



DRUM PUMP CHEMICAL RESISTANCE GUIDE

The information contained in this Drum Pump Chemical Resistance Guide is to be used only as a general guide for proper drum pump tube selection. No warranty is implied nor is any guarantee provided. When compatibility data are inconclusive, field testing is recommended. An asterisk indicates the material is flammable and may only be handled with a stainless steel pump tube and appropriate drive motor which are properly grounded and bonded according to Operating Instructions. Always consult with a safety engineer for proper drive motor selection when pumping flammables. All test data listed is at room temperature (72°F, 22°C) unless otherwise stated.

<p>R = Recommended M = Minor to moderate, should be field tested X = Not recommended — = No data * = Flammable or explosive</p>		<p>Use only explosion-proof motors on flammable liquids. Only metallic pumps should be used for transferring flammable or explosive liquids. All pumps and containers must be properly grounded and bonded to prevent static discharge and sparking, which could cause electric shock, fire or explosion. A ground wire should be used on any explosion-proof motor as well as the container when transferring explosive material. Always consult with a Safety Engineer for proper pump / motor selection.</p>
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	CPVC - MAX 175°F (80°C) STAINLESS STEEL 316 - MAX 175°F (80°C) PVDF (KYNAR®) - MAX 175°F (80°C) POLYPROPYLENE - MAX 130°F (54°C) POLY (PHI) HIGH TEMP - MAX 170°F (77°C)				CPVC - MAX 175°F (80°C) STAINLESS STEEL 316 - MAX 175°F (80°C) PVDF (KYNAR®) - MAX 175°F (80°C) POLYPROPYLENE - MAX 130°F (54°C) POLY (PHI) HIGH TEMP - MAX 170°F (77°C)				
* Acetaldehyde	X	X	R	X	Ammonium persulfate	R	R	R	R
Acetamide (PVDF, R to 75°F/24°C)	—	R	R	—	Ammonium phosphate, dibasic	R	R	R	R
* Acetate solvents	X	X	R	X	Ammonium phosphate, monobasic	R	R	R	R
Acetic acid (10% -80%)	R	R	M	R	Ammonium phosphate, tribasic	R	R	R	R
Acetic acid (80%)	—	R	M	X	Ammonium sulfate	R	R	R	R
Acetic acid, glacial (PVDF, R to 120°F/49°C) (PP, R to 100°F/38°C)	R	R	M	X	Ammonium sulfide (PVDF & CPVC / PVDF, R to 125°F/52°C)	—	R	—	R
Acetic anhydride	X	X	R	X	Ammonium thiocyanate	—	R	—	R
* Acetone	X	X	R	X	Ammonium thiosulfate	—	R	R	R
* Acetyl chloride	X	X	M	X	* Amyl acetate	X	X	R	X
* Acetylene	X	X	R	X	* Aniline chloride	X	X	R	X
* Alcohols	X	X	R	X	Aniline (PVDF, R to 75°F/24°C)	M	R	R	X
Aluminum chloride	R	R	X	R	Aniline dyes	—	—	M	—
Aluminum fluoride	R	R	X	R	Aniline hydrochloride (PVDF, R to 75°F/24°C)	—	R	X	X
Aluminum hydroxide	R	R	R	R	Anisole	—	—	R	—
Aluminum nitrate	R	R	R	R	Aqua regia (80%) (PVDF, R to 75°F/24°C)	X	R	X	X
Aluminum potassium sulfate	R	R	R	R	Arsenic acid	R	R	R	R
Aluminum sulfate	R	R	R	R	Barium carbonate	R	R	R	R
Amines	—	—	R	X	Barium chloride	R	R	M	R
* Ammonia, aqua (10%)	X	X	R	X	Barium hydroxide	R	R	R	R
* Ammonia, aqueous	X	X	R	X	* Barium nitrate	X	X	R	X
* Ammonia, (concentrated)	X	X	R	X	Barium sulfate	R	R	R	R
Ammonium bifluoride (PP, R to 70°F/21°C)	R	R	R	R	Barium sulfide	R	R	R	R
Ammonium carbonate	R	R	R	R	Benzaldehyde (PVDF, R to 75°F/24°C)	X	R	R	X
Ammonium chloride	R	R	M	R	Benzene, benzol	X	X	R	X
Ammonium fluoride (10%)	—	R	—	R	Benzene sulfonic acid (PVDF, R to 75°F/24°C)	—	R	M	X
Ammonium fluoride (25%)	R	R	—	R	Benzoic acid	M	R	R	R
Ammonium hydroxide	R	R	R	X	Bismuth carbonate	R	R	—	R
Ammonium nitrate	R	R	R	R	Black liquors	R	R	—	—
Ammonium nitrite (PP, R to 70°F/21°C)	R	—	—	—	Boric acid	R	R	R	—
Ammonium oxalate	R	—	R	—	Brine acid	—	R	—	—

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Bromic acid	R	R	—	R	—	R	R	M	—	—
Bromine liquid (PVDF, R to 150°F/66°C)	—	R	X	X	—	X	X	R	X	X
Bromine water	—	R	M	X	—	X	X	M	X	X
* Butane	X	X	R	X	—	X	X	M	X	X
* Butyl acetate	X	X	M	X	—	X	X	R	X	X
Butyl phenol	—	—	—	—	—	X	X	X	X	X
* Butylene	X	X	R	X	—	X	R	R	X	X
Butyric acid	R	R	R	X	—	X	X	M	X	X
Calcium bisulfide	R	R	M	R	—	X	X	M	X	X
Calcium bisulfite	R	R	M	R	—	X	X	R	X	X
Calcium chlorate	R	R	R	R	—	—	—	R	—	—
Calcium chloride	R	R	M	R	—	—	—	R	—	—
Calcium hydroxide	R	R	R	R	—	X	X	R	X	X
Calcium hypochlorite (PVDF & CPVC / PVDF, R to 70°F/21°C)	R	R	R	R	—	X	X	R	X	X
Calcium nitrate	R	R	M	R	—	X	X	R	X	X
Calcium sulfate	R	R	R	R	—	X	X	R	X	X
Calcium sulfite	R	—	M	—	—	X	X	R	X	X
* Carbon disulfide	X	X	R	X	—	X	X	R	X	X
Carbonic acid	R	R	R	R	—	X	X	R	X	X
Carbon tetrachloride	X	R	R	X	—	R	R	R	R	R
Cellosolve®	R	R	M	X	—	X	X	—	X	—
* Cetyl alcohol	X	X	R	X	—	M	M	R	M	M
Chlorine liquid	X	R	X	X	—	R	R	M	R	R
Chloroacetic acid	X	X	X	X	—	R	R	R	R	R
* Chlorobenzene	X	X	R	X	—	R	R	R	R	R
Chlorobenzyl chloride (PVDF, R to 125°F/52°C)	—	R	—	X	—	R	R	X	R	R
Chloroform (PVDF, R to 125°F/52°C)	X	R	R	X	—	R	R	M	R	R
Chlorosulfonic acid (100%)	X	X	X	X	—	R	R	M	R	R
Chromic/sulfuric acid	X	X	X	X	—	R	M	—	M	—
Chromic acid (10%) (PVDF & CPVC / PVDF, R to 120°F/49°C)	R	R	R	R	—	R	R	R	X	X
Chromic acid (50%) (PVDF, R to 120°F/49°C) (CPVC / PVDF, R to 70°F/21°C)	R	R	M	R	—	R	R	R	X	X
Citric acid	R	R	R	R	—	X	M	R	R	R
Citric oils	R	—	R	—	—	X	R	R	R	R
Copper chloride	R	R	X	—	—	R	R	R	R	R
Copper cyanide	R	R	R	R	—	R	R	—	R	—
Copper nitrate	R	R	R	R	—	R	R	—	R	—
* Copper sulfate	R	R	R	R	—	—	R	M	R	R
Cresylic acid (PVDF, R to 150°F/66°C)	—	R	R	R	—	X	X	R	X	X
* Cyclohexane	—	R	X	X	—	X	X	M	X	X
* Cyclohexanol	—	R	M	X	—	X	X	M	X	X
* Cyclohexanone	—	R	M	X	—	X	X	M	X	X
Diacetone alcohol	—	R	M	X	—	X	X	R	X	X
* Dichloroethylene	—	R	X	X	—	X	X	X	X	X
Diesel fuels	—	R	R	X	—	X	R	R	X	X
* Diethyl ether	—	R	R	X	—	X	X	M	X	X
* Diisobutylene	—	R	X	X	—	X	X	M	X	X
Dimethyl formamide	—	R	M	R	—	—	X	R	X	X
Diocetyl phthalate	—	R	R	R	—	—	—	R	—	—
Dyes	—	R	R	R	—	—	—	R	—	—
* Epichlorohydrine	—	R	X	R	—	X	X	R	X	X
* Ethanolamine	—	R	X	R	—	X	X	R	X	X
* Ether	—	R	X	R	—	X	X	R	X	X
* Ethyl acetate	—	R	X	R	—	X	X	R	X	X
* Ethyl chloride	—	R	X	R	—	X	X	R	X	X
* Ethyl ether	—	R	X	R	—	X	X	R	X	X
* Ethylene chloride	—	R	X	R	—	X	X	R	X	X
* Ethylene dichloride	—	R	X	R	—	X	X	R	X	X
Ethylene glycol	—	R	R	R	—	R	R	R	R	R
* Ethylene oxide	—	R	X	—	—	X	X	—	X	—
Fatty acids	—	R	M	R	—	M	M	R	M	M
Ferric chloride	—	R	R	R	—	R	R	M	R	R
Ferric nitrate	—	R	R	R	—	R	R	R	R	R
Ferric sulfate	—	R	R	R	—	R	R	R	R	R
Ferrous chloride	—	R	R	X	—	R	R	X	R	R
Ferrous sulfate	—	R	R	M	—	R	R	M	R	R
Fluoboric acid (CPVC / PVDF, R to 140°F/60°C)	—	R	R	M	—	R	R	M	R	R
Fluosilicic acid	—	R	M	—	—	R	M	—	M	—
Formaldehyde (PVDF, R to 120°F/49°C)	—	R	R	R	—	R	R	R	X	X
Formic acid	—	R	R	R	—	R	R	R	X	X
Furfural	—	R	M	R	—	X	M	R	X	X
Gallic acid (PVDF & CPVC / PVDF, R to 75°F/24°C)	—	R	M	R	—	M	R	M	R	R
Gelatin	—	R	R	R	—	X	R	R	R	R
Glue P.V.A.	—	R	R	R	—	M	R	R	R	R
Glycerin	—	R	R	R	—	R	R	R	R	R
Glycolic acid (PP, R to 70°F/21°C) (PVDF & CPVC / PVDF, R to 75°F/24°C)	—	R	R	—	—	R	R	—	R	—
Glycols	—	R	M	R	—	—	R	M	R	R

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	R	R	R	R	R	R	R	R	
Potassium hydroxide (PVDF & CPVC / PVDF, R to 150°F/66°C)	R	R	R	R	Sodium thiosulfate	R	R	R	R
Potassium nitrate	R	R	R	R	Stannic chloride	R	R	X	R
Potassium permanganate	M	R	M	R	Stearic acid	X	R	R	R
Potassium sulfate	R	R	M	R	Sulfate liquors	R	—	X	—
Propionic acid (CPVC / PVDF, R to 140°F/60°C)	—	R	M	R	Sulfur	R	R	R	R
Silicone oil	R	R	R	R	Sulfur chloride (PVDF, R to 75°F/24°C)	X	R	X	R
Silver nitrate	R	R	R	R	Sulfur dioxide	X	R	R	X
Soap solutions	R	R	R	R	Sulfuric acid (10%)	R	R	M	R
Sodium acetate	X	X	R	X	Sulfuric acid (10%-75%)	R	R	M	R
Sodium bicarbonate	R	R	R	R	Sulfuric acid (66° Baumè) (PVDF & CPVC / PVDF, R to 120°F/49°C)	X	R	M	R
Sodium bisulfate	R	R	R	R	Sulfurous acid	R	R	M	R
Sodium bisulfite	R	R	R	R	Tannic acid	R	R	R	R
Sodium borate	—	R	M	R	Tartaric acid	R	R	R	R
Sodium bromide	R	R	R	R	* Tetrahydrofuran	X	X	R	X
Sodium carbonate	R	R	R	R	Tetralin	—	—	R	—
Sodium chlorate (50%)	R	R	R	R	Titanium tetrachloride (PVDF, R to 150°F/66°C)	—	R	M	X
Sodium chloride	R	R	R	R	* Toluene (toluol)	X	X	R	X
Sodium cyanide	R	R	R	R	Transformer oil	R	—	R	—
Sodium hydroxide (20%)	R	R	R	R	Trichloroacetic acid (PVDF & CPVC/PVDF, R to 75°F/24°C)	—	R	X	R
Sodium hydroxide (50%)	R	X	M	X	1, 1, 1, Trichloroethane	—	—	X	—
Sodium hydroxide (80%)	R	X	X	X	Trichloroethylene	X	R	R	X
Sodium hypochlorite to 20%	X	R	X	R	Tricresylphosphate	—	X	R	X
Sodium metaphosphate	X	—	R	—	Triethylamine (PVDF, R to 125°F/52°C)	—	R	—	X
Sodium nitrate	R	R	R	R	* Vinyl chloride	X	X	—	X
Sodium perborate	R	—	X	—	* Wood oil	X	X	R	X
Sodium phosphate	R	R	M	R	* Xylene (xylol)	X	X	R	X
Sodium silicate	R	R	R	R	Zinc hydrosulfite	—	R	R	R
Sodium sulfate	R	R	R	R					
Sodium sulfide	R	R	R	R					