	-	C	A	-	X	B	B	A	A	-	-	-	A	-
Ethylene Oxide	(CH ₂) ₂ O	X	X	A	X	A	A	C	A	B	A	A	C	-	A	A	X
Ethylene Trichloride (Trichloroethene)	ClCHCl ₂	X	X	-	X	A	X	A	X	A	A	A	X	-	-	A	-
Ethylidene Chloride	CH ₃ CHCl ₂	X	X	-	X	A	-	-	X	B	A	B	-	-	-	A	-
Fatty Acids	C ₈ H ₂₀ +1COOH	B	X	B	C	A	B	A	A/90°	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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[Back to Chemical Index](#)

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		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Fluoboric Acid (Fluoroboric Acid)	HF 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 ₆ H ₅	X	X	-	X	A	C	A	-	-	-	-	X	A	-	A	-
Fluosilicic Acid (Sand Acid)	H ₂ SiF 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 ₃ F	C	X	A	C	A	C	B	B	A	A	-	B	A	A	A	A
Freon 12 (Dichlorofluoromethane)	Cl ₂ CF ₄	B	B	B	B	A	X	B	A	A	A	-	-	A	A	A	-
Freon 13 (Chlorofluoromethane)	ClCF ₃	A	A	C	A	A	X	A	A	A	A	A	-	A	-	A	-
Freon 13B1 (Bromotrifluoromethane)	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)	Cl ₃ CCF ₃	B	X	A/130°	A	A	X	B	B	-	A	-	-	A	A	A	-
Freon 114 (Dichlorotetrafluoroethane)	C ₂ Cl ₂ F ₄	A	C	A	A	A	X	A	B	-	A	-	-	A	A	A	-

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

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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_4O	X	X	X	X	A	B	C	-	-	-	-	C	A	X	A	A
Furfuryl Alcohol	$C_5H_6O_2$	X	B	B	-	A	A	X	A	A	A	A	-	A	B/100°	A	-
Gallic Acid	$C_6H_2(OH)_3 COOH$	B	B	X	C	A	B	A	A/20%	X	B	B	A/70°	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 soluble proteins	A	A	B	A	A	A	B	A	A	A	-	A	B	A	A	-
Glauber's Salt (Sodium Sulfate Decahydrate)	$Na_2SO_4 \cdot 10H_2O$	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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(X) Not Recommended (-) No Data Available

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[Back to Chemical Index](#)

		<i>Elastomers</i>						<i>Metal</i>				<i>Plastic</i>					
		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	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Glycols		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) ₅ CHO	A	-	-	-	-	-	A	A	A	A	A	A	C	-	A	A
Heptane	C ₇ H ₁₆	A	X	-	C	A	X	A	A	A	A	A	C/140°	A	A	A	A
Hexanal	CH ₃ (CH ₂) ₄ CHO	B	B	-	B	A	-	C	A	B	A	B	-	-	-	A	-
Hexalin (Cyclohexanol)	C ₆ H ₁₁ OH	B	C	-	A	A	-	A	-	-	-	-	-	-	-	A	-
n-Hexane	C ₆ H ₁₄	A	X	A	B	A	B	A	A	A	A	A	C/140°	C	A	A	A
n-Hexane 1 (Hexylene)	H ₂ CCH(CH ₂) ₂ CH ₃	A	X	-	B	A	X	A	-	-	-	-	-	-	-	A	-
Hexylene Glycol (Brake fluid)	C ₆ H 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 ₂ NNH 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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		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	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 ₂ O ₂	B	B	X	B	A	A	A	A	-	-	-	A	-	A/120°	A	X
10%	H ₂ O ₂	C	B	X	C	A	A	A	A	B	A	A	A	-	A/120°	A	X
30%	H ₂ O ₂	C	B	X	X	A	A	A	A	X	B	A	A	-	A/120°	A	X
90%	H ₂ O ₂	X	C	X	B	A	X	A	A	X	A	-	-	-	A/120°	A	X
Hydrogen Sulfide (Wet)	H ₂ S	X	A	A	C	A	A	X	A/90%	X	A/167°	A	A	C	A	A	A
Hydroquinone	C ₆ H ₄ (OH) ₂	C	-	-	X	A	A	C	A/90%	B	A/10%	B	-	-	A	A	-
Hydroxyacetic Acid - 10%	HOCH ₂ COOH	X	-	-	X	A	A	-	B	-	B	-	-	-	-	A	-
Hypochlorous Acid	HCIO	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 ₃ CO ₂ CH ₂ CH ₂ CH (CH ₃) ²	X	B	-	X	A	-	X	A	A	A	A	-	-	-	A	-
Isoamyl Butyrate	C ₉ H ₁₈ O ₂	X	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Isoamyl Chloride	(CH ₃) ₂ CHCH ₂ CH ₂ Cl	X	X	-	X	A	-	A	X	-	-	-	-	-	-	A	-
Isobutyl Acetate	CH ₃ CO ₂ CH ₂ CH(CH ₃)	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 ₂ Cl	X	-	-	-	A	-	B	X	B	B	B	-	-	-	A	-

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Isobutyric Acid	(CH ₃) ₂ CHCOOH	X	A	-	B	A	-	-	A	-	-	A	-	-	-	A	-
Isododecane	(CH ₃) ₂ CH(CH ₂) ₈ CH ₃	B	X	-	A	A	-	A	B	B	B	-	-	-	-	A	-
Isooctane (Trimethylpentane)	C ₈ H ₁₈	A	X	A	B	A	C	A	A	A	A	A	A	-	A	A	A
Isopentane	(CH ₃) ₂ CHCH ₂ CH ₃	A	-	-	-	A	-	A	-	-	-	A	-	-	-	A	-
Isophorone	C ₉ H ₁₄ O	X	C	-	X	A	B	X	A	A	A	-	-	-	-	A	-
Isopropyl Acetate	CH ₃ COOCH (CH ₃) ₂	X	B	-	X	A	B	X	A	A	A	A	B	-	-	A	-
Isopropyl Amine	C ₃ H ₇ NH ₂	X	-	-	-	A	-	X	-	A	A	-	-	-	-	A	-
Isopropyl Chloride	(CH ₃) ₂ CHCl	X	X	-	X	A	C	B	X	A	A	A	X	-	-	A	-
Isopropyl Ether	(CH ₃) ₂ CHOCH	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 ₃ CHOH COOH	B	A	X	B	A	A	A	A	X	A/70%	A	A	C	A	A	A
Lactol (Aliphatic Naptha Solvent)	CH ₃ CHOH CO ₃ C ₁₀ H 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 ₃ CO 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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 O ₂	B	X	-	X	A	B	B	A	-	A	A	A	-	A	A	-
Lindol (Tritolyl Phosphate)	C ₂₁ H ₂₁ O ₄ P ₄	X	-	-	C	A	A	B	-	-	-	-	-	-	-	A	-
Lithum Bromide	LiBrH ₂ O	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 ₂ O	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 ₂ O	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 ₂ O	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 ₄ H ₂ O ₃	-	X	-	-	A	-	A	A/20%	B	A	A	-	-	-	A	-
Malic Acid (Apple acid)	C ₄ H ₆ O 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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[Back to Chemical Index](#)

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CHEMICAL	FORMULA																
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 ₂ O	B	A	-	B	A	-	A	X	B	B/212°	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) ₂ C = 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 ₃ COCH ₂ COOCH ₃	X	-	-	-	A	-	X	-	A	A	A	-	-	-	A	-
Methyl Acrylate	CH ₂ CHCO ₂ CH ₃	-	C	-	C	A	B	X	-	A	A	-	-	-	A/70°	A	-
Methyl Acrylic Acid (Crotonic Acid)	CH ₃ (CH) ₂ COOH	-	C	-	C	A	-	X	-	-	-	-	-	-	-	A	-
Methyl Amine (Monomethylamine)	CH ₃ NH ₂	B	A	-	A	A	B	A/90%	B	B	A	B	X	-	C	A	-
Methyl Amyl Acetate	C ₈ H ₁₆ O ₂	A	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Methyl Aniline	C ₆ H ₅ NH(CH ₃)	A	A	-	A	A	-	-	-	-	-	-	-	-	-	A	-
Methyl Bromide (Bromo Methane)	CH ₃ Br	C	A	X	X	A	X	A	X	A	A	B	X	-	A	A	-
Methyl Butyl Ketone (2-hexanone)	CH ₃ COC ₄ H ₉	X	B	-	X	A	C	X	-	-	A	-	X	-	-	A	-
Methyl Butyrate	CH ₃ (CH ₂) ₂ CO ₂ CH ₃	X	X	-	X	A	-	-	A	A	A	A	-	-	-	A	-
Methyl Cellosolve	CH ₃ OCH ₂ CH ₂ O	X	-	-	X	A	A/70°	X	A	-	-	-	A	-	A	A	-
Methyl Chloride	CH ₃ Cl	X	C	X	X	A	X	B	X	A	A	A	X	B	A	A	A
Methyl Cyclopentane	C ₆ H ₁₂	B	X	-	X	A	C	A	-	-	A	-	-	-	-	A	-
Methyl Dichloride	CH ₂ Cl ₂	X	-	-	X	-	X	A	X	-	-	-	X	-	-	A	-

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[Back to Chemical Index](#)

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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	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON	
CHEMICAL	FORMULA																	
Methyl Ethyl Ketone (Butanone)	CH ₃ CO * CH ₂ CH 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 ₇ H ₁₆	A	X	-	A	A	-	A	-	-	-	-	-	-	-	A	-	
Methyl Iodide	CH ₃ I	X	A	-	X	A	A/70%	-	X	A	A	A	-	-	-	A	-	
Methyl Isobutyl Ketone (Hexone)	CH ₃ COCH ₂ CH (CH ₃) ₂	X	B	X	X	A	C	X	A	B	B	A	C/70%	A	A/70%	A	A	
Methyl Isopropyl Ketone	CH ₃ COCH(CH ₃) ₂	X	C	X	X	A	C	X	-	-	A	-	C	-	A/70%	A	-	
Methyl Methacrylate	CH ₂ C(CH ₃) CO ₂ CH ₃	X	X	-	X	A	B	C	B	-	A	-	A	-	A/70%	A	-	
Methyl Oleate	C ₁₉ H ₃₆ O ₂	X	C	-	X	A	C	B	-	-	-	-	-	-	-	A	-	
Methyl Propyl Ketone	CH ₃ CH ₂ CH ₂ COCH ₃	X	B	-	X	A	-	X	-	-	-	-	-	-	-	A	-	
Methacrylic Acid	CH ₃ CHCHCO ₂ H	-	-	-	B	A	A	B	-	-	-	-	-	-	-	A	-	
Methylamine	CH ₃ NH ₂	B	A	-	A	A	A	A/90%	B	B	A	B	A	-	-	A	-	
Methyl Bromide	CH ₂ Br ₂	X	-	-	X	A	-	B	X	A	A	A	-	-	A	A	-	
Methylene Chloride	CH ₂ Cl 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	A	-
Mine Water		A	-	-	-	A	B	-	B	-	B	A	-	-	-	A	-	
Mixed Acids (Sulfuric & Nitric)	H ₂ SO ₄ , HNO ₃	X	B	-	X	A	-	A	X	X	B	B	X	A	A	A	A	-
Molasses		A	A	B	A	A	A	A	A	A	A	A	A	-	A	A	A	A
Monochlorobenzene	C ₆ H ₅ Cl	X	-	C	X	A	X	A	X	A	A	-	X	B	A/100%	A	A	
N-Methyl Aniline	C ₆ H ₅ NHCH ₃	X	-	-	X	A	-	C	-	-	-	-	C	A	-	A	-	
Monoethanolamine	NH ₂ C ₂ H ₄ OH	B	-	-	C	A	A	C	B	A	A	-	X	-	X	A	A	
Monomethylether		A	-	-	B	A	-	A	-	-	-	A	-	X	-	A	-	

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

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[Back to Chemical Index](#)

		<i>Elastomers</i>						<i>Metal</i>				<i>Plastic</i>					
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 ₈ O ₂	B	X	-	-	A	-	A	B	B	A	B	-	-	-	A	-
Neohexane (2, 2-dimethylbuane)	C ₆ H 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 ₃ CO 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 ₂ O	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 ₆ H ₅ NO ₂	X	X	X	X	A	A	B	A	A	A	B	B	B	A/70°	A	-

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[Back to Chemical Index](#)

		Elastomers							Metal				Plastic				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Nitroethane	C ₂ H ₅ NO ₂	X	C	-	C	A	A	X	A	A	A	A	C	-	A/70%	A	-
Nitrogen Tetroxide	N ₂ O ₄	X	X	B/50%	X	A	-	C	A	B	A	A	X	-	C	A	-
Nitromethane	CH ₃ NO ₂	X	C	X	C	A	A	X	A	A	A	A	C	-	A/120°	A	A
1-Nitropropane	CH ₃ (CJ ₂) ₂ NO 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 ₈ H ₁₈	A	X	-	-	A	B/70%	A	-	-	-	-	X	-	A	A	-
Octyl Acetate	CH ₃ COO (CH ₂) ⁷ CH ₃	X	-	-	-	A	-	X	A	-	A	-	-	-	-	A	-
Octachlorotoulene	C ₇ Cl 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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[Back to Chemical Index](#)

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	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
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	X	-	-	A	-	
	Fuel Oils (ASTM #1 thru #9)	A	X	B	C	A	C	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	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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[Back to Chemical Index](#)

		<i>Elastomers</i>						<i>Metal</i>				<i>Plastic</i>					
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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	
Soybean Oil		A	C	A	A	A	B	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	B	C	-	A	-	
Tung Oil (Wood Oil)		A	X	B	C	A	B	A	A	-	A	A	-	-	A	-	
Vegetable Oils		B	A	A	C	A	A	A	A	B	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 ₂ SO ₄ /SO ₃	C	-	X	X	A	X	A	X	X	A	-	X	-	X	A	-
Olein (Triolene)	C ₅₇ H ₁₀₄ O ₆	B	-	-	C	A	X	-	-	-	-	-	-	-	A	-	
0-Dicholobenzene	C ₆ H ₄ Cl 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°	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 ₂ O) ₈	B	-	-	B	A	-	C	A/10%	A	A	A	-	A	-	A	-
Paraldehyde	C ₆ H 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 ₆ Cl ₅ OH	X	X	-	X	A	-	A	A	A	A	A	-	A	-	A	-
Pentane (Amyl Hydride)	C ₅ H ₁₂	A	X	B	B	A	B	A	A	B	B	A	-	-	-	A	-

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[Back to Chemical Index](#)

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CHEMICAL	FORMULA																
Perchloric Acid	HClO ₄	X	B	X	B	A/70%	X	A	X	X	B	-	-	C	A	A	A
Perchloroethylene (Tetrachloroethylene)	C ₂ Cl ₄	X	X	X	X	A	X	A	X	B	A/90%	B	X	A	A	A	A
Phenethyl Alcohol (Benzyl Carbinol)	C ₆ H ₅ (CH ₂)OH	X	B	-	X	A	-	X	A	A	A	A	-	-	-	A	-
Phenol (Carbolic Acid)	C ₆ H ₅ OH	X	C	X	C	A	C	A	B	A	B	A	C	X	A/100%	A	A
Phenol Sulfonic Acid	C ₆ H ₄ (OH)SO ₃ H	X	-	-	-	A	-	X	B	B	B	-	-	-	-	A	-
Phenyl Acetate	CH ₃ COOC ₆ H ₅	X	B	-	X	A	-	X	-	-	-	-	-	-	-	A	-
Phenylbenzene	C ₆ H ₅	X	-	-	X	A	C	A	-	-	-	-	-	-	-	A	-
Phenyl Ethyl Ether (Phenetole)	C ₆ H ₅ OC ₂ H ₅	X	X	-	X	A	C	C	-	-	-	-	-	-	-	A	-
Phenyl Hydrazine	C ₆ H ₅ NHNH ₂	X	X	-	X	A	B	A	A	X	-	-	X	-	A/120°	A	-
Phorone (Diisopropylidene Acetone)	C ₉ H ₁₄ O	X	C	-	X	A	B	A	-	-	-	-	-	-	-	A	-
Phosphoric Acid																	
10%	H ₃ PO ₄	A	A	-	B	A	A	A	X	X	A	-	A/120°	-	A	A	A
20%	H ₃ PO ₄	C	A	-	B	A	A	A	X	X	A/212°	A	A/120°	-	A	A	A
50%	H ₃ PO ₄	X	A	-	B	A	A	A	X	X	A	C	A/120°	-	A	A	A
Concentrated	H ₃ PO 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 ₆ H ₂ OH	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 ₅ H ₁₁ N	X	X	-	X	A	B	X	-	-	-	-	-	-	-	A	-

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[Back to Chemical Index](#)

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CHEMICAL	FORMULA																
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 ₂ O	-	A	-	C	A	A	-	-	B	B	-	A	-	A	A	-
Potassium Acetate	CH ₃ CO ₂ K	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)	K ₂ CO ₃	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 ₂ CrO 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 ₂ Cr ₂ O	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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 ₂ PO ₄	A	A	-	A	A	-	A	X	X	B/30%	B	-	-	-	A	-
Potassium Silicate	K ₂ Sii2O ₅	A	A	-	A	A	-	A	B	B	B	B	-	-	-	A	-
Potassium Sulfate	K ₂ SO ₄	A	A	B	A	A	A	A	B	B	A	A	A	B	A	A	A
Potassium Sulfide	K ₂ S	A	A	-	A	A	-	A	X	B	B	B	A	-	A	A	A
Potassium Sulfite	K ₂ SO ₃ ·2H ₂ O	A	A	-	A	A	-	A	A	X	B/50%	-	A	-	A	A	-
Propane (LPG)	C ₃ H ₈	A	X	B	B	A	X	A	A	A	A	A	X	A	A	A	-
Propionaldehyde (Propanal)	C ₂ H ₅ CHO	X	-	-	-	A	-	X	A	A	A	A	-	-	-	A	-
Propionic Acid (Methylacetic Acid)	CH ₃ CH ₂ CO ₂ H	X	A	-	X	A	A	X	A	X	B	A	B	-	-	A	-
n-Propyl Acetate	CH ₃ COO (CH ₂) ₂ CH ₃	X	A	-	X	A	B	X	A	-	A	A	C	-	A	A	-
Propyl Alcohol (1-Propanol)	CH ₃ CH ₂ CH ₂ OH	B	A	-	B	A	A	A	A	A	A	A	A	A	A	A	A
n-Propyl Nitrate (NPN)	CH ₃ (CH ₂) ₂ NO ₃	A	B	-	-	A	B	C	A	X	-	-	-	-	-	A	-
Propylene	C ₃ H ₆	X	X	-	X	A	B	A	A	A	A	A	-	-	-	A	-
Propylene Dichloride	CH ₃ CH(Cl)CH ₂ Cl	X	X	-	X	A	-	B	X	A	A	B	-	-	-	A	-
Propylene Glycol (Methyl Glycol)	C ₃ H ₆ (OH) ₂	A	A	A	C	A	A	A	A	A	A	A	A	A	A	A	A
Propylene Oxide	C ₃ H ₆ O	-	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) ₄ CH	X	C	X	X	A	A	X	A	B	A	A	C	X	X	A	A

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[Back to Chemical Index](#)

		Elastomers						Metal				Plastic					
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 H ₃₀ O ₂	A	-	-	C	A	A	-	A	-	A	A	A	-	-	A	-
Rotenone	C ₂₃ H ₂₂ O	A	A	-	A	A	-	A	-	-	-	-	-	-	-	A	-
Rubber Latex Emulsions	(C ₅ H ₈) _n /H ₂ O	-	-	-	-	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 ₄ Cl	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 ₄ COOH	B	A	-	B	A	-	B	A	X	B	A	A	-	A	A	-
Salt Water (Brine)	NaCl/H ₂ O	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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Soap Solutions	Salt of fatty acid in H ₂ O	A	A	A	B	A	A	A	C	X	A	A	A	A	A	A	A
Soda Ash (Sodium Carbonate)	Na ₂ CO ₃	A	A	B	A	A	A	A	X	A	A	A	-	-	-	A	-
Sodium Acetate	CH ₃ COONa	C	A	-	C	A	A	X	A	A	A	A	A	A	A	A	A
Sodium Aluminate	Na ₂ Al ₂ O 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	NaHSO ₃	C	A	B	A	A	A	A	B	B/20%	A/50%	B	A	X	A	A	-
Sodium Borate	Na ₂ B ₄ O 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% 212°	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 ₂ CrO ₄	A	-	A	A	A	A	A	A/80% 212°	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 ₂ Cr ₂ O ₇ * 2H ₂ O	-	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) 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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 ₂ SiO 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	NaNO 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 ₂ O ₂	B	B	B	B	A	B	A	B/10%	A/90%	B/10%	B	B	X	A	A	-
Sodium Phosphate (Tribasic (TSP))	Na ₃ PO ₄	B	A	B	B	A	A	A	X	B/167%	B	A	A	-	A	A	-
Sodium Silicates (Water Glass)	Na ₂ O * SiO ₂	A	A	A	A	A	A	A	A	A	A	B	A	-	A	A	A
Sodium Sulfate (Salt Cake) (Thenardite)	Na ₂ SO ₄	A	A	A	B	A	A	A	B/30%	B	A	A	A	-	A	A	A
Sodium Sulfide (Pentahydrate)	Na ₂ S * 5H ₂ O	A	A	A	A	A	A	A	A/30% 212°	B	A/30% 167°	B	A	A	A	A	A
Sodium Sulfite	Na ₂ SO ₃	A	A	A	A	A	-	A	A/30%	X	A/30%	B	A	A	A	A	A
Sodium Tetraborate	Na ₂ B ₄ O ₇ 10H ₂ O	A	-	B	-	A	A	A	-	-	A	-	C	-	A	A	A
Sodium Thiosulfate (Antichlor)	Na ₂ S ₂ O 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)	SnCl ₄	A	B	B/15%	A	A	-	A	X	B	A/10%	B	A	-	A	A	A
Starch	C ₆ H 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 ₂ H	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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		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	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Styrene (Vinylbenzene)	C ₆ H ₅ CHCH ₂	X	X	X	X	A	C	A	A	A	A	A	-	-	A	A	-
Sucrose Solution (Sugar)	C ₁₂ H ₂₂ O ₁₁ /H ₂ O	A	A	A	A	A	A	A	A	A	A	A	-	-	-	A	-
Sulfamic Acid	H ₂ NSO ₃ H	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 ₂ Cl 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 ₂ SO ₄	B	A	X	A	A	A	A	X	X	A	A	A	-	A	A	-
25%	H ₂ SO ₄	C	B	X	B	A	A	A	X	X	B	A	A	-	A/150°	A	X
50%	H ₂ SO ₄	C	B	X	B	A	A	A	X	X	X	A	A	-	A/150°	A	X
60%	H ₂ SO ₄	X	B	X	C	A	A	A	X	X	X	A	A	-	A/150°	A	X
75%	H ₂ SO ₄	X	C	X	X	A	A	A	X	C	C	A	A	-	A/150°	A	X
95%	H ₂ SO ₄	X	C	X	X	A	A	A	X	B	A	A	X	-	A/120°	A	X
Concentrated	H ₂ SO ₄	X	C	X	X	A	B	A	X	B	B	A	X	-	A/120°	A	-
Fuming	H ₂ SO ₂	X	X	X	X	A	-	B	C	X	B	B	-	-	-	A	-
Sulfurous Acid	H ₂ SO 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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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE - CR	PTFE	SANTOPRENE	VITON - FPM	ALUMINIUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Tartaric Acid	C ₄ H ₆ O 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) ₃ COH	A	-	-	A	A	B	B	-	-	-	-	B	-	-	A	-
Teritary Butyl Catechol	C ₉ H ₁₄ O ₂	X	-	-	B	A	B	A	C	B	B	-	-	-	-	A	-
Teritary Butyl Mercaptan	C ₄ H 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 ₄ H ₉)	B	B	-	A	A	B	A	-	-	-	-	-	-	-	A	-
Tetrachloroethylene	Cl ₂ C = CCl ₂	-	-	-	-	A	X	A	B	-	A	A	X	-	A	A	-
Tetrachlorodifluoroethane	(Cl ₂ FC) ₂	X	-	-	X	A	-	-	-	-	-	-	-	-	-	A	-
Tetrachloroethane (Acetylene Tetrachloride)	(Cl ₂ HC) ₂	X	X	-	X	A	X	A	X	A	C	A	X	A	A	A	-
Tetraethyl Lead	Pb(C ₂ H ₅) ₄	B	X	-	X	A	C	B	B	A	A	-	A	-	A	A	-
Tetraethylene Glycol (TEG)	HOCH ₂ (CH ₂ OCH ₂) ₃ CH ₂ OH	A	-	-	-	A	-	A	-	-	-	-	-	-	-	A	-
Tetrahydrofuran (THF)	C ₄ H ₈ O	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 ₄ H ₄ S	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 ₇ H ₈	C	X	C	X	A	X	B	A	A	A	A	X	B	A	A	A
Toluene Diisocyanate	CH ₃ C ₆ H ₃ (NCO) ₂	-	A	B	X	A	B	A	A	-	-	-	-	-	-	A	-
Toluidine	CH ₃ C ₆ H ₄ NH ₂	X	-	-	-	A	-	B	A	A	A	A	-	-	-	A	-
Tomato Pulp & Juice		A	-	-	-	A	A	-	B	-	A	A	A	-	A	A	A

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

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		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	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
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 ₃ H ₅ (OCOCH ₃) ₃	A	A	-	B	A	A	X	B	-	-	-	-	-	-	A	-
Triallyl Phosphate	P(OC ₃ H ₅) ₃	X	A	-	C	A	-	A	-	-	-	-	B	-	A	A	-
Triaryl Phosphate	(C ₆ H ₅ O) ₃ PO	X	-	-	C	A	-	A	-	-	-	-	-	-	-	A	-
Tributoxyl Ethyl Phosphate	(C ₄ H ₉ O) ₃ P(C ₂ H ₅)	X	A	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Tributyl Phosphate (TBP)	(C ₄ H ₉) ₃ PO ₄	X	C	C	X	A	B	X	A	A	A	-	B/100°	-	A/100°	A	-
Tributyl Mercaptan	(C ₄ H ₉) ₂ S	X	-	-	X	A	-	A	-	-	-	-	-	-	-	A	-
Trichloroacetic Acid (TCA)	CCl ₃ COOH	C	C	X	B	A	B	B	X	X	X	B	B	-	B	A	A
Trichlorobenzenes	C ₆ H ₃ Cl ₃	X	-	-	X	A	-	B	X	A	A	B	-	-	-	A	-
Trichloroethane	C ₂ H ₃ Cl ₃	X	X	-	X	A	X	B	X	A	A	A	X	-	A	A	A
Trichloroethylene (Ex-Tri) (Hi-Tri)	C ₂ HCl ₃	X	X	X	X	A	X	C	X	B	A/90% 167°	A	X	B	A	A	A
Trichloropropane	CH ₂ ClCH ClCH ₂ Cl	X	-	-	X	A	X	B	X	X	A	A	X	-	-	A	-
Tricesyl Phosphate (Lindol) (TCP)	(CH ₃ C ₆ H ₄ O) ₃ PO	X	A	C	C	A	B	C	-	A	B	A	B	-	X	A	-
Triethanol Amine (TEA)	C ₁₂ H ₂₅ CH ₂ OH	X	B	X	A	A	A	C	A	A	A	A	A	B	X	A	A
Trethyl Aluminum (ATE)	N(C ₂ H ₄ OH) ₃	X	-	-	X	A	B	B	-	-	-	-	-	-	-	A	-
Triethyl Amine	(CH ₃ CH ₂) ₃ N	A	-	-	B	A	-	-	-	A	A	A	C	-	A/120°	A	-
Triethyl Borane	(C ₂ H ₅) ₃ B	X	-	-	X	A	B	A	-	-	-	-	-	-	-	A	-
Triethylene Glycol (TEG)	(CH ₂ OCH ₂ CHOH) ₂	A	-	-	-	A	-	A	A	-	A	-	A	-	-	A	-
Trimethylene Glycol	HO(CH ₂) ₃ OH	A	A	-	-	A	-	A	A	-	A	A	-	-	-	A	-
Trinitrotoluene (TNT)	CH ₃ C ₆ H ₂ (NO ₂) ₃	X	X	-	B	A	A	B	-	-	-	-	-	-	-	A	-

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[Back to Chemical Index](#)

		<i>Elastomers</i>							<i>Metal</i>				<i>Plastic</i>				
		BUNA N - NBR	NORDEL - EPDM	HYTREL - TPE	NEOPRENE-GR	PTFE	SANTOPRENE	VITON - FPM	ALUMINUM - T356	CAST IRON - FC	STAINLESS STEEL - 316 SS	HASTELLOY	POLYPROPYLENE - PPG	DELTRIN (ACETAL)	KYNAR - PVDF	PTFE	RYTON
CHEMICAL	FORMULA																
Trioctyl Phosphate	(C ₈ H ₁₇ O) ₃ PO	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 ₂ NN(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 ₆ H ₃ (CHO) (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 ₂ C00C HCH ₂	X	A	-	B	A	-	X	B	A	A	A	B	-	A	A	-
Vinyl Chloride (Chlorethylene)	CH ₂ CHCl	X	C	-	X	A	X	A	X	A	A	A	X	-	B	A	-
Water																	
Distilled	H ₂ O	A	A	A	B	A	A	A	A	C	A	A	A	A	A	A	A
Fresh	H ₂ O	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 ₆ H ₄ (CH ₃) ₂	X	X	C	X	A	X	A	A	B	B	A	X	-	A	A	A

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CHEMICAL	FORMULA																
Xylidines (Xylidin)	$(CH_3)_2C_6H_3NH_2$	-	X	-	X	A	C	X	B	B	-	-	-	-	-	A	-
Zeolite	Hydrated alkali aluminum silicates	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	$ZnHSO_3$	A	-	-	A	A	A	A	X	-	A	-	-	-	-	A	-
Zinc Sulfate	$ZnSO_4$	A	A	X	A	A	A	B	B/20%	X	B	B	A	B	A	A	A

Rating Key: (A) Excellent (B) Good (C) Fair to Poor
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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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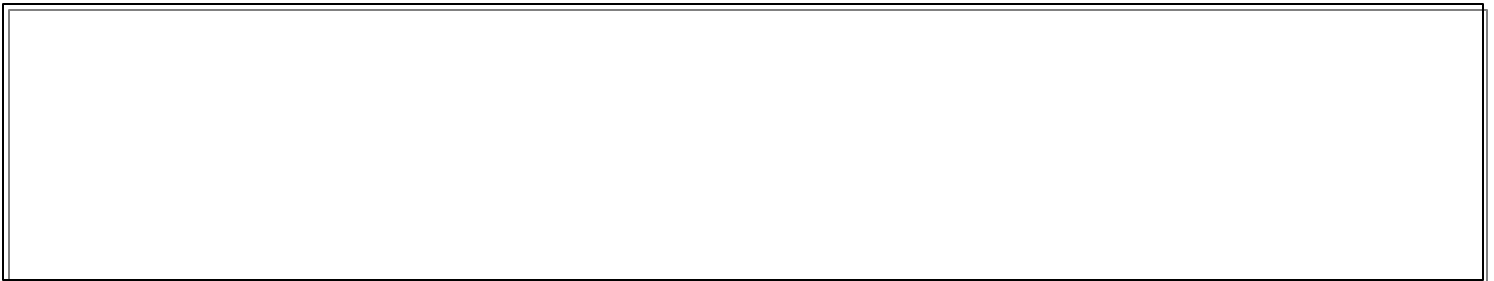
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Printed in U.S.A. 11-01
Form No. CR1101

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