Chemical Resistance Chart

These recommendations are based upon information from material suppliers as well as careful examination of available published information, and are believed to be accurate. However, since the resistance of metals, plastics, and elastomers can be affected by concentration, temperature, presence of other chemicals, and other factors, this information should be considered a general guide rather than an unqualified guarantee. Ultimately, the customer must determine the suitability of the pump used in various solutions. All recommendations assume ambient temperatures unless otherwise noted. The ratings for these materials are based upon the chemical resistance only. Added consideration must be given to pump selections when the chemical is abrasive, viscous in nature, or has a specific gravity greater than 1.1.

	302 Stainless Steel	304 Stainless Steel	316 Stainless Steel	440 Stainless Steel	Aluminum	Titanium	Hastelloy C	Cast Bronze	Brass	Cast Iron	Carbon Steel	Kynar	PVC (Type 1)	Tygon (E-3606)	Teflon	Noryl	Polyacetal	Nylon	Cycolac (ABS)	Polyethylene	Polypropylene	Ryton	Carbon	Ceramic	Ceramagnet "A"	Viton	Buna N (Nitrile)	Silicon	Neoprene	Ethylene Propylene	Rubber (Natural)	Epoxy
Acetaldehyde[5]	A	A	A	—	B	A	A	D	—	—	C	—	D	D	A	—	A	A	D	C	B	A	A	A	—	D	B	B	D	B	C	A
Acetamide	—	B	A	—	—	—	—	—	—	—	C	—	—	—	—	—	B	—	—	—	—	—	—	A	—	A	A	—	A	A	D	A
Acetate Solvent[2]	A	B	A	B	B	—	—	A	C	B	A	—	B	D	A	—	—	A	—	B	D	—	A	A	—	D	D	—	D	—	—	A
Acetic Acid, Glacia[1]	—	B	A	A	B	A	A	C	C	D	A	—	C	B	A	C	D	D	D	B	B	A	A	A	—	D	D	B	C	B	C	B
Acetic Acid 20%	—	B	A	—	—	A	A	—	C	—	—	A	B	—	A	A	—	D	—	—	A	A	—	A	—	A	C	—	C	—	—	B
Acetic Acid 80%	—	B	A	—	—	A	A	—	C	—	—	A	D	—	A	B	—	D	—	—	B	—	—	A	—	A	C	—	D	—	—	B
Acetic Acid	—	B	A	B	B	A	A	C	C	D	C	B	A	B	A	A	D	D	C	B	A	A	A	A	—	C	C	—	C	B	C	A
Acetic Anhydride	B	A	A	B	B	A	A	C	D	B	D	D	D	D	A	D	D	D	D	A	A	A	A	A	—	D	A	C	B	B	C	A
Acetone[6]	A	A	A	B	A	A	A	A	A	A	A	D	D	D	A	D	B	A	D	C	B	A	A	A	A	D	D	B	C	A	D	B
Acetyl Chloride	—	C	A	—	—	—	—	D	—	—	—	—	—	—	A	—	—	—	—	—	—	A	—	—	—	A	—	—	—	—	A	A
Acetylene[2]	A	A	A	A	A	B	—	B	—	A	A	—	B	—	—	—	A	A	—	—	D	A	A	A	—	A	A	C	B	A	C	A
Acrylonitrile	A	A	C	—	B	B	B	A	—	C	—	—	—	—	—	—	B	—	D	—	B	A	A	A	—	C	D	—	D	D	—	A
Alcohol, Amyl	A	A	A	—	C	A	A	A	B	C	C	A	A	B	A	C	A	A	B	B	B	A	A	A	—	A	A	D	A	A	C	A
Alcohol, Benzyl	—	A	A	—	B	A	A	A	C	—	—	—	D	B	—	A	A	A	D	D	A	—	A	A	—	A	D	—	B	B	D	A
Alcohol, Butyl	A	A	A	—	B	B	A	B	C	C	C	A	A	B	A	A	A	A	—	B	B	A	A	A	—	A	A	D	A	A	A	A
Alcohol, Diacetone[2]	—	A	A	—	A	A	A	A	C	—	A	—	D	—	—	A	A	A	—	—	D	—	A	A	—	D	D	—	D	A	D	A
Alcohol, Ethyl	—	A	A	A	B	A	A	A	C	A	A	—	A	C	—	A	B	A	B	B	A	—	A	A	A	A	A	B	A	B	A	A
Alcohol, Hexyl	—	A	A	—	A	A	A	A	C	—	A	—	—	—	—	A	A	A	—	—	A	—	A	A	—	A	A	D	B	A	A	A
Alcohol, Isobutyl	—	A	A	—	B	A	A	A	C	—	A	—	—	—	—	A	A	A	B	—	A	—	A	A	—	A	C	B	A	A	A	A
Alcohol, Isopropyl	—	A	A	—	B	A	A	A	C	C	A	—	—	—	—	A	A	A	—	—	A	—	A	A	—	A	C	C	B	A	A	A
Alcohol, Methyl[6]	—	A	A	A	B	A	A	A	C	A	A	—	B	—	A	A	C	A	D	B	A	—	A	A	A	C	B	—	A	A	A	A
Alcohol, Octyl	—	A	A	—	A	A	A	A	C	—	A	—	—	—	—	A	A	A	—	—	—	—	A	A	—	A	B	—	B	A	C	A
Alcohol, Propyl	—	A	A	—	A	A	A	A	—	—	A	B	A	—	—	A	A	A	—	—	A	—	A	A	—	A	A	B	A	A	A	A
Aluminum Chloride 20%	—	D	C	D	B	A	A	D	—	D	A	—	A	B	—	A	C	A	—	B	A	A	A	A	—	A	A	—	A	A	A	A
Aluminum Chloride	C	D	C	—	D	C	A	C	—	D	B	A	A	A	A	A	—	D	—	—	A	A	A	A	—	A	A	C	A	—	—	A
Aluminum Fluoride	—	D	C	D	—	D	B	—	—	—	A	A	A	—	A	A	C	D	—	B	A	—	A	—	—	A	A	C	A	—	C	A
Aluminum Hydroxide[6]	—	A	A	A	A	—	—	A	—	D	A	—	A	—	A	A	B	A	—	—	A	—	A	A	A	A	A	—	A	—	A	A
Aluminum Potassium Sulfate (Alum), 10%	—	A	—	—	A	—	B	—	—	D	A	—	A	—	A	—	—	A	—	A	—	—	A	A	—	A	—	—	A	—	A	A
Aluminum Potassium Sulfate (Alum), 100%	—	D	A	B	B	—	B	C	—	—	A	—	A	B	A	A	C	D	—	B	A	—	A	A	—	A	A	—	A	—	A	A
Aluminum Sulfate	—	C	C	A	A	A	A	C	C	D	A	A	A	B	A	A	C	A	—	B	A	A	A	A	—	A	A	—	A	A	A	A
Amines	A	A	A	—	A	B	A	B	—	A	B	—	C	A	A	B	D	A	—	—	—	—	A	A	—	D	D	C	B	B	C	A
Ammonia 10%	—	—	A	—	—	A	A	—	—	—	—	D	A	—	A	A	—	A	—	—	A	A	—	A	—	A	D	—	A	—	—	B
Ammonia, Anhydrous	A	B	A	A	B	B	A	D	—	D	B	D	A	B	A	A	D	A	—	B	A	B	C	A	—	D	B	B	A	A	D	A
Ammonia, Liquids	—	A	A	A	D	—	B	D	—	A	A	—	A	B	A	A	D	—	—	D	A	—	A	A	—	D	B	B	A	A	D	A
Ammonia, Nitrate	—	A	A	A	C	—	—	D	—	—	A	—	B	B	—	A	C	—	—	—	A	—	A	A	—	—	A	—	C	—	—	A
Ammonium Bifluoride	—	C	A	—	D	—	B	—	—	—	—	—	A	—	—	A	D	—	—	—	A	—	—	A	—	A	A	—	A	—	—	A
Ammonium Carbonate	B	A	A	A	C	A	B	B	—	C	B	—	A	B	A	A	D	A	—	—	A	—	A	A	—	B	D	C	A	A	—	A
Ammonium Casenite	—	—	A	—	—	—	—	—	—	—	—	—	—	—	—	A	D	—	—	—	—	—	—	—	—	—	—	—	A	—	—	A
Ammonium Chloride	C	A	C	A	C	D	A	D	C	D	D	A	A	B	A	A	B	A	—	B	A	A	A	A	—	A	A	C	A	A	A	A
Ammonium Hydroxide	A	A	A	A	C	A	A	D	D	A	C	—	A	B	A	A	D	A	B	B	A	A	A	A	—	B	B	B	A	A	C	A
Ammonium Nitrate	A	A	A	A	B	A	A	D	D	A	D	—	A	B	A	A	C	D	—	B	A	A	A	A	—	D	A	C	A	A	A	A
Ammonium Oxalate	—	A	A	A	—	—	A	—	—	—	A	—	—	—	—	—	B	—	—	—	—	—	A	—	—	—	A	—	A	—	—	A
Ammonium Persulfate	—	A	A	A	C	C	A	A	—	D	A	D	A	—	A	A	D	D	—	—	A	—	A	A	—	C	A	—	A	A	A	A
Ammonium Phosphate, Dibasic	B	A	A	A	B	A	A	C	—	—	D	—	A	—	A	A	B	A	—	B	A	—	A	A	—	A	A	B	A	A	A	A
Ammonium Phosphate, Monobasic	—	A	A	A	B	A	A	D	—	—	A	—	A	A	A	A	B	A	—	B	A	—	A	A	—	A	A	B	A	A	A	A
Ammonium Phosphate, Tribasic	B	A	A	A	B	A	A	C	—	C	D	—	A	—	A	A	B	A	—	B	A	—	A	A	—	A	A	B	A	A	A	A
Ammonium Sulfate	C	D	B	A	B	A	A	B	C	C	C	A	A	D	A	A	B	D	—	B	A	A	A	A	—	D	A	B	A	A	A	A
Ammonium Thio-Sulfate	—	—	A	—	—	A	—	—	—	D	A	—	—	—	—	—	B	—	—	—	—	—	A	A	—	A	—	—	A	—	—	A
Amyl-Acetate	B	A	A	C	B	A	A	C	—	—	C	C	D	D	A	D	A	B	—	D	D	A	A	A	—	D	D	D	D	A	D	A
Amyl Alcohol	—	A	A	—	B	A	A	A	—	—	A	A	A	B	A	C	A	A	—	B	A	—	A	A	—	B	B	D	A	A	C	A
Amyl Chloride	—	C	B	—	D	—	A	A	—	—	A	A	D	C	A	D	A	C	—	D	D	—	A	A	—	A	D	—	D	D	D	A
Aniline	B	A	A	A	C	A	B	C	—	—	C	C	D	D	A	D	D	C	D	C	B	A	A	A	—	C	D	C	D	B	D	A
Antifreeze	—	A	A	—	A	—	A	B	B	B	C	—	A	B	A	A	A	A	B	B	A	A	A	A	A	A	A	C	A	A	A	A
Antimony Trichloride	—	D	D	—	D	C	A	—	—	—	—	—	A	A	A	—	—	D	—	A	—	—	—	A	—	A	—	—	C	—	A	A
Aqua Regia (80%, HCL, 20%, HNO)	—	D	D	—	D	A	D	D	—	—	—	C	D	D	A	D	D	D	—	D	C	—	—	D	—	C	D	C	D	D	D	D
Arochlor 1248	—	—	—	—	—	—	—	—	—	—	A	—	—	—	—	D	—	—	—	—	—	—	A	—	—	A	D	—	D	B	D	A
Aromatic Hydrocarbons	—	—	A	—	A	—	—	A	—	A	A	—	D	—	—	D	A	—	—	C	—	—	A	—	—	A	D	—	D	D	D	A
Arsenic Acid	B	A	A	—	D	—	—	D	B	D	D	A	A	B	A	A	D	A	—	B	A	—	A	A	—	A	A	—	A	—	C	A
Asphalt	—	B	A	—	C	—	—	A	—	C	—	—	A	—	—	—	A	A	—	—	A	A	—	A	A	A	B	C	B	D	D	A

(A = No effect, Excellent) (B = Minor effect, Good) (C = Moderate effect, Fair) (D = Severe effect, Not recommended) (— = No test data available)
1. PVC: Satisfactory to 72°F 2. Polypropylene: Satisfactory to 72°F 5. Polyacetal: Satisfactory to 72°F 6. Ceramag: Satisfactory to 72°F

WARNING: Use only with nonflammable liquids compatible with pump component materials and in nonflammable/nonexplosive atmospheres.