DRUMPUMP
CHEMICAL RESISTANCE GUIDE

2900 MacArthur Blvd. Northbrook, IL. USA 60062 **WWW.SERFILCO.COM** (800) 323 - 5431

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.

R = Recommended
M = Minor to moderate, should be field tested
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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.

	CPVC / PVDF - 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)
* Acetaldehyde	X	X	R	X
Acetamide (PVDF, R to 75°F/24°C)	—	R	R	—
* Acetate solvents	X	X	R	X
Acetic acid (10% -80%)	R	R	M	R
Acetic acid (80%)	—	R	M	X
Acetic acid, glacial (PVDF, R to 120°F/49°C) (PP, R to 100°F/38°C)	R	R	M	X
Acetic anhydride	X	X	R	X
* Acetone	X	X	R	X
* Acetyl chloride	X	X	M	X
* Acetylene	X	X	R	X
* Alcohols	X	X	R	X
Aluminum chloride	R	R	X	R
Aluminum fluoride	R	R	X	R
Aluminum hydroxide	R	R	R	R
Aluminum nitrate	R	R	R	R
Aluminum potassium sulfate	R	R	R	R
Aluminum sulfate	R	R	R	R
Amines	—	—	R	X
* Ammonia, aqua (10%)	X	X	R	X
* Ammonia, aqueous	X	X	R	X
* Ammonia, (concentrated)	X	X	R	X
Ammonium bifluoride (PP, R to 70°F/21°C)	R	R	R	R
Ammonium carbonate	R	R	R	R
Ammonium chloride	R	R	M	R
Ammonium fluoride (10%)	—	R	—	R
Ammonium fluoride (25%)	R	R	—	R
Ammonium hydroxide	R	R	R	X
Ammonium nitrate	R	R	R	R
Ammonium nitrite (PP, R to 70°F/21°C)	R	—	—	—
Ammonium oxalate	R	—	R	—

	CPVC / PVDF - 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)
Ammonium persulfate	R	R	R	R
Ammonium phosphate, dibasic	R	R	R	R
Ammonium phosphate, monobasic	R	R	R	R
Ammonium phosphate, tribasic	R	R	R	R
Ammonium sulfate	R	R	R	R
Ammonium sulfide (PVDF & CPVC / PVDF, R to 125°F/52°C)	—	R	—	R
Ammonium thiocyanate	—	R	—	R
Ammonium thiosulfate	—	R	R	R
* Amyl acetate	X	X	R	X
* Amyl chloride	X	X	R	X
Aniline (PVDF, R to 75°F/24°C)	M	R	R	X
Aniline dyes	—	—	M	—
Aniline hydrochloride (PVDF, R to 75°F/24°C)	—	R	X	X
Anisole	—	—	R	—
Aqua regia (80%) (PVDF, R to 75°F/24°C)	X	R	X	X
Arsenic acid	R	R	R	R
Barium carbonate	R	R	R	R
Barium chloride	R	R	M	R
Barium hydroxide	R	R	R	R
* Barium nitrate	X	X	R	X
Barium sulfate	R	R	R	R
Barium sulfide	R	R	R	R
Benzaldehyde (PVDF, R to 75°F/24°C)	X	R	R	X
Benzene, benzol	X	X	R	X
Benzene sulfonic acid (PVDF, R to 75°F/24°C)	—	R	M	X
Benzoic acid	M	R	R	R
Bismuth carbonate	R	R	—	R
Black liquors	R	R	—	—
Boric acid	R	R	R	R
Brine acid	—	R	—	—

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	POLYPROPYLENE - MAX. 130°F (54°C)	PVDF (KYNAR®) - MAX. 175°F (80°C)	STAINLESS STEEL 316 - MAX 175°F (80°C)	CPVC / PVDF - MAX 175°F (80°C)
* Acetaldehyde	X	X	R	X
Acetamide (PVDF, R to 75°F/24°C)	—	R	R	—
* Acetate solvents	X	X	R	X
Acetic acid (10% -80%)	R	R	M	R
Acetic acid (80%)	—	R	M	X
Acetic acid, glacial (PVDF, R to 120°F/49°C) (PP, R to 100°F/38°C)	R	R	M	X
Acetic anhydride	X	X	R	X
* Acetone	X	X	R	X
* Acetyl chloride	X	X	M	X
* Acetylene	X	X	R	X
* Alcohols	X	X	R	X
Aluminum chloride	R	R	X	R
Aluminum fluoride	R	R	X	R
Aluminum hydroxide	R	R	R	R
Aluminum nitrate	R	R	R	R
Aluminum potassium sulfate	R	R	R	R
Aluminum sulfate	R	R	R	R
Amines	—	—	R	X
* Ammonia, aqua (10%)	X	X	R	X
* Ammonia, aqueous	X	X	R	X
* Ammonia, (concentrated)	X	X	R	X
Ammonium bifluoride (PP, R to 70°F/21°C)	R	R	R	R
Ammonium carbonate	R	R	R	R
Ammonium chloride	R	R	M	R
Ammonium fluoride (10%)	—	R	—	R
Ammonium fluoride (25%)	R	R	—	R
Ammonium hydroxide	R	R	R	X
Ammonium nitrate	R	R	R	R
Ammonium nitrite (PP, R to 70°F/21°C)	R	—	—	—
Ammonium oxalate	R	—	R	—

	POLYPROPYLENE - MAX. 130°F (54°C)	PVDF (KYNAR®) - MAX. 175°F (80°C)	STAINLESS STEEL 316 - MAX 175°F (80°C)	CPVC / PVDF - MAX 175°F (80°C)
Ammonium persulfate	R	R	R	R
Ammonium phosphate, dibasic	R	R	R	R
Ammonium phosphate, monobasic	R	R	R	R
Ammonium phosphate, tribasic	R	R	R	R
Ammonium sulfate	R	R	R	R
Ammonium sulfide (PVDF & CPVC / PVDF, R to 125°F/52°C)	—	R	—	R
Ammonium thiocyanate	—	R	—	R
Ammonium thiosulfate	—	R	R	R
* Amyl acetate	X	X	R	X
* Amyl chloride	X	X	R	X
Aniline (PVDF, R to 75°F/24°C)	M	R	R	X
Aniline dyes	—	—	M	—
Aniline hydrochloride (PVDF, R to 75°F/24°C)	—	R	X	X
Anisole	—	—	R	—
Aqua regia (80%) (PVDF, R to 75°F/24°C)	X	R	X	X
Arsenic acid	R	R	R	R
Barium carbonate	R	R	R	R
Barium chloride	R	R	M	R
Barium hydroxide	R	R	R	R
* Barium nitrate	X	X	R	X
Barium sulfate	R	R	R	R
Barium sulfide	R	R	R	R
Benzaldehyde (PVDF, R to 75°F/24°C)	X	R	R	X
Benzene, benzol	X	X	R	X
Benzene sulfonic acid (PVDF, R to 75°F/24°C)	—	R	M	X
Benzoic acid	M	R	R	R
Bismuth carbonate	R	R	—	R
Black liquors	R	R	—	—
Boric acid	R	R	R	R
Brine acid	—	R	—	—

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* Heptane	X	X	R	X
* Hexane	X	X	R	X
Hydrobromic acid	M	R	X	R
Hydrochloric acid (20%)	R	R	X	R
Hydrochloric acid (37%) (cold)	R	R	X	R
Hydrochloric acid (37%) (hot)	—	R	X	R
Hydrofluoric acid (20%)	R	R	X	X
Hydrofluoric acid (50%)	X	R	X	X
Hydrofluoric acid (75%)	X	R	X	X
Hydrofluoric acid (conc.) (cold)	—	R	—	X
Hydrofluosilicic acid (20%)	R	R	X	R
Hydrogen fluoride	R	—	R	—
* Hydrogen peroxide	X	X	R	X
* Hydrogen sulfide (cold)	X	X	R	X
* Hydrogen sulfide (hot)	X	X	R	X
Hypochlorous acid	—	R	X	R
Iodine (PVDF, R to 150°F/66°C)	M	R	X	M
* Isopropyl ether	X	X	R	X
* Jet fuel (JP3, JP4, JP5)	X	X	R	X
* Lacquer solvents	X	X	R	X
Lactic acid (PVDF & CPVC / PVDF, R to 120°F/49°C)	R	R	R	R
Lead acetate	R	R	M	R
Lead sulfamate	R	—	—	—
* Ligroin	X	X	R	X
Magnesium carbonate	R	R	R	R
Magnesium chloride	R	R	R	R
Magnesium hydroxide	R	R	R	R
Magnesium sulfate	R	R	R	R
Maleic acid	M	R	R	R
Mercuric chloride (dilute solution)	R	R	X	R
Mercuric cyanide	R	R	R	R
* Methyl acetone	X	X	R	X
Methyl chloride	X	R	R	X
* Methyl ethyl ketone	X	X	R	X
* Methyl isobutyl ketone	X	X	R	X
Methylene chloride	X	X	R	X
Milk	R	R	R	R
* Monoethanolamine	X	X	R	X
Muriatic acid (20%)	R	R	X	R
Muriatic acid (37%) (cold)	R	R	X	R

	POLYPROPYLENE - MAX. 130°F (54°C)	PVDF (KYNAR®) - MAX. 175°F (80°C)	STAINLESS STEEL 316 - MAX 175°F (80°C)	CPVC / PVDF - MAX 175°F (80°C)
Muriatic acid (37%) (hot)	—	R	X	R
* Naptha	X	X	R	X
* Napthalene	X	X	M	X
Nickel chloride	R	R	R	R
Nickel sulfate	R	R	R	R
Nitric acid (5-10%)	R	R	R	R
Nitric acid (20%)	R	R	R	R
Nitric acid, (conc.) (PVDF, R to 120°F/49°C)	X	R	R	X
Nitric acid, red fuming	—	X	R	X
Nitrobenzene (PVDF, R to 75°F/24°C)	M	R	M	X
Oleic acid	R	R	R	X
Oleum	X	X	R	X
Oxalic acid (cold) (PVDF, R to 125°F/52°C)	R	R	R	R
Palmitic acid	M	R	R	R
Perchloric acid (PVDF, R to 125°F/52°C)	—	R	X	M
Perchloroethylene	X	R	R	X
Petrolatum	—	R	R	R
Phenol (carbolic acid)	R	R	R	R
Phosphoric acid (20%)	R	R	M	R
Phosphoric acid (20%-40%)	R	R	R	R
Phosphoric acid (45%)	R	R	M	R
Phosphorus, red	—	—	R	—
Phosphorus, yellow	—	—	R	—
Photographic solutions	R	—	R	—
Plating solutions, chrome 40	R	R	R	R
Plating solutions, copper	R	R	R	R
Plating solutions, gold	R	—	R	—
Plating solutions, iron	R	R	R	R
Plating solutions, lead	R	R	—	R
Plating solutions, nickel	R	R	—	R
Plating solutions, silver	R	R	R	R
Plating solutions, tin	R	R	R	R
Plating solutions, zinc	R	R	R	R
Potassium bicarbonate	R	R	M	R
Potassium bromide	R	R	R	R
Potassium carbonate	R	R	R	R
Potassium chlorate	R	R	R	R
Potassium chloride	R	R	R	R
Potassium chromate	R	R	M	R
Potassium dichromate	R	R	R	R

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Potassium hydroxide (PVDF & CPVC / PVDF, R to 150°F/66°C)	R	R	R	R
Potassium nitrate	R	R	R	R
Potassium permanganate	M	R	M	R
Potassium sulfate	R	R	M	R
Propionic acid (CPVC / PVDF, R to 140°F/60°C)	—	R	M	R
Silicone oil	R	R	R	R
Silver nitrate	R	R	R	R
Soap solutions	R	R	R	R
Sodium acetate	X	X	R	X
Sodium bicarbonate	R	R	R	R
Sodium bisulfate	R	R	R	R
Sodium bisulfite	R	R	R	R
Sodium borate	—	R	M	R
Sodium bromide	R	R	R	R
Sodium carbonate	R	R	R	R
Sodium chlorate (50%)	R	R	R	R
Sodium chloride	R	R	R	R
Sodium cyanide	R	R	R	R
Sodium hydroxide (20%)	R	R	R	R
Sodium hydroxide (50%)	R	X	M	X
Sodium hydroxide (80%)	R	X	X	R
Sodium hypochlorite to 20%	X	R	X	R
Sodium metaphosphate	X	—	R	—
Sodium nitrate	R	R	R	R
Sodium perborate	R	—	X	—
Sodium phosphate	R	R	M	R
Sodium silicate	R	R	R	R
Sodium sulfate	R	R	R	R
Sodium sulfide	R	R	R	R

	POLYPROPYLENE - MAX. 130°F (54°C)	PVDF (KYNAR®) - MAX. 175°F (80°C)	STAINLESS STEEL 316 - MAX 175°F (80°C)	CPVC / PVDF - MAX 175°F (80°C)
Sodium thiosulfate	R	R	R	R
Stannic chloride	R	R	X	R
Stearic acid	X	R	R	R
Sulfate liquors	R	—	X	—
Sulfur	R	R	R	R
Sulfur chloride (PVDF, R to 75°F/24°C)	X	R	X	R
Sulfur dioxide	X	R	R	X
Sulfuric acid (10%)	R	R	M	R
Sulfuric acid (10%-75%)	R	R	M	R
Sulfuric acid (66° Baumè) (PVDF & CPVC / PVDF, R to 120°F/49°C)	X	R	M	R
Sulfurous acid	R	R	M	R
Tannic acid	R	R	R	R
Tartaric acid	R	R	R	R
* Tetrahydrofuran	X	X	R	X
Tetralin	—	—	R	—
Titanium tetrachloride (PVDF, R to 150°F/66°C)	—	R	M	X
* Toluene (toluol)	X	X	R	X
Transformer oil	R	—	R	—
Trichloroacetic acid (PVDF & CPVC/PVDF, R to 75°F/24°C)	—	R	X	R
1, 1, 1, Trichloroethane	—	—	X	—
Trichloroethylene	X	R	R	X
Tricresylphosphate	—	X	R	X
Triethylamine (PVDF, R to 125°F/52°C)	—	R	—	X
* Vinyl chloride	X	X	—	X
* Wood oil	X	X	R	X
* Xylene (xylol)	X	X	R	X
Zinc hydrosulfite	—	R	R	R