



## **FLEX-PRO<sup>®</sup>** **Tubing Selection Guide**

### **THE RIGHT TUBE FOR YOUR APPLICATION**

This datasheet will guide you through the tube selection process.

Selecting a suitable tubing material is important to the success of the Flex-Pro peristaltic pump in a specific application.

Variables that will affect tube performance include: system pressure, output volume, and chemical being dosed.



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Sudbury MA 01776



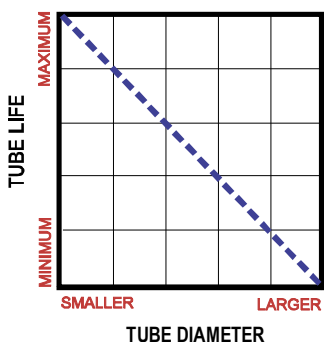
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**TUBING CHARACTERISTICS**

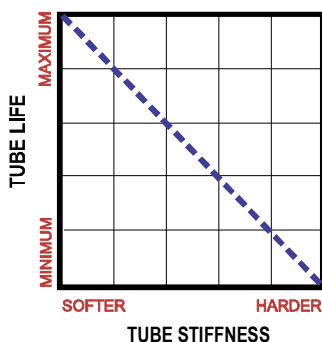
Shown below are the three primary application variables that will affect the life of the tube and the tubing characteristics that are affected by these variables. Chemical resistance is not depicted graphically.

APPLICATION VARIABLES	TUBING CHARACTERISTICS		
	Tube Diameter	Material Formulation	Material Stiffness
Discharge Pressure	X		X
Output Volume	X		
Chemical		X	

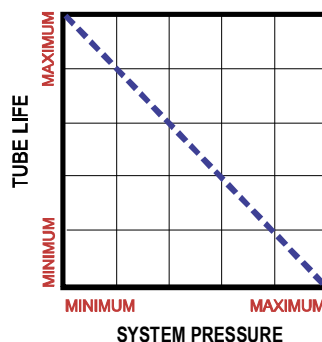
**Tube Life vs Tube Diameter**



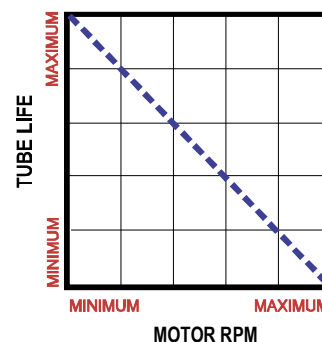
**Tube Life vs Tube Stiffness**



**Tube Life vs Pressure**



**Tube Life vs Output Volume**



**MATERIALS AND DIAMETERS**

- The first letter in the tubing designation always indicates the tube’s material.
- The second letter indicates the tube size. Two of the same letters indicate a dual tube assembly.
- The letter “L” at the end of the code indicates a “low pressure” or “softer” version of the tube.

**N = Flex-A-Prene®** - An excellent material for most water treatment applications. Chemically resistant to 25% Sodium Hypochlorite, 50% Sulfuric Acid, 30% Fluosilicic Acid, Ferric Chloride, Alum and many others. Available in a wide stiffness range for both low and high pressure applications.

**T = Flex-A-Chem®** - This tubing material consists of an outer Flex-A-Prene® jacket with an inner liner that is virtually unaffected by acids, bases, salts, ketones and alcohols. Available in a medium stiffness for applications up to 50 psi.

**G = Flex-A-Thane®** - This polyurethane material can be used with a variety of chemicals including Oil and Water based Polymers, Sodium Hypochlorite, Alum, Ferric Chloride, fuels and lubricants and many others. Available in a medium stiffness for applications up to 65 psi.

Flex-Pro Peristaltic Pump Tubing Options								
Material Designation	Tube Material	Tube Size Code	Tube Size ID Inches	Tube Stiffness Code	Maximum Pressure Capability			Max Temp F (C)
					M-2 PSI (bar)	M-3 PSI (bar)	M-4 PSI (bar)	
ND	Flex-A-Prene®	D	0.075	Medium	125 (8.6)	125 (8.6)	NA	185 (85)
NEE	Flex-A-Prene®	EE	0.093	Medium	110 (7.6)	110 (7.6)	NA	185 (85)
NGG	Flex-A-Prene®	GG	0.187	Medium	110 (7.6)	110 (7.6)	NA	185 (85)
NHL	Flex-A-Prene®	HL	0.250	Medium	65 (4.5)	65 (4.5)	65 (4.5)	185 (85)
NHHL	Flex-A-Prene®	HHL	0.250	Medium	65 (4.5)	65 (4.5)	65 (4.5)	185 (85)
NJ	Flex-A-Prene®	J	0.312	Hard	NA	125 (8.6)	100 (6.9)	185 (85)
NK	Flex-A-Prene®	K	0.375	Hard	NA	125 (8.6)	80 (5.5)	185 (85)
NKL	Flex-A-Prene®	KL	0.375	Soft	NA	30 (2.1)	30 (2.1)	185 (85)
NL	Flex-A-Prene®	L	0.500	Medium	NA	NA	50 (3.4)	185 (85)
NP	Flex-A-Prene®	P	0.750	Medium	NA	NA	30 (2.1)	185 (85)
TH	Flex-A-Chem®	H	0.250	Medium	50 (3.4)	50 (3.4)	30 (2.1)	130 (54)
TK	Flex-A-Chem®	K	0.375	Medium	NA	50 (3.4)	30 (2.1)	130 (54)
GE	Flex-A-Thane®	E	0.125	Medium	65 (4.5)	65 (4.5)	NA	130 (54)
GG	Flex-A-Thane®	G	0.187	Medium	65 (4.5)	65 (4.5)	NA	130 (54)
GH	Flex-A-Thane®	H	0.250	Medium	NA	65 (4.5)	65 (4.5)	130 (54)
GK	Flex-A-Thane®	K	0.375	Medium	NA	65 (4.5)	65 (4.5)	130 (54)
G2G	Flex-A-Thane®	GG	0.187	Medium	65 (4.5)	65 (4.5)	NA	130 (54)

**VISCOSITY EFFECTS**

The viscosity of your chemical will have an affect on the pump output volume.

- As the viscosity increases, pump output is reduced.
- Long suction lines will reduce the pump output. Use a flooded suction where possible.
- A small inside diameter suction line will reduce output. Use a large ID pipe or tube where possible.
- Pump tube assemblies with 1/2" pipe thread or 1/2" ID barb connections have the largest through holes. Use these options when pumping viscous fluids.

**SUCTION LIFT EFFECTS**

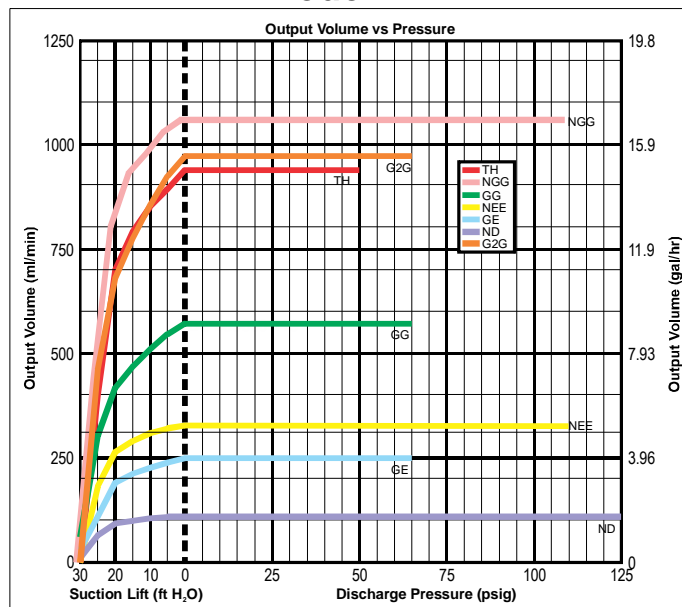
Note that the pump's output specification is based on laboratory tests with water at 72 degrees Fahrenheit (Sp.gr. = 1.0) and 3 feet of suction lift. When lifting fluids with a Specific Gravity other than water, your output rate will vary. Use the following equation and the graphs below to calculate your pump output.

**Fluid Sp.Gr. x Suction Lift Height = the equivalent height in water**

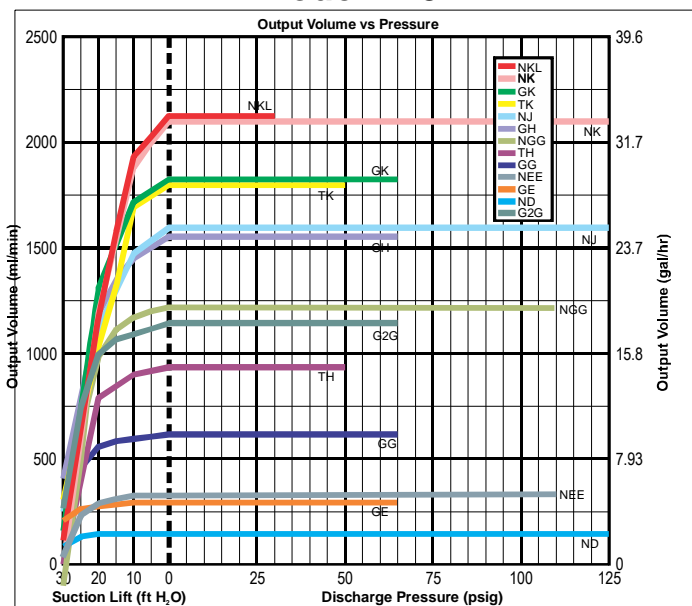
Example: The Sp.Gr. of 12.5% Sodium Hypochlorite at 60 degrees F is 1.20. If the required suction lift is 8 feet, the equivalent suction lift using water is 1.20 x 8 = 9.6 feet.

**Model M-2**

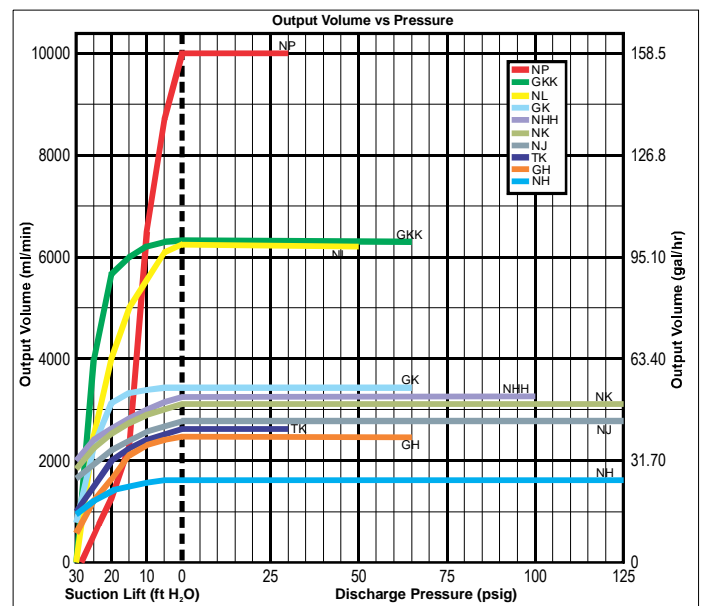
**Note:** All tests performed after approximately 30 minutes tube break-in period. Tested using 72°F water at atmospheric conditions at sea level. Output volume shown with the pump operating at 125 rpm motor speed.

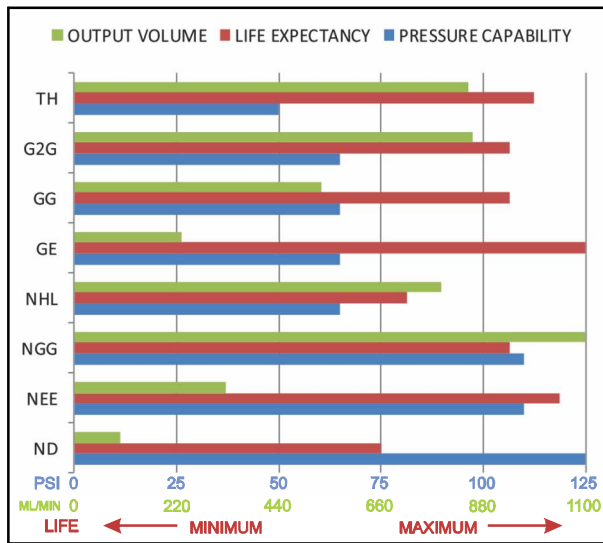


**Model M-3**



**Model M-4**



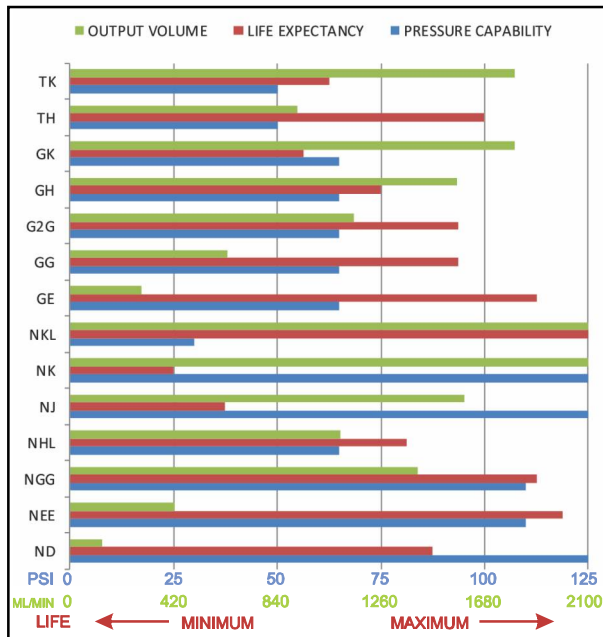


**How to use this data:**

- 1: Select the tube materials that are resistant to the chemical. See the following pages for chemical resistance data.
- 2: Select the tube sizes that meet the system pressure requirement.
- 3: Select the tube with the highest output volume and life expectancy.

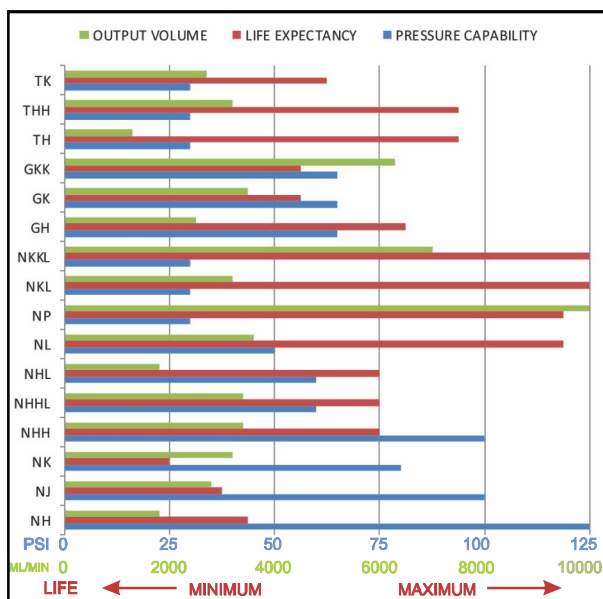
**Model M-2 Pump Tubes and Output Ranges**

Tube Material	Tube Size	Max Pressure (PSI)	Max Temp (F)	Output Range (ML/Min)	Roller Size
Flex-A-Prene®	ND	125 (8.6)	185 (85)	.54 - 108	A2-SND-R
Flex-A-Prene®	NEE	110 (7.6)	185 (85)	1.4 - 280	A2-SNGG-R
Flex-A-Prene®	NGG	110 (7.6)	185 (85)	5.4 - 1085	A2-SNGG-R
Flex-A-Prene®	NHL	65 (4.5)	185 (85)	4.3 - 870	A2-SNGG-R
Flex-A-Chem®	TH	50 (3.4)	130 (54)	3.7 - 740	A2-STH-R
Flex-A-Thane®	GE	65 (4.5)	130 (54)	1.2 - 253	A2-SGE-R
Flex-A-Thane®	GG	65 (4.5)	130 (54)	2.9 - 586	A2-SGE-R
Flex-A-Thane®	G2G	65 (4.5)	130 (54)	4.7 - 945	A2-SGE-R



**Model M-3 Pump Tubes and Output Ranges**

Tube Material	Tube Size	Max Pressure (PSI)	Max Temp (F)	Output Range (ML/Min)	Roller Size
Flex-A-Prene®	ND	125 (8.6)	185 (85)	.01 - 132	A3-SND-R
Flex-A-Prene®	NEE	110 (7.6)	185 (85)	.03 - 300	A3-SNGG-R
Flex-A-Prene®	NGG	110 (7.6)	185 (85)	.12 - 1200	A3-SNGG-R
Flex-A-Prene®	NHL	65 (4.5)	185 (85)	.11 - 1097	A3-SNGG-R
Flex-A-Prene®	NJ	125 (8.6)	185 (85)	.16 - 1596	A3-SNGG-R
Flex-A-Prene®	NK	125 (8.6)	185 (85)	.21 - 2100	A3-SNGG-R
Flex-A-Prene®	NKL	30 (2.1)	185 (85)	.21 - 2100	A3-STH-R
Flex-A-Chem®	TH	50 (3.4)	130 (54)	.10 - 950	A3-STH-R
Flex-A-Chem®	TK	50 (3.4)	130 (54)	.22 - 2220	A3-SNGG-R
Flex-A-Thane®	GE	65 (4.5)	130 (54)	.03 - 290	A3-SGE-R
Flex-A-Thane®	GG	65 (4.5)	130 (54)	.06 - 637	A3-SGE-R
Flex-A-Thane®	GH	65 (4.5)	130 (54)	.16 - 1570	A3-SGE-R
Flex-A-Thane®	GK	65 (4.5)	130 (54)	.20 - 1800	A3-SGE-R
Flex-A-Thane®	G2G	65 (4.5)	130 (54)	.12 - 1150	A3-SGE-R



**Model M-4 Pump Tubes and Output Ranges**

Tube Material	Tube Size	Max Pressure (PSI)	Max Temp (F)	Output Range (ML/Min)	Roller Size
Flex-A-Prene®	NH	125 (8.6)	185 (85)	.2 - 1800	A4-MNH-R
Flex-A-Prene®	NHL	65 (4.5)	185 (85)	.2 - 1800	A4-MNH-R
Flex-A-Prene®	NJ	100 (6.9)	185 (85)	.3 - 2800	A4-MNH-R
Flex-A-Prene®	NK	80 (5.5)	185 (85)	.3 - 3200	A4-MNH-R
Flex-A-Prene®	NHH	100 (6.9)	185 (85)	.3 - 3400	A4-MNH-R
Flex-A-Prene®	NHHL	65 (4.5)	185 (85)	.3 - 3400	A4-MNH-R
Flex-A-Prene®	NL	50 (3.4)	185 (85)	.6 - 6300	A4-MNL-R
Flex-A-Prene®	NP	30 (2.1)	185 (85)	1 - 10000	A4-MNL-R
Flex-A-Chem®	TK	30 (2.1)	130 (54)	.2 - 2700	A4-MTH-R
Flex-A-Thane®	GH	65 (4.5)	130 (54)	.3 - 2500	A4-MGH-R
Flex-A-Thane®	GK	65 (4.5)	130 (54)	.4 - 3500	A4-MGH-R
Flex-A-Thane®	GKK	65 (4.5)	130 (54)	.6 - 6300	A4-MGH-R

28 Day Immersions at 73°F

E = Excellent  
G = Good  
F = Fair  
U = Not Recommended

Chemical, Conc. % (1)	Flex-A-Prene	Flex-A-Chem	Flex-A-Thane	Chemical, Conc. % (1)	Flex-A-Prene	Flex-A-Chem	Flex-A-Thane	Chemical, Conc. % (1)	Flex-A-Prene	Flex-A-Chem	Flex-A-Thane
Acetate Solvents	F	U	U	Bromine, Anhydrous Liquid	U	U	U	Ethylene Chlorohydrin	E	E	U
Acetic Acid, 10% in w	E	E	G	Butadiene	E	G	E	Ethylene Diamine	F	U	U
Acetic Acid, 50-60% in w	G	E	U	Butane	E	G	E	Ethylene Dichloride	F	U	U
Acetic Acid, Glacial, 100%	G	E	U	Butyl Acetate	G	U	U	Ethylene Glycol	E	E	U
Acetic Anhydride	E	E	U	Butyl Alcohol	G	E	U	Ethylene Oxide	E	E	E
Acetone	U	G	U	Butyric Acid	G	U	U	Fatty Acids	F	F	G
Acrylonitrile	G	G	U	Calcium Bisulfite, 1% in w	E	E	E	Ferric Chloride, 43% in w	E	E	E
Adipic Acid, 100% in alc	G	U	U	Calcium Bromide 52%	E	E	E	Ferric Hydroxide	E	E	U
Air	E	E	E	Calcium Carbonate, 25% acids	E	E	E	Ferric Nitrate, 60% in w	E	E	E
Alcohols General	E	E	U	Calcium Chlorate, 30% in w	E	E	E	Ferric Salts	E	E	E
Aliphatic Hydrocarbons	U	U	G	Calcium Chloride, 30% in w	E	E	E	Ferric Sulfate, 5% in w	E	E	E
Allyl Alcohol	F	E	U	Calcium Hydroxide, 10% in glycerol	E	E	U	Ferrous Chloride, 40% in w	E	E	E
Alum, 5% in w	E	E	E	Calcium Hydroxide, 20% in water	E	E	U	Ferrous Salts	E	E	E
Aluminum Chloride, 53% in w	E	E	E	Calcium Hypochlorite, 20% in w	E	E	G	Ferrous Sulfate, 5% in w	E	E	E
Aluminum Chlorohydrate 50%	E	E	-	Calcium Nitrate, 55% in w	E	E	E	Fluoborate Salts	E	E	E
Aluminum Fluoride, 0.1% in w	E	E	E	Calcium Oxide, 3% in w	E	E	E	Fluoboric Acid, 48% in w	U	E	U
Aluminum Hydroxide, 2% in w	E	E	E	Calcium Salts	E	E	E	Fluorine Gas	U	U	U
Aluminum Nitrate, 39% in w	E	E	E	Calcium Sulfate, 1% in w	E	E	E	Fluosilicic Acid, 30% w (Fluoride)	E	E	F
Aluminum Potassium Sulfate	E	E	E	Carbon Dioxide, Wet/Dry	E	E	E	Formaldehyde, 37% in w	U	F	U
Aluminum Sulfate	E	E	E	Carbon Disulfide	U	U	U	Formic Acid, 25% in w	E	E	F
Aluminum Sulfate, 50% in w	E	E	E	Carbon Monoxide	E	E	E	Formic Acid, 40-50% in w	G	E	U
Aluminum Salts	E	E	E	Carbon Tetrachloride	U	U	U	Formic Acid, 98% in w	G	E	U
Amines	F	U	U	Carbonic Acid	E	E	E	Fruit Juice	E	E	E
Ammonia, Anhydrous Liquid	G	G	F	Castor Oil	F	G	E	Fuel Oil	U	U	G
Ammonium Acetate, 45% in w	E	E	G	Cellosolve	F	U	U	Furfural	U	U	U
Ammonium Bifluoride, 50% in w	E	E	E	Cellosolve Acetate	F	U	U	Gallic Acid, 17% in acetone	G	U	U
Ammonium Bisulfite, 50%	E	E	-	Chloroacetic Acid, 20% in w	G	E	U	Gasoline, Automotive	U	U	G
Ammonium Carbonate, 50% in w	E	E	E	Chlorobenzene, Mono, Di, Tri	U	U	U	Gelatin	E	E	E
Ammonium Chloride, 23% in w	E	E	E	Chloroform	U	U	U	Glucose, 50% in w	E	E	E
Ammonium Hydroxide, 5-10% in w	E	E	E	Chlorosulfonic Acid	U	U	U	Glycerol, (Glycerin)	E	E	E
Ammonium Hydroxide, 30% in w	E	E	F	Chromic Acid, 10-20% in w	E	E	U	Glycolic Acid, 70% in w	G	E	U
Ammonium Nitrate, 54% in w	E	E	E	Chromic Acid, 50% in w	F	G	U	Heptane	U	U	G
Ammonium Persulfate, 30% in w	E	E	E	Chromium Salts	E	E	E	Hexane	U	U	G
Ammonium Phosphate, 21% in w	E	E	E	Citric Acid, 50% in w	E	E	G	Hydrazine	F	U	U
Ammonium Salts	E	E	E	Coconut Oil	F	G	E	Hydrobromic Acid, 20-50% in w	U	E	U
Ammonium Sulfate, 30% in w	E	E	E	Copper Salts	E	E	E	Hydrobromic Acid, 100% in w	U	E	U
Amyl Acetate	G	U	U	Corn Syrup	E	E	E	Hydrochloric Acid, 10% in w	E	E	F
Amyl Alcohol	U	E	F	Cottonseed Oil	F	G	E	Hydrochloric Acid, 37% in w	G	E	U
Amyl Chloride	F	U	U	Cresol (m, o, or p)	U	E	U	Hydrocyanic Acid	E	E	G
Aniline	F	U	U	Cresylic Acid	G	U	U	Hydrofluoric Acid, 10% in w	U	E	U
Aniline Hydrochloride	F	U	U	Cupric Chloride, 40% in w	E	E	E	Hydrofluoric Acid, 25% in w	U	E	U
Antimony Salts	E	E	E	Cupric Cyanide, 10% in dilute bases	E	E	E	Hydrofluoric Acid, 40-48% in w	U	E	U
Antimony Trichloride	E	E	F	Cupric Nitrate, 70% in w	E	E	E	Hydriodic Acid, 55-58% in w	G	E	U
Aqua Regia	U	E	U	Cupric Sulfate, 13% in w	E	E	E	Hydrogen Peroxide, 3% in w	E	E	E
Aqueous Ammonia	E	E	F	Cyclohexane	U	U	G	Hydrogen Peroxide, 10% in w	E	E	E
Aromatic Hydrocarbons	U	U	U	Cyclohexanone	U	F	U	Hydrogen Peroxide, 30% in w	E	E	F
Arsenic Acid, 20% in w	F	E	E	Detergent Solutions	G	E	E	Hydrogen Peroxide, 90% in w	G	G	U
Arsenic Salts	E	E	E	Diacetone Alcohol	U	E	F	Hydrogen Sulfide	E	E	E
ASTM Reference No. 1 Oil	F	U	E	Dibutyl Phthalate	E	E	U	Hydroquinone, 7% in w	G	E	E
ASTM Reference No. 2 Oil	U	U	E	Dichlorobenzene	U	U	U	Hypochlorous Acid, 25% in w	E	E	F
ASTM Reference No. 3 Oil	U	U	E	Diesel Fuel	U	U	G	Iodine, 50 ppm in w	E	E	E
Barium Carbonate, 1% in w	E	E	E	Diethylamine, 2.5% in w	E	E	E	Isobutyl Alcohol	F	E	U
Barium Chloride, 27% in w	E	E	E	Diethylene Glycol	E	E	E	Isooctane	U	U	G
Barium Hydroxide, 5% in w	E	E	E	Diethyl Ether	F	U	U	Isopropyl Acetate	G	U	U
Barium Salts	E	E	E	Dimethylformamide	G	E	U	Isopropyl Alcohol	F	E	U
Barium Sulfate, <1% in dilute acids	E	E	E	Dimethylsulfoxide	E	G	U	Isopropyl Ether	F	U	U
Barium Sulfide	E	E	E	Diethyl Phthalate	E	E	U	Jet Fuel, Jp8	U	U	G
Beer	E	E	E	Dioxane	U	U	U	Kerosene	U	U	G
Benzaldehyde	U	F	U	Ether	F	U	U	Ketones	U	F	U
Benzene	U	U	U	Ethyl Acetate	F	G	U	Lacquer Solvents	G	U	U
Benzenesulfonic Acid	U	U	U	Ethyl Alcohol (Ethanol)	F	E	U	Lactic Acid, 3-10% in w	E	E	G
Benzoic Acid	E	E	U	Ethyl Benzoate	U	U	U	Lactic Acid, 85% in w	G	E	U
Benzyl Alcohol	E	E	U	Ethyl Chloride	F	U	U	Lard, Animal Fat	F	G	E
Bleach Liquor, 22% in w	E	E	G	Ethyl Ether	F	U	U	Lead Acetate, 35% in w	E	E	E
Borax, 6% in w	E	E	E	Ethylamine, 70% in w	U	G	U	Lead Nitrate, 27% in w	E	E	E
Boric Acid, 4% in w	E	E	E	Ethylene Bromide	U	F	U	Lead Salts	E	E	E

**28 Day Immersions at 73°F**

E = Excellent  
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Chemical, Conc. % (1)	Flex-A-Prene			Chemical, Conc. %(1)	Flex-A-Prene			Chemical, Conc. %(1)	Flex-A-Prene		
	Flex-A-Chem	Flex-A-Thane			Flex-A-Chem	Flex-A-Thane			Flex-A-Chem	Flex-A-Thane	
Lemon Oil	U	U	G	Paraffins	U	U	G	Sodium Persulfate	E	E	E
Lime Slurry (Calcium Hydroxide)	E	E	U	Peracetic acid	G	E	-	Sodium Peroxide, 20% in w	E	E	E
Limonene-D	U	U	G	Perchloric Acid, 67% in w	E	E	U	Sodium Phosphate, 30% in w	E	E	E
Linoleic Acid	F	F	G	Perchloroethylene	F	U	U	Sodium Salts	E	E	E
Linseed Oil	F	G	E	Phenol, 5-10% in w	E	E	U	Sodium Sulfate, 38% in w	E	E	E
Lubricating Oils, Petroleum	U	U	E	Phenol, 91% in w	E	E	U	Sodium Sulfide, 45% in w	E	E	E
Magnesium Carbonate, 1% in w	E	E	E	Phosphoric Acid, <10% in w	E	E	E	Sodium Sulfite, 10% in w	E	E	E
Magnesium Chloride, 35% in w	E	E	E	Phosphoric Acid, 25% in w	E	E	E	Stannic Chloride, 50% in w	E	E	F
Magnesium Hydroxide	E	E	E	Phosphoric Acid, 85% in w	E	E	U	Stannous Chloride, 45% in w	E	E	E
Magnesium Hydroxide, 10% in acids	E	E	E	Phosphorous Trichloride Acid	G	E	U	Stearic Acid, 5% in alc	F	F	G
Magnesium Nitrate, 50% in w	E	E	E	Photographic Solutions	G	E	E	Styrene Monomer	U	U	U
Magnesium Sulfate, 25% in w	E	E	E	Phthalic Acid, 9% in alc	E	E	U	Sulfur Chloride	U	E	U
Maleic Acid, 30% in w	F	F	G	Phthalic Anhydride, 9% in alc	E	E	U	Sulfur Dioxide, Gas Dry	E	E	F
Malic Acid, 36% in w	E	E	G	Picric Acid, 1% in w	U	E	U	Sulfur Dioxide, Gas Wet	E	E	F
Manganese Salts	E	E	E	Plating Solutions	E	E	U	Sulfur Trioxide, Wet	G	G	U
Manganese Sulfate, 34% in w	E	E	E	Polyaluminum Chloride (PAC) in w	E	E	-	Sulfuric Acid, 10% in w	E	E	E
Mercuric Chloride, 6% in w	E	E	E	Potassium Amyl Xanthate (PAX)	-	G	-	Sulfuric Acid, 30% in w	E	E	U
Mercuric Cyanide, 8% in w	E	E	E	Potassium Carbonate, 55% in w	E	E	E	Sulfuric Acid, 95-98% in w	U	E	U
Mercurous Nitrate, 10% in dilute acids	E	E	E	Potassium Chloride, 20% in w	E	E	E	Sulfurous Acid	E	E	E
Mercury	E	E	E	Potassium Cyanide, 33% in w	E	E	E	Tannic Acid, 75% in w	G	E	U
Mercury Salts	E	E	E	Potassium Dichromate, 5% in w	E	E	E	Tanning Solutions	E	E	F
Methane Gas	E	E	E	Potassium Hydroxide, 43% in w	E	E	U	Tartaric Acid, 56% in w	E	E	E
Methyl Acetate	G	U	U	Potassium Hypochlorite, 70% in w	E	E	E	Tetrahydrofuran	U	U	U
Methyl Alcohol (Methanol)	E	E	U	Potassium Iodide, 56% in w	E	E	E	Thionyl Chloride	E	E	F
Methyl Bromide	F	U	U	Potassium Nitrate, 10% in w	E	E	E	Tin Salts	E	E	E
Methyl Chloride	F	U	U	Potassium Oxide, 50% in w	E	E	E	Titanium Salts	E	E	E
Methyl Ethyl Ketone	U	F	U	Potassium Permanganate, 6% in w	E	E	E	Toluene	U	U	U
Methyl Isobutyl Ketone	U	F	U	Potassium Salts	E	E	E	Trichloroacetic Acid, 90% in w	G	E	U
Methylene Chloride	F	U	U	Potassium Sulfate, 10% in w	E	E	E	Trichloroethane	F	U	U
Methyl Methacrylate	U	U	U	Potassium Sulfide, 20% in w	E	E	E	Triethanolamine	F	U	U
Milk	E	E	E	Propyl Alcohol (Propanol)	F	E	U	Trichloroethylene	U	U	U
Mineral Oil	U	U	E	Propylene Glycol	E	E	E	Trichloropropane	F	U	U
Mineral Spirits	U	U	G	Propylene Oxide	E	E	E	Tricresyl Phosphate	E	E	U
Molasses	E	E	E	Pyridine	F	F	U	Trisodium Phosphate	E	E	E
Monoethanolamine	F	U	U	Salicylic Acid, 1% in w	E	E	G	Turpentine	U	U	G
Motor Oil	U	U	E	Silicone Oils	F	E	E	Urea, 20% in w	E	E	E
Naphtha	U	U	G	Silver Nitrate, 55% in w	E	E	E	Uric Acid	E	E	F
Naphthalene	U	U	G	Skydrol 500A	U	U	G	Vinegar	E	E	G
Nickel Chloride, 40% in w	E	E	E	Soap Solutions	G	E	E	Vinyl Acetate	G	U	U
Nickel Nitrate, 75% in w	E	E	E	Sodium Acetate, 55% in w	E	G	U	Water, Brine	E	E	E
Nickel Salts	E	E	E	Sodium Aluminate	E	E	U	Water, Deionized	E	E	E
Nickel Sulfate, 25% in w	E	E	E	Sodium Benzoate, 22% in w	E	E	E	Water, Distilled	E	E	E
Nitric Acid, 10% in w	E	E	U	Sodium Bicarbonate, 7% in w	E	E	E	Xylene	U	U	U
Nitric Acid, 35% in w	E	E	U	Sodium Bisulfate, 50% in w	E	E	E	Zinc Chloride, 80% in w	E	E	E
Nitric Acid, 68-71% in w	U	E	U	Sodium Bisulfite	E	E	E	Zinc Salts	E	E	E
Nitrobenzene	U	U	U	Sodium Carbonate, 7% in w (soda ash)	E	E	E	Zinc Sulfate, 30% in w	E	E	E
Nitromethane	U	U	U	Sodium Chlorate, 45% in w	E	E	E				
Nitrous Acid, 10% in w	E	E	F	Sodium Chloride, 20% in w	E	E	E				
Oils, Animal	F	G	E	Sodium Chlorite, 12% in	E	-	-	(1) - If a concentration is not indicated,			
Oils, Essential	U	U	F	Sodium Chloride, 20% in w	E	-	-	assume 100% concentration or the maximum			
Oils, Hydraulic (Phosphate Ester)	U	U	G	Sodium Cyanide, 30% in w	E	E	U	percent solubility in water.			
Oils, Hydrocarbon	U	U	E	Sodium Dichromate, 70% in w	E	E	E				
Oils, Vegetable	F	G	E	Sodium Fluoride, 3% in w	E	E	E	NOTE - Concentrations of room temperature			
Oleic Acid	F	F	G	Sodium Hydroxide, 10-15% in w	E	E	U	liquids are given in % volume. Concentrations			
Oleum, 25% in w	E	E	U	Sodium Hydroxide, 30-50% in w	E	E	U	of room temperature solids are given in %			
Ortho Dichlorobenzene	U	U	U	Sodium Hypochlorite, 25% in w	E	E	G	weight.			
Oxalic Acid, 12% in w	G	E	U	Sodium Nitrate, 3.5% in w	E	E	E	w = Water			
Ozone, 300pphm	E	E	E	Sodium Perborate, 25% in w	E	E	E	alc = Alcohol			
Palmitic Acid, 100% in ether	F	F	G	Sodium Permanganate, 20% in w	E	-	-	- = No Data			
				Sodium Permanganate, 40% in w	U	-	-				

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