



## Chemical Compatibility

### Material Guide

### IMPORTANT

THESE RATINGS HAVE BEEN DEVELOPED FROM TECHNICAL PUBLICATIONS AND ARE HERE AS A GUIDE AND NOT AS A GUARANTEE.

WARNING: Failure, improper selection, or improper use of the products and/or systems referred to and described in this guide or related items can cause death, personal injury or property damage.

- ✓ This document provides product and/or system options but should include further investigation by users having technical expertise.
- ✓ It is essential that you analyze all aspects of your application and review the information concerning the product or system.
- ✓ The user, through own analysis and testing, is solely responsible for making the final selection of the products and systems, assuming that all performance, safety and warning requirements are met.
- ✓ The materials described and referred to in this guide are subject to change at any time without notice.
- ✓ Unless otherwise stated, all recommendations are based on room temperature (73°F) exposure. Compatibility results may deviate from these recommendations at elevated temperatures. Recommendations are based on the presence of listed chemical only.
- ✓ Mixtures containing more than one chemical can greatly affect chemical compatibility.
- ✓ Polypropylene products and components should not be used with low flash point chemicals, regardless of chemical compatibility results.
- ✓ **KZValve** is not responsible for any misuse of valve material selection.

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A = Excellent.    B = Good -- Minor Effect, slight corrosion or discoloration.    C= Fair – Moderate Effect, not recommended, swelling may occur.  
 D= Severe Effect, not recommended for ANY use.    N/A = No information available.    1– Satisfactory to 120°F (48°C)

All data is based on ambient or room temperature conditions, about 64°F (18°C) - 73°F (23°C)

	304 Stainless Steel	316 Stainless Steel	ABS Plastic	Acetal, POM	Acrylic (PMMA)	Aluminum	Brass	Bronze	Buna N (Nitrile)	Cast Iron	Copper	CPVC	EPDM	Hastelloy® - C	Hytre® (TPE)	Kel-F® (PCTFE)	HDPE	LDPE	Natural Rubber	Neoprene (CR)	Noryl® (PPO)	Nylon (PA)	Polycarbonate (PC)	Polypropylene (PP)	PTFE	PVC	PVDF (Kynar®)	Silicone (VMQ)	Titanium	Tygon	Viton® (FKM)
Acetaldehyde	A	A	D	A	C	B	A	A	D	C	C	D	A	A	B	A	C	C	C	C	N/A	A	C	A	A	D	D	A	A	D	D
Acetamide	B	A	A	A	B	A	D	D	A	D	N/A	A	A	A	N/A	A	A	A	D	B	N/A	A	D	A	A	D	C	B	N/A	D	B
Acetate Solvents	A	A	N/A	A	D	A	A	C	C	D	A	C	A	A	N/A	A	A	A	C	D	D	A	N/A	B	A	D	A	C	A	D	D
Acetic Acid	D	B	D	D	C	B	D	C	C	D	B	C	A	A	A	A	A	A	B	C	A	D	B	B	A	D	C	C	A	D	B
Acetic Acid, 20%	B	A	C	C	C	B	D	C	B	D	B	A	A	A	A	A	A	A	B	A	A	D	A	A	A	D	A	B	A	D	B
Acetic Acid, 80%	D	B	D	D	D	B	D	C	C	D	B	C	A	A	A	A	A	D	C	C	A	D	B	A	A	C	C	B	A	D	B
Acetic Acid, Glacial	C	A	D	D	D	B	D	C	C	D	B	B	B	A	A	A	A	D	C	D	A	B	B	A	A	D	A	B	A	D	D
Acetic Anhydride	B	A	C	D	D	A	D	C	D	D	B	D	B	A	C	A	C	D	C	A	D	A	D	B	A	D	B	C	A	D	D
Acetone	A	A	D	A	D	A	A	A	D	A	A	D	A	A	B	A	D	B	C	C	D	A	D	A	A	D	D	D	A	D	D
Acetylene	A	A	N/A	A	A	A	B	C	B	A	D	C	A	N/A	A	A	B	D	B	B	N/A	A	D	A	A	A	A	B	N/A	A	A
Acrylonitrile	A	A	D	N/A	B	B	A	A	D	A	A	A	D	B	N/A	N/A	A	A	B	C	N/A	A	D	A	A	B	A	D	N/A	N/A	D
Alcohols: Amyl	A	A	A	A	C	B	A	A	B	B	A	A	A	A	A	A	A	B1	B	A	C	A	B	B	A	A	A	D	B	D	A
Alcohols: Benzyl	B	B	D	A	D	B	B	A	D	B	B	A	B	A	N/A	A	B	D	D	C	D	B	D	A	A	D	A	N/A	A	D	A
Alcohols: Butyl	A	A	D	A	C	B	A	A	A	N/A	B	A	A	B	B	A	B	B1	A	A	A	B	B	A	A	C	A	B	B	B	A
Alcohols: Ethyl	A	A	B	A	C	B	A	A	C	B	A	B	A	A	D	A	A	B	A	A	A	A	B1	A	A	C	A	B	A	C	A
Alcohols: Isobutyl	A	A	B	A	C	B	B	A	B	C	N/A	N/A	A	A	N/A	A	A	A	A	A	A	A	A	A	A	A	A	A	B	A	A
Alcohols: Isopropyl	B	B	D	A	A	B	B	A	B	A	B	C	A	A	A	A	A	A1	A	B	A	D	A1	A1	A	A	A	A	B	A	A
Alcohols: Methyl	A	A	D	A	C	A	A	A	A	A	B	A	A	A	B	A	A	A	A	A	A	B	B	A1	A	A	A	A	B	A	C
Alcohols: Propyl (1-Propanol)	A	A	B	A	B	A	A	A	A	A	A	A	A	A	N/A	A	B	A1	A	A	A	D	A	A	A	A	A1	A	A	A	A
Aluminum Fluoride	D	D	A	C	C	B	D	D	A	D	D	A	A	B	N/A	N/A	A	A1	B	A	A	A	N/A	A	A	A	A	B	A	A	A
Aluminum Hydroxide	A	C	B	A	A	B	B	C	A	A	D	A	A	B	N/A	A	A	A1	D	A	A	A	B	A	A	A	A	N/A	B	A	A
Aluminum Nitrate	A	A	A1	B	B	D	D	N/A	A	N/A	D	A	A	N/A	N/A	A	A	A1	A	A	N/A	A	A	A1	A	B	A	B	A	B	A
Aluminum Sulfate, 10%	B	B1	A	B	B	B	B	A	D	A	A	A	B	B	A	A	A1	A	A	A	A	A1	A	A	A	A	A	A	A	A	A
Alums	N/A	A	A1	C	B	A	D	N/A	A	D	C	A	A	B	D	A	A	A	A	B	N/A	A	N/A	A	A	N/A	N/A	A	A	N/A	A



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	304 Stainless Steel	316 Stainless Steel	ABS Plastic	Acetal, POM	Acrylic (PMMA)	Aluminum	Brass	Bronze	Buna N (Nitrile)	Cast Iron	Copper	CPVC	EPDM	Hastelloy® - C	Hyrel® (TPE)	Kei-Fe® (PCTFE)	HDPE	LDPE	Natural Rubber	Neoprene (CR)	Noryl® (PPO)	Nylon (PA)	Polycarbonate (PC)	Polypropylene (PP)	PTFE	PVC	PVDF (Kynar®)	Silicone (VMQ)	Titanium	Tygon	Viton® (FKM)
Amines	A	A	N/A	D	D	B	B	D	D	D	N/A	D	B	B	A	A	B	C	B	B	D	D	D	B1	A	D	N/A	B	B	D	D
Ammonia, 10% (Ammonium Hydroxide)	A	A	B	C	A	A	D	D	A	A	D	A	A	A	C	A	A	C	D	A	A	A	D	A1	A	B	A	A	C	B	D
Ammonia Nitrate	A	A	A1	C	A	C	A	D	C	A	D	B	A	B	B	N/A	A	A	N/A	C	A	D	N/A	A	A	B	A1	N/A	N/A	B	D
Ammonia, anhydrous	A	A1	D	D	A	A	D	D	B	A	D	A	A	B	D	A	A	B1	D	A	B	A	D	A	A	A	A	C	C	A	D
Ammonia, liquid	B	A1	D	D	A	A	D	D	C	A	D	A	A	B	N/A	A	A	C	D	A	N/A	B	D	A1	A	A	A	N/A	C	A	D
Ammonium Acetate	B	A	N/A	C	A	A	D	D	B	A	N/A	A	A	N/A	D	N/A	A	A	N/A	A	N/A	A	A	A	A	A	A	N/A	N/A	A	A
Ammonium Bifluoride	D	B	A	D	N/A	B	D	D	B	D	B	A	A	B	N/A	N/A	A	A1	N/A	D	A	N/A	N/A	A	A	A	A	N/A	N/A	A	A
Ammonium Carbonate	B	B	A	D	D	B	D	D	B	B	D	A	A	B	N/A	N/A	B	B1	A	A	A	A	C	A	A	A	A	C	A	A	A
Ammonium Chloride, 10%	C	B1	A	B	B	B	D	D	B	D	D	A	A	D	A	A	A	A1	A	B	A	B	A1	A	A	A	A	C	B	A	A
Ammonium Hydroxide (Aqueous Ammonia)	A	A	B	D	A	B	D	D	D	D	D	A	A	B	C	A	A	A	D	A	A	A	D	A1	A	B	A	A	C	B	D
Ammonium Nitrate, 10%	A	A	A1	A1	A	B	D	D	A	B	D	A	A	B	B	A	A	A	C	B	A	A	R	A	A	A	A	C	A	A	A
Ammonium Persulfate	A	B	A	D	D	D	D	D	A	D	D	A	B	B	N/A	A	A	A1	A	A	A	D	A	A	A	A	A	D	A	A	A
Ammonium Phosphate, Dibasic	B	C	A1	B1	A	B	B	D	A	D	D	A	A	B	N/A	A	N/A	A1	A	A	A	C	A1	A	A	A	A	A	A	A	A
Ammonium Phosphate, Monobasic	B	C	A1	B	A	B	A	D	A	D	D	A	A	B	B	N/A	N/A	A	A	A	A	B	A	A	A	A	N/A	A	A	A	A
Ammonium Phosphate, Tribasic	B	B	A1	B	A	B	N/A	C	A	D	D	A	A	B	N/A	N/A	N/A	C	A	A	A	B	N/A	A	A	A	N/A	A	A	A	A
Ammonium Sulfate	B	B	A	B	B	A	D	D	A	D	D	A	A	B	B	A	A	A	A	A	A	A	A1	A	A	A	A	A	A	A	A
Ammonium Thiosulfate	N/A	A	N/A	B	N/A	N/A	D	D	A	D	D	N/A	A	N/A	N/A	N/A	N/A	A	N/A	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A	N/A	N/A
Amyl Acetate	A	A	D	B	C	A	A	A	D	C	A	D	A	A	C	A	N/A	C	D	D	D	B	D	B	A	D	A	D	A	D	
Amyl Chloride	A	A	D	A	A	A	C	A	D	A	A	C	D	A	N/A	A	B	D	D	D	D	C	D	D	A	D	A	D	C	C	B
Antifreeze	A	A	B	D	A	A	B	A	A	A	N/A	A	A	A	N/A	N/A	N/A	N/A	A	C	A	D	N/A	D	A	A	N/A	C	N/A	B	A
Aqua Regia (80% HCl, 20% HNO3)	D	D	D	D	D	D	D	D	D	D	D	C	C	C	N/A	A	D	B	D	D	D	D	D	B	A	C	A1	D	A	D	B
Arsenic Acid	A	A	A	D	A	D	D	B	A	D	A	A	A	B	N/A	N/A	B	B	B	A	A	C	A	A	A	A	A	A	B	B	A
Asphalt	B	A	N/A	B1	N/A	A	B	A	B	A	A	A	D	N/A	B	A	N/A	A	D	D	N/A	A	D	B	A	A	A	D	N/A	N/A	A
Barium Carbonate	B	B	A	A	A	D	B	B	A	A	A	A	A	B	N/A	A	A	B	N/A	N/A	A	A	A	A	A	A	A	N/A	A	N/A	A
Barium Sulfate	B	B	A	B1	A	B	B	C	A	B	B	B	A	A	D	A	B	B1	A	A	A	A	D	B	A	B	A	A	B	N/A	A

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Barium Sulfide	B	B1	A	A	C	D	D	D	A	D	D	A	A	N/A	N/A	N/A	A	B1	A	A	A	A	N/A	B	A	A	A	A	A	N/A	A	
Beer	A	A	A	A	A	A	B	A	A	D	B	A	A	A	A	A	A	A1	A	A	A	A	A1	A	A	A	A	A	A	B	C	A
Benzaldehyde	B	B	B	A	C	B	A	A	D	A	B	D	A	A	B	A	B	A	D	D	B	A	D	D	A	D	A1	D	A	D	D	
Benzene	B	B	D	A	D	B	A	A	D	A	B	D	D	B	C	B	D	C	D	D	D	A	D	D	A	C	A1	D	A	C	A	
Benzene Sulfonic Acid	B	B	N/A	C	N/A	D	B	N/A	D	D	N/A	D	D	B	B	N/A	A	A	A	A	A	D	D	D	A	A	A	D	B	B	A	
Benzoic Acid	B	B	D	B	A	B	D	B	D	D	N/A	A	D	B	D	A	A	A	D	B	B	D	B	B	A	A	A	B	A	A	A	
Benzyl Chloride	C	B	D	A	D	D	D	D	D	D	D	A	D	C	D	N/A	N/A	N/A	D	D	D	A1	N/A	C	A	N/A	A	D	N/A	N/A	A	
Borax (Sodium Borate)	A	A	A1	B	A	B	A	B	B	A	B	A	A	B	A	A	A	A1	A	A	A	A	A	A1	A	A	A	B	B	N/A	A	
Boric Acid, 10%	B	A	A1	A	A	D	B	B	A	D	B	A	A	A	A	A	A1	A	D	A	B	A	A	A	A	A	A	A	A	A	A	
Bromine Gas	D	D	D	D	D	D	D	D	N/A	D	D	D	A	D	A	D	D	D	D	D	A	D	C	D	A	C	A	D	D	B	A	
Butadiene	A	A	N/A	A	B	A	A	C	D	N/A	C	A	C	C	D	A	D	D	D	B	D	C	D	C	A	C	A	D	N/A	N/A	B	
Butane Gas	A	A1	B	A	A	A	A	C	A	N/A	C	C	D	A	A	A	B	C	D	A	D	A1	D	A	A	C	A	D	A	C	A	
Butanol (Butyl Alcohol)	A	A	D	A	D	B	A	A	A	N/A	B	A	A	B	B	A	B	B1	A	A	A	B	B	A	A	C	A	B	B	B	A	
Butyl Amine	A	A	N/A	C	D	A	N/A	B	C	N/A	N/A	N/A	B	B	D	D	N/A	C	D	D	D	A1	D	B	A	D	A	B	B	D	D	
Butyl Ether	B	A	N/A	D	D	A	N/A	N/A	B	N/A	N/A	D	D	B	N/A	A	N/A	N/A	D	D	D	A1	N/A	D	A	A	A	D	N/A	A	D	
Butyric Acid, 20%	B	B1	D	A	C	B	A	D	D	D	C	D	B	A	B	A	D	D	D	D	C	D	B	A	B	A	D	A	D	B		
Calcium Carbonate (Chalk) CaCO3	A	B	N/A	A	A	D	D	A	A	N/A	A	A	A	B	N/A	N/A	B	B	A	A	A	A	C1	A	A	A	A	A	B	N/A	A	
Calcium Chloride, 10%	C	B	B	D	B	D	B	A	A	C	B	A	A	A	A	A	B	A	A	A	A	A	A	A	A	C	A	A	A	N/A	A	
Calcium Hydroxide (Lye), 10%	B	B	A1	D	A	C	D	D	A	A	D	A	A	A	B	A	A	A1	A	A	A	A1	D	A1	A	B	A1	A	A	B	A	
Calcium Hypochlorite	C	B	N/A	D	B	D	D	D	C	D	D	B	B	B	C	B	A	A	D	D	A	D	D	A	A	B	A	B	A	A		
Calcium Nitrate	C	B1	A	D	A	B	B	B	A	B	B	A	A	B	N/A	A	B	A	A	A	A	A	A1	A1	A	A	A1	B	B	A	A	
Calcium Oxide (Unslaked Lime) CaO	A	A	D	A	A	C	N/A	D	A	N/A	N/A	A	A	A	A	N/A	A	B	B	A	A	B	D	A	A	B	A	A	A	C	B	
Calcium Sulfate, 10%	B	B	C	D	A	C	B	A	A	A	A	A	A	B	N/A	A	A	B	B	B	A	D	A1	A	A	B	A	N/A	A	N/A	A	
Carbolic Acid (Phenol)	B	B	D	D	D	A	D	B	D	D	D	B	B	A	D	B	A	D	D	D	D	D	D	B	A	D	A	D	A	B	A	
Carbon Dioxide, dry	A	A	B	A	A	B	B	A	A	D	A	A	B	A	A	A	B	A	B	B	A	A	N/A	A1	A	A	A	B	A	N/A	B	



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Carbon Dioxide, wet	A	A	B	A	A	A	A	A	D	A	A	B	A	A	A	B	A	B	B	A	A	A	A	A	A	A	B	A	N/A	B	
Carbon Monoxide Gas	A	A	A1	A	A	A	A	A	A	A	A	A	B	A	A	B	A1	D	B	A	A	A	A	A	A	A	B	A	N/A	N/A	A
Carbonated Water (Carbonic Acid)	A	A	A	A	A	A	D	A	A	D	B	A	B	A	D	A	A	A	C	A	A	A	A	B	A	A	A	A	B	A	A
Carbonic Acid (Carbonated Water)	A	A	A	B	A	B	D	B	D	D	B	A	B	A	D	A	A	A	C	D	A	A	A	B	A	A	A	A	B	A	A
Chlorine Gas, dry 10%	A	B	D	D	A	C	D	B	B	D	A	D	A	A	D	D	B	D	D	C	B	D	A	D	A	D	A	D	D	A	A
Chlorine Dioxide, 8% aqueous solution	D	C	B	N/A	C	D	D	D	D	D	D	A	D	A	D	N/A	C	C	D	D	N/A	D	N/A	C	A	A	A	B	A	C	B
Chlorine Water (5-10 ppm)	C	C	D	D	A	D	D	B	D	N/A	D	A	C	A	D	A	C	B	C	D	C	C	N/A	D	A	A	B	D	A	N/A	A
Chloroacetic Acid	B	A	N/A	D	C	D	D	C	D	D	D	D	B	A	D	A	A	D	D	D	N/A	D	D	C	A	B	A	D	A	A	D
Chlorobenzene (mono)	A	B	D	D	D	A	B	C	D	B	B	D	D	A	D	A	D	C	D	D	D	D	D	C	B	D	A	D	B	A	A
Chlorobromomethane	B	B	N/A	B	N/A	D	N/A	N/A	D	D	B	N/A	B	N/A	D	N/A	N/A	A	D	D	C	C	N/A	A	A	D	N/A	D	N/A	N/A	A
Chloroform	A	A	D	A	D	B	B	B	D	B	A	D	D	A	D	B	D	C	D	D	D	A	D	C	A	D	A	D	A	B	A
Chlorosulfonic Acid	D	B1	N/A	D	D	C	B	D	D	D	D	D	D	A	D	A	D	D	D	D	D	D	C	D	A	D	D	D	A	C	D
Chromic Acid, 5%	B	A	B	D	C	C	D	B	D	D	D	A	A	B	D	A	A	D	B	D	A	D	B	D	A	A	A	C	A	B	A
Chromic Acid, 10%	B	B	B	D	C	D	D	D	D	D	D	A	C	A	D	A	A	D	D	D	A	D	B	D	A	A	A	C	B	C	B
Chromic Acid, 30%	B	B	B	D	D	D	D	D	D	D	D	A	B	D	D	A	A	D	D	D	D	D	C	D	A	A	A	C	A	B	A
Chromic Acid, 50%	C	B	D	D	D	D	D	D	D	D	D	D	B	B	D	A	A	D	D	D	D	D	D	D	A	D	A	C	A	B	A
Citric Acid, aqueous 10%	B	A1	D	B	A	C	D	D	A	D	D	B	A	A	A	A	A	D	A	A	A	A	A	A	A	B	A	A	A	N/A	A
Citrus Oil or Terpene (d-Limonene)	A	A	C	B	N/A	C	A	D	A	D	D	A	B	A	N/A	A	C	C	D	D	A	A	C	A	A	C	A	D	A	A	A
Clorox® Bleach	A	A	B	D	C	A	D	N/A	D	D	D	A	B	A	C	D	N/A	N/A	D	B	A	A	A	D	A	A	A	N/A	N/A	B	A
Coffee	A	A	N/A	A	A	A	D	A	A	N/A	A	A	A	A	N/A	N/A	A	N/A	A	A	A	A	C	A	A	N/A	N/A	A	A	N/A	A
Copper Chloride	D	D	A	A	A	N/A	D	D	A	N/A	D	A	A	N/A	A	A	B	N/A	C	A	A	D	N/A	A	A	A	A	A	D	A	A
Copper Sulfate, 5%	B	B	A1	D	A	D	D	B	A	D	B	A	A	A	A	A	A1	C	A	A	D	A	A	A	A	A	A	A	A	N/A	A
Cresols	A	A	D	D	D	A	C	A	D	C	A	D	D	B	D	A	D	C	D	D	D	D	D	D	A	D	A1	D	B	D	A
Cyclohexane	A	A	D	A	C	A	A	B	B	B	B	D	D	B	A	A	D	B	D	D	D	A	B	D	A	D	A	D	A	D	A
Cyclohexanone	A	A1	D	A	D	A	B	B	D	B	B	D	B	A	D	A	B	D	D	D	D	A	D	D	A	D	D	N/A	D	D	



# Chemical Compatibility

## Material Guide

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All data is based on ambient or room temperature conditions, about 64°F (18°C) - 73°F (23°C)

	304 Stainless Steel	316 Stainless Steel	ABS Plastic	Acetal, POM	Acrylic (PMMA)	Aluminum	Brass	Bronze	Buna N (Nitrile)	Cast Iron	Copper	CPVC	EPDM	Hastelloy® - C	Hytre® (TPE)	Kel-F® (PCTFE)	HDPE	LDPE	Natural Rubber	Neoprene (CR)	Noryl® (PPO)	Nylon (PA)	Polycarbonate (PC)	Polypropylene (PP)	PTFE	PVC	PVDF (Kynar®)	Silicone (VMQ)	Titanium	Tygon	Viton® (FKM)
Detergents	A	A	B	A	A	B	A	B	A	N/A	A	A	A	B	B	A	A	D	B	B	A	A	A	A	A	A	A	A	A	A	A
Diacetone Alcohol	B	B	N/A	A	D	A	A	B	D	A	A	D	A	A	C	B	A	A	D	D	A	A	D	A	A	D	D	D	A	B	D
Dichlorobenzene	N/A	B	D	B	D	B	N/A	B	D	N/A	N/A	D	D	A	D	N/A	D	D	D	D	N/A	D	D	C	A	D	A	D	N/A	N/A	C
Dichloroethane	B	B	D	A	D	B	B	D	D	N/A	A	D	N/A	A	N/A	A	C	C	D	D	A	A	D	D	A	D	A	N/A	B	D	C
Diesel Fuel	A	A	N/A	A	B	A	A	A	A	A	A	A	D	B	B	A	D	C	D	B	D	A	A1	A	A	A	A	D	B	N/A	A
Diethyl Ether	B	B1	D	A	D	B	B	A	D	N/A	A	D	D	B	C	C	D	N/A	D	D	N/A	A	D	A	A	D	A	D	A	N/A	D
Diethylamine	A	A	D	B	B	B	A	A	C	B	A	D	B	A	N/A	A	D	D	A	A	N/A	A	D	A	D	D	D	B	A	C	A
Dimethylformamide (N,N-Dimethylformamide)	A	B	D	C	D	B	C	B	C	B	A	D	B	A	B	A	A	A	C	D	D	A	D	A	A	D	D	C	A	D	D
Dyes	A	A	N/A	C	D	B	A	N/A	D	N/A	A	N/A	A	N/A	D	N/A	N/A	N/A	C	C	A	A	D	N/A	A	B	N/A	N/A	N/A	C	A
Ethane	A	A	N/A	A	N/A	A	N/A	N/A	A	A	A	A	D	A	N/A	N/A	N/A	N/A	D	B	N/A	D	N/A	D	A	A	A	D	N/A	A	A
Ethanol (Ethyl Alcohol)	A	A	B	A	D	B	A	A	C	B	A	B	A	A	D	A	A	B	A	A	A	A	C	A	A	C	A	B	A	C	A
Ethanolamine	A	A	N/A	D	C	B	N/A	B	B	B	D	N/A	B	B	N/A	D	N/A	N/A	B	B	A	A	N/A	D	A	D	C	B	B	N/A	D
Ether	A	A	D	A	D	B	B	A	D	C	A	D	C	B	N/A	B	D	D	D	D	D	A	D	D	A	D	B	D	A	C	C
Ethyl Acetate	B	B	D	A	D	A	B	A	D	A	A	D	B	A	B	A	A	A	C	D	A	A1	D	A	A	D	D	B	A	D	D
Ethyl Benzoate	A	A	D	A	D	A	N/A	N/A	D	A	A	D	A	A	C	N/A	B	C1	D	D	A	D	D	B	A	D	D	D	N/A	D	A
Ethyl Chloride	A	A	D	A	D	B	A	A	A	C	B	D	A	B	C	B	C	C	B	C	D	A	D	D	A	D	A	D	A	D	A
Ethyl Ether	B	B	D	A	D	B	B	A	D	C	A	D	D	B	N/A	A	D	D	D	D	D	A	N/A	D	A	D	A1	D	A	N/A	D
Ethylene Glycol	B	B	A	B	A	A	B	A	A	A	A	A	A	B	A	A	A	A1	A	A	A	A	B	A	A	A	A	A	A	B	A
Ethylene Oxide Gas (EtO), dry 3%	B	B	D	D	A	D	D	C	D	D	D	C	C	A	A	A	B	A	D	D	A	A	C	D	A	D	A	D	N/A	N/A	D
Fatty Acids	B	A	A	A	A	A	C	A	B	C	D	A	D	A	B	A	A	D	C	C	A	A	B	A	A	A	A	C	B	B	A
Ferric Chloride, 10%	D	D	A	D	A	D	D	D	A	D	D	A	A	B	C	A	D	A	A	B	A	A	A1	A	A	A	A	B	A	B	A
Ferric Nitrate	B	B	A	D	A	D	D	C	A	D	D	A	A	B	D	A	B	A1	A	A	A	A	A	A	A	A	A	C	A	N/A	A
Ferric Sulfate	B	A	A	D	B	D	D	C	A	D	D	A	A	A	A	A	A	A1	A	A	A	A	A	A	A	A	A	B	A	B	A
Ferrous Sulfate	B	B	A	D	A	B	B	B	A	D	B	A	A	B	A	A	B	A1	B	A	A	D	A	A	A	A	N/A	A	B	B	A
Fluosilicic Acid, 20%	C	B	D	B	B	D	N/A	B	A	B	B	A	A	B	N/A	A	B	B1	A	B	B	D	N/A	A	A	A	A	D	D	A	A



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All data is based on ambient or room temperature conditions, about 64°F (18°C) - 73°F (23°C)

	304 Stainless Steel	316 Stainless Steel	ABS Plastic	Acetal, POM	Acrylic (PMMA)	Aluminum	Brass	Bronze	Buna N (Nitrile)	Cast Iron	Copper	CPVC	EPDM	Hastelloy® - C	Hytre® (TPE)	Kel-F® (PCTFE)	HDPE	LDPE	Natural Rubber	Neoprene (CR)	Noryl® (PPO)	Nylon (PA)	Polycarbonate (PC)	Polypropylene (PP)	PTFE	PVC	PVDF (Kynar®)	Silicone (VMQ)	Titanium	Tygon	Viton® (FKM)
Fluosilicic Acid, 100%	D	D	D	A	C	D	N/A	B	B	D	D	N/A	A	B	N/A	B	C	B	A	B	B	D	N/A	A	A	B	A	D	D	D	A
Formaldehyde, 40%	A	A	A	A1	B	B	A	A	B	B	B	A	A	B	C	A	A	D	B	B	A	A	A	A	A	A	A	N/A	B	N/A	A
Formaldehyde, 100%	C	A	B	A	D	A	N/A	B	C	C	A	A	A	A	D	A	A	B	C	C	A	D	A1	C	A	A	A	B	A	B	D
Formic Acid (Methanoic Acid), 10%	B	A	D	A1	B	A	D	C	C	D	C	A	A	A	B	A	A	D	C	A	A	D	A	A	A	A	A	B	C	B	C
Fruit Juices	A	A	B	D	A	A	D	N/A	A	D	A	A	A	A	B	A	A	A	D	A	B	A	A	B	A	A	A	N/A	A	B	A
Fuel Oils	A	A	D	A	B	C	B	A	A	A	A	N/A	D	A	B	A	C	B	D	B	B	A	B	A	B	A	B	D	A	A	A
Furfural (Ant Oil ) C5H4O2	A	B	D	A	D	A	A	B	D	B	A	D	D	B	B	D	A	D	D	D	D	B	D	D	A	D	B1	D	A	D	D
Gallic Acid, 5%	A	B	N/A	N/A	A	D	C	B	B	D	D	C	B	B	D	A	A	A	A	B	A	A	A	A	B	B	A	D	B	A	A
Gasoline (high-aromatic)	A	A	D	B	D	D	N/A	A	A	A	N/A	C	D	A	A	A	B	A	D	A	B	A	A	A	B	A	A	D	B	A	A
Gasoline, leaded, ref.	A	A	D	A	D	A	A	A	A	A	B	D	D	A	A	A	B	N/A	D	B	B	A	A	B	A	B	A	D	A	C	A
Gasoline, unleaded	A	A1	D	A	D	A	A	A	A	A	B	C	D	A	N/A	A	B	N/A	D	B	D	A1	A1	C	A	C	A	D	A	C	A
Glucose	A	A	B	A	A	A	A	N/A	A	A	A	A	A	A	A	N/A	A	A1	A	A	A	A	A	A	A	A	A	A	A	A	A
Glue, PVA (Polyvinyl Acetate)	A	A1	N/A	A	D	A	N/A	A	A	A	B	A	A	A	A	N/A	A	A	A	A	N/A	A	N/A	N/A	A	C	A	A	A	C	B
Glycerin	A	A	C	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A1	A	A	A	A	A	A	A	A
Glycolic Acid	A	A	B	A	C	N/A	N/A	N/A	A	N/A	N/A	A	A	A	N/A	B	B	A	D	A	N/A	N/A	N/A	A	A	B	B	A	A	A	A
Grease	N/A	A	N/A	D	A	N/A	A	A	A	A	A	N/A	D	A	A	N/A	N/A	N/A	D	D	N/A	N/A	A	N/A	A	A	A	D	N/A	A	A
Heptane	A	A	D	A	C	A	A	A	A	A	A	D	A	B	A	B	B	D	B	B	A	B	C1	A	C	A	D	A	B	A	
Hexane	A	A	D	A	C	A	A	A	A	A	A	B	D	A	A	A	C	D	D	B	B	B	D	B	A	D	A	D	A	A	
Honey	A	A	N/A	A	A	A	N/A	A	A	A	N/A	N/A	A	A	N/A	N/A	N/A	B	A	A	N/A	A	A	A	A	A	A	A	N/A	A	A
Hydraulic Oil (Petro)	A	A	N/A	B	D	A	A	A	A	A	A	N/A	D	A	D	N/A	A	C	D	A	N/A	A	N/A	D	A	A	A	B	N/A	A	A
Hydraulic Oil (Synthetic)	A	A	N/A	B	D	A	A	A	D	A	A	N/A	A	A	A	N/A	A	A	D	A	N/A	A	N/A	D	A	A	A	B	N/A	A	A
Hydrazine (Diamine) H2NNH2	A	A	N/A	B	C	N/A	D	N/A	B	D	A	D	A	N/A	C	N/A	D	N/A	C	B	N/A	N/A	D	C	A	N/A	A	B	N/A	N/A	A
Hydrobromic Acid, 20%	D	D	N/A	C	D	D	D	N/A	D	D	D	A	A	A	N/A	A	D	B	A	D	B	D	N/A	A	N/A	B	A	D	A	B	A
Hydrobromic Acid, 100%	D	D	B	D	D	D	D	N/A	D	D	D	A	A	C	N/A	A	D	B	A	D	B	D	N/A	C	A	A	A	D	A	B	A
Hydrochloric Acid, 20%	D	D	A	C	C	D	D	D	D	D	D	A	A	A	B	A	A	A1	A	C	A	D	B	B1	A	A	A	D	D	A	A



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Hydrochloric Acid, 37%	D	D	A	C	C	D	D	D	B	D	D	A	C	B	C	A	A	B	A	B	A	D	D	C	A	B	A	B	D	A	A
Hydrochloric Acid, 100%	D	D	A	C	D	D	D	D	D	D	D	A	D	A	D	A	D	N/A	D	D	A	D	D	B	A	D	A	D	D	A	A
Hydrochloric Acid, dry gas	D	D	N/A	N/A	N/A	D	D	A	N/A	N/A	D	A	N/A	A	N/A	A	D	A	N/A	N/A	A	A	N/A	B	A	A	A	N/A	C	N/A	N/A
Hydrofluoric Acid, 20%	D	D	C	D	C	D	D	B	D	D	B	C	D	B	D	B	A	A	B	B	C	C	D	A1	A	B	A	D	D	C	A
Hydrofluoric Acid, 50%	D	D	C	D	C	D	D	B	D	D	B	C	D	B	D	B	A	A	B	D	D	D	D	A	A	B	A	D	D	C	B
Hydrofluoric Acid, 75%	D	D	C	D	D	D	D	B	D	D	B	C	C	B	D	B	B	C	D	D	D	D	D	C	A	C	A	D	D	C	B
Hydrofluoric Acid, 100%	B	B	D	D	D	D	D	B	D	D	B	C	D	B	D	A	D	N/A	D	D	D	D	D	C	A	C	A	D	D	D	B
Hydrogen Gas	A	A	A1	N/A	N/A	A	A	A	A	A	A	A	A	A	A	B	A	A1	B	A	A	A1	A1	A	A	A	A	C	A	A	A
Hydrogen Peroxide, 10%	B	B	A	D	C	A	D	B	D	C	D	A	A	A	D	A	A	A	B	D	A	C	A	A	A	A	A	A	A	B	A
Hydrogen Peroxide, 30%	B	B	N/A	D	C	A	D	B	D	B	D	A	B	A	D	B	A	C1	C	D	A	D	A1	B	A	A	A	B	B	B	A
Hydrogen Peroxide, 50%	B	A1	N/A	D	D	A	D	B	D	N/A	D	A	B	A	D	A	A	C1	C	D	N/A	D	A1	B	A	A	A	B	A	B	A
Hydrogen Peroxide, 100%	B	A1	A	D	D	A	D	B	D	B	D	A	D	A	D	B	A	C1	C	D	A	D	A	B	A	A	A	B	B	B	A
Hydrogen Sulfide, aqueous	C	A	B	C	A	B	D	A	D	D	D	A	B	A	A	A	A	A	C	A	A	C	A	A	A	B	A	C	B	A	D
Hydrogen Sulfide, dry	C	A	N/A	A	A	B	D	B	D	D	D	A	B	A	A	B	A	A	C	A	N/A	C	N/A	A	A	A	A	C	A	D	D
Isopropyl Alcohol (IPA, isopropanol)	B	B	D	A	A	B	B	A	B	A	B	C	A	A	A	A	A	A1	A	B	A	D	A1	A1	A	A	A	A	B	A	A
Ketones	A	A	A	D	D	B	N/A	A	D	A	A	N/A	D	A	D	B	D	C	A	D	D	A1	D	C	A	D	C	N/A	A	D	D
Lacquer Thinners	A	A	A	D	D	A	A	A	D	C	A	N/A	D	A	D	N/A	D	A	D	D	D	A	B	D	A	D	N/A	D	C	D	D
Lacquers	A	A	A	D	N/A	A	D	A	D	C	A	A	D	A	D	A	D	A	D	D	D	A	D	D	A	D	D	D	A	A	D
Lactic Acid	B	B	D	B	A	B	D	B	A	D	B	A	A	B	D	A	A	A	A	A	A	B	B	B	A	B	B	A	A	A	A
Latex	A	A1	B	B	N/A	A	A	A	A	N/A	N/A	A	A	N/A	N/A	N/A	N/A	N/A	N/A	B	N/A	A	N/A	A1	A	N/A	A	A	N/A	A	A
Ligroin	A1	A1	N/A	B	N/A	D	N/A	N/A	A	A	N/A	N/A	D	N/A	N/A	N/A	N/A	A	D	B	N/A	D	A	A1	A	N/A	A	D	N/A	A	A
Lime (CaO)	A	A	A1	B	A	A	N/A	N/A	A	A	N/A	N/A	D	N/A	C	A	A	A	N/A	A	N/A	A	D	D	A	B	A	N/A	A	A	A
Linoleic Acid	B	A	A	B	N/A	A	D	C	B	D	D	A	D	A	N/A	N/A	B	A	D	D	N/A	N/A	N/A	B	A	A	A1	B	N/A	A	B
Lithium Hydroxide	C	C	N/A	N/A	N/A	D	D	B	C	B	N/A	N/A	A	B	N/A	N/A	D	N/A	A	D	N/A	N/A	D	A	A	N/A	N/A	N/A	N/A	N/A	A
Lubricants	A	A1	N/A	A	A	A	A	A	A	A	A	N/A	D	A	A	N/A	B	D	D	D	C	A	A	A	A	B	A	D	A	B	A





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Lye (KOH, Potassium Hydroxide)	B	A	A	A	B	D	D	D	B	B	B	A	A	B	D	B	B	A	B	B	A	C	D	A	A	B	A	C	D	B	B	
Lye (NaOH, Sodium Hydroxide)	B	B	C	C	A	D	D	D	A	D	B	A	B	C	C	B	B	D	A	B	A	A	D	A	A	A	D	A	B	B	B	
Magnesium Bisulfate	A	A	N/A	N/A	N/A	D	N/A	A	B	N/A	N/A	N/A	N/A	N/A	N/A	A	N/A	B	B	N/A	A	A	A1	A	A	A	N/A	N/A	N/A	A	N/A	
Magnesium Chloride, 10%	D	D	B	B	A	D	D	B	A	D	A	A	A	A	C	A	A	A	A	A	A	A	A1	A1	A	B	A	A	A	A	A	
Magnesium Hydroxide, 10%	B	A	B	A	A	C	D	B	A	A	B	A	A	A	C	A	B	A1	A	A	A	B	A	A	A	A	A	A	A	A	C	A
Malic Acid (Apple Acid) C4H6O5	A	A1	N/A	A	N/A	B	B	B	A	D	D	A	D	B	N/A	N/A	N/A	B1	B	D	N/A	A	D	A	A	A	A	B	A	A	A	
Mercury	A	A	B	A	A	D	D	A	A	A	D	A	A	A	B	A	A	A	A	A	A	A	D	B	A	A	A	N/A	A	D	A	
Methane Gas	A	A	A	A	A	A	A	A	A	N/A	A	N/A	D	A	B	N/A	A	N/A	D	B	N/A	A	A	A	A	B	A	D	N/A	N/A	A	
Methanol (Methyl Alcohol)	A	A	D	A	C	A	A	A	A	A	B	A	A	A	B	A	A	A	A	A	A	B	B	A1	A	A	A	A	B	A	C	
Methyl Acetate	A	B	D	B	D	A	N/A	A	D	A	B	N/A	B	A	C	A	C	B	D	B	N/A	A	D	D	A	D	B	D	N/A	A	D	
Methyl Acetone (mixture)	A	A	N/A	D	N/A	A	A	A	D	A	N/A	N/A	A	A	N/A	N/A	N/A	N/A	A	D	N/A	A	N/A	D	A	D	D	N/A	N/A	A	D	
Methyl Alcohol, 10%	A	A	D	A	C	A	A	A	A	A	A	A	A	A	B	A	A	A	A	A	A	B	B	A1	A	A	A	A	B	A	C	
Methyl Butyl Ketone	A	A	N/A	D	D	A	N/A	D	D	N/A	N/A	N/A	A	N/A	N/A	N/A	N/A	N/A	D	D	N/A	D	D	D	A	A	D	D	N/A	N/A	D	
Methyl Cellosolve	B	B	A	D	A	B	A	A	A	C	B	D	B	N/A	N/A	N/A	N/A	N/A	D	B	N/A	C	D	B	A	D	A	D	N/A	C	D	
Methyl Chloride	A	A	D	B	D	D	A	B	D	D	N/A	D	D	B	D	A	N/A	C	D	D	D	B	D	D	A	D	A	D	A	D	A	
Methyl Ethyl Ketone (MEK, Butanone)	A	A	D	C	D	B	A	A	D	A	A	D	A	A	B	A	D	B	D	D	D	A	D	B1	A	D	D	D	A	D	D	
Methyl Ethyl Ketone Peroxide (MEKP)	N/A	A	D	D	N/A	D	D	D	D	D	D	D	D	N/A	N/A	N/A	N/A	N/A	D	D	N/A	N/A	N/A	N/A	A	N/A	N/A	B	N/A	N/A	D	
Methyl Isobutyl Ketone	B	B	D	D	D	B	N/A	A	D	C	B	D	B	A	B	A	D	C	D	D	D	B1	D	A	A	D	D	D	A	N/A	D	
Methyl Isopropyl Ketone	A	A	N/A	A	D	A	N/A	A	D	C	A	N/A	C	A	D	N/A	D	D	D	D	D	A	D	N/A	A	D	A	C	N/A	N/A	D	
Methylamine	A	A	D	D	D	A	D	A	B	A	N/A	N/A	A	B	N/A	A	N/A	A	B	A	N/A	N/A	D	A1	A	D	C	N/A	N/A	D	D	
Methylene Chloride	B	B	D	B	D	C	A	B	D	B	B	D	C	B	D	A	D	D	B	D	D	C	D	B	A	D	B	D	B	D	B	
Milk	A	A	B	A	A	A	D	A	A	D	D	A	A	A	B	A	B	A	A	A	A	A	A	B	A	A	A1	A	A	B	A	
Mineral Spirits	A	A	D	A	B	A	A	A	A	B	N/A	A	D	B	N/A	A	D	B	D	C	A	A	C	B	A	A	N/A	D	B	B	A	
Monochloroacetic Acid	A	A	N/A	D	D	D	B	B	D	D	D	N/A	C	A	D	B	D	N/A	N/A	A	N/A	D	D	N/A	A	N/A	B	N/A	A	N/A	C	
Monoethanol Amine	A	A	N/A	D	N/A	B	N/A	A	D	A	D	N/A	B	N/A	D	N/A	N/A	C	B	D	A	A	N/A	B	A	D	C	B	B	N/A	D	



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All data is based on ambient or room temperature conditions, about 64°F (18°C) - 73°F (23°C)

	304 Stainless Steel	316 Stainless Steel	ABS Plastic	Acetal, POM	Acrylic (PMMA)	Aluminum	Brass	Bronze	Buna N (Nitrile)	Cast Iron	Copper	CPVC	EPDM	Hastelloy® - C	Hyrel® (TPE)	Kel-F® (PCTFE)	HDPE	LDPE	Natural Rubber	Neoprene (CR)	Noryl® (PPO)	Nylon (PA)	Polycarbonate (PC)	Polypropylene (PP)	PTFE	PVC	PVDF (Kynar®)	Silicone (VMQ)	Titanium	Tygon	Viton® (FKM)
Morpholine	N/A	A	C	N/A	D	A	N/A	B	D	B	N/A	N/A	D	A	N/A	N/A	B	N/A	A	D	D	A1	D	B1	A	N/A	B	N/A	N/A	N/A	N/A
Motor Oil	A	A1	C	B	B	A	A	A	A	N/A	A	A	D	N/A	B	A	A	C	D	B	A	A1	A	A	A	B	B	N/A	A	A	N/A
Mustard	A	A	B	C	N/A	B	N/A	A	B	D	N/A	A	A	A	B	N/A	A	A	B	A	A	A	A	A	A	B	A	N/A	A	B	D
Naphtha	A	A	D	A	D	A	A	A	A	B	A	A	D	B	B	A	D	A	D	D	D	A	B	B	B	A	A	D	B	C	A
Natural Gas	A	A	B	B	A	A	A	A	A	A	N/A	D	N/A	B	N/A	A	A	C	A	N/A	N/A	D	A	A	A	N/A	A	N/A	A	A	
Nitric Acid, 5-10%	A	A	B	D	A	A	D	A	D	D	D	A	A	A	C	A	A	B	D	B	A	D	A	A	A	A	A	C	A	D	A
Nitric Acid, 20%	A	A	B	D	A	D	D	A	D	D	D	A	A	A	D	A	B	C	D	D	B	D	B	A1	A	A	A	D	A	D	A
Nitric Acid, 50%	A	A	C	D	C	D	D	A	D	D	D	B	D	A	D	A	D	B	D	D	B	D	B	B	A	B	A	D	A	D	A
Nitric Acid (Concentrated)	A	A	D	D	D	D	D	A	D	D	D	D	D	B	D	A	D	C	D	D	B	D	C	D	A	B	A	D	A	D	A
Nitrobenzene	B	B	D	C	D	B	C	A	D	C	B	D	B	D	D	A	D	C	D	D	D	B	D	B	A	D	A	D	A	D	B
Nitromethane	A	A	D	A	D	A	N/A	N/A	D	N/A	A	N/A	B	A	C	A	D	A	B	D	D	B	D	B1	A	B	A1	D	N/A	B	D
Nitrous Acid	B	B	D	N/A	C	D	D	B	D	D	C	A	A	D	N/A	B	D	N/A	C	D	N/A	N/A	N/A	A	A	A	B	N/A	N/A	A	B
Nitrous Oxide	B	B	N/A	N/A	D	B	B	D	A	B	B	N/A	A	B	N/A	N/A	N/A	C	A	A	N/A	C	D	D	A	A	D	N/A	N/A	A	B
Oils: Citric	A	A	D	A	N/A	A	B	N/A	D	D	N/A	N/A	B	A	N/A	N/A	B	A	N/A	D	A	A	A	A	A	B	A	N/A	A	D	A
Oils: Cod Liver	A	A	A	B	A	A	D	N/A	A	D	N/A	A	A	A	N/A	A	A	N/A	D	B	N/A	N/A	A	A	A	A	A	B	N/A	N/A	A
Oils: Corn	A	A	B	A	A	A	B	N/A	D	A	B	N/A	C	A	A	A	A	A	D	A	A	A	N/A	A1	A	B	A	A	N/A	B	B
Oils: Cottonseed	A	A	A	A	A	A	A	N/A	A	A	A	A	D	A	A	A	A	A	D	C	A	B	N/A	A	A	B	A	A	A	B	A
Oils: Diesel Fuel (20, 30, 40, 50)	A	A	N/A	D	B	A	A	A	A	A	N/A	D	B	A	A	D	A	D	B	D	A	A	A	A	A	B	A	D	B	A	A
Oils: Fuel (1, 2, 3, 5A, 5B, 6)	A	A	D	D	B	C	B	A	B	A	A	N/A	D	A	A	A	C	B	D	D	A	A	B	B	A	A	B	C	B	A	B
Oils: Hydraulic Oil (Petro)	A	A	N/A	B	N/A	A	A	A	A	A	N/A	D	A	A	N/A	A	C	D	A	N/A	A	N/A	D	A	A	A	B	N/A	A	A	A
Oils: Hydraulic Oil (Synthetic)	A	A	N/A	B	N/A	A	A	A	D	A	A	N/A	A	A	A	N/A	A	A	D	A	N/A	A	N/A	D	A	A	A	B	N/A	A	A
Oils: Mineral	A	A	A	A	A	A	A	A	A	N/A	B	A	D	A	A	A	A	B	D	B	A	A	B	A	A	B	A	C	A	B	A
Oils: Silicone	A	A	A	A	B	A	A	A	A	A	A	A	A	A	N/A	A	A	D	D	A	A	A	A	A	A	A	A	C	N/A	A	A
Oils: Soybean	A	A	A	A	N/A	A	N/A	A	A	A	N/A	A	C	A	B	A	A	A	D	C	N/A	A	N/A	A	A	A	A	A	A	B	A
Oils: Turbine	A	A	N/A	A	N/A	A	N/A	A	B	A	A	A	A	N/A	N/A	N/A	N/A	C	D	D	N/A	A	N/A	B	A	A	A	D	A	A	A



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	304 Stainless Steel	316 Stainless Steel	ABS Plastic	Acetal, POM	Acrylic (PMMA)	Aluminum	Brass	Bronze	Buna N (Nitrile)	Cast Iron	Copper	CPVC	EPDM	Hastelloy® - C	Hytre® (TPE)	Kel-F® (PCTFE)	HDPE	LDPE	Natural Rubber	Neoprene (CR)	Noryl® (PPO)	Nylon (PA)	Polycarbonate (PC)	Polypropylene (PP)	PTFE	PVC	PVDF (Kynar®)	Silicone (VMQ)	Titanium	Tygon	Viton® (FKM)
Oleic Acid	A	A	D	A	C	A	D	B	B	N/A	A	A	B	A	A	B	C	C1	D	C	A	A	A	B	A	C	A	D	B	C	B
Oxalic Acid, cold 10%	B	A	A	B	A	A	D	B	D	C	B	A	A	B	D	D	A	A1	B	D	A	B1	N/A	A1	A	B	B	B	A	B	A
Ozone Gas	B	A	B	C	A	B	B	B	D	C	A	A	A	A	C	A	C1	C	D	C	N/A	D	A	B	A	B	A	A	A	B	A
Palmitic Acid	B	A	A	A	D	B	D	A	A	N/A	B	A	B	B	A	N/A	A	N/A	B	D	N/A	A	A	B	A	B	A1	D	N/A	B	A
Paraffin	A	A	A	A	A	A	A	A	B	N/A	B	A	D	B	N/A	A	B	B	B	B	A	A	A	A	A	B	A	N/A	A	B	B
Pentane (Amyl Hydride) C5H12	C	C	A	B	N/A	B	A	C	A	N/A	A	N/A	D	A	B	N/A	N/A	D	D	B	N/A	A	A	D	A	A	A	D	N/A	A	A
Peracetic Acid (Peroxyacetic Acid)	B	A	B	D	D	C	D	D	C	D	D	D	B	A	N/A	N/A	A	D	D	D	N/A	D	A	A	A	C	A	C	N/A	D	A
Perchloric Acid	C	C	N/A	C	C	D	N/A	B	D	N/A	D	A	B	B	D	B	D	B	D	A	N/A	D	D	C	A	C	A	D	D	D	A
Peroxyacetic Acid (Peracetic Acid)	B	A	B	D	D	C	D	D	C	D	D	D	B	A	N/A	N/A	A	D	D	D	N/A	D	A	A	A	C	A	C	N/A	D	A
Petroleum	A	A	B	B	N/A	D	N/A	A	A	N/A	B	A	D	N/A	B	N/A	D	C	D	B	D	A	C	B	A	N/A	A	D	A	N/A	A
Phenol, 10%	B	B	D	B	D	A	N/A	B	D	D	B	A	B	B	D	B	D	B	A	D	D	D	B	B	A	C	A	D	B	C	A
Phenol (Carbolic Acid)	B	B	D	D	D	A	D	B	D	D	D	B	B	A	D	B	D	D	D	D	D	D	D	B	A	D	A	D	A	B	A
Phosphoric Acid, >40%	D	D	C	D	C	C	D	B	D	D	D	A	B	A	D	A	A	B	B	B	A	B	A	A1	A	B	B	D	C	D	A
Phosphoric Acid, crude	D	B	C	D	D	C	D	B	D	D	D	N/A	B	A	N/A	A	B	B	D	D	A	B	A	B	A	B	A	D	C	D	A
Phosphoric Acid, S40%	D	C	B	D	D	C	D	B	D	D	D	A	B	A	N/A	A	A	A	B	B	A	B	A	A	A	B	B	C	C	D	A
Phosphorus	A	A	N/A	B	D	B	N/A	A	N/A	N/A	B	B	N/A	A	N/A	N/A	D	B	N/A	N/A	N/A	N/A	D	A	A	A	A	N/A	N/A	B	N/A
Photographic Developer	A	A	B	D	B	N/A	N/A	A	A	D	D	A	B	B	D	N/A	A	A	A	A	A	N/A	A	A	A	A	N/A	B	A	N/A	A
Photographic Solutions	D	N/A	N/A	D	B	N/A	N/A	A	B	N/A	D	A	A	B	B	A	A	A	B	B	A	A	A	A	A	A	B	A	A	A	B
Potassium Bicarbonate	B	B	A	C	A	D	N/A	B	A	A	B	A	A	B	N/A	A	B	A	A	A	A	A	N/A	A	A	A	B	A	A	A	A
Potassium Bromide	B	B	A	A	A	C	N/A	B	A	D	B	A	A	B	N/A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	B	A
Potassium Chloride, up to 30%	B	A	A	A	A	D	D	B	A	A	B	A	A	A	B	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Dichromate	B	B	B	A	B	B	D	B	A	A	B	A	A	B	C	A	B	A	B	A	A	B	A	A	A	A	A	A	A	C	A
Potassium Ferrocyanide	B	B	A1	B	C	B	N/A	B	D	C	B	B	A	B	N/A	A	B	A1	A	A	A	B	D	A1	A	A	A1	N/A	A	B	A
Potassium Hydroxide (Caustic Potash)	B	A	A	A	B	D	D	D	B	B	B	A	A	B	D	B	A	A	B	B	A	C	D	A	A	A	A	C	D	B	B
Potassium Iodide	A	A	B	N/A	A	B	N/A	A	A	A	A	A	A	A	N/A	N/A	B	B	B	A	N/A	A	A	A1	A	A	A1	N/A	A	B	A



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Potassium Nitrate, 10%	B	B	B	A	A	B	B	B	A	A	A	A	A	B	B	N/A	B	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
Potassium Nitrite	B	B	B	A	N/A	B	B	B	A	A	A	A	A	B	B	N/A	N/A	A	A	A	A	B	A	A	A	A	A	A	A	A	A	A
Potassium Permanganate	B	B	B	A	B	B	C	A	C	A	A	A	A	A	D	N/A	A	A	A	A	A	D	A1	A	A	A	A	N/A	A	B	A	
Propane (liquefied)	A	A	A	A	N/A	A	A	A	A	A	A	D	A	A	A	D	C	D	C	A	A	C	A	A	A	A	D	N/A	N/A	A		
Propylene (C3H6, Propene, Methyl Ethylene)	B	A	B	A	B	A	N/A	N/A	D	A	A	N/A	D	A	N/A	N/A	N/A	N/A	D	D	N/A	N/A	A	A	A	B	A	D	N/A	B	A	
Propylene Glycol	B	B	B	B	B	B	B	A	A	A	C	A	B	N/A	N/A	A	B1	A	C	N/A	A	B	A1	A	C	A	A	A	N/A	A		
Pyridine (C5H5N)	A	A	A	B	D	B	B	B	D	A	B	D	B	B	C	A	D	B	D	D	B	C	D	A1	A	D	D	D	B	D	D	
Resorcinol (C6H6O2)	N/A	N/A	A	N/A	C	N/A	N/A	N/A	N/A	N/A	N/A	B	N/A	D	N/A	A	B1	N/A	D	N/A	D	B	A1	A	C	N/A	N/A	N/A	C	A		
Rosins	A	A	N/A	B	N/A	B	C	B	A	D	B	C	A	A	N/A	A	B	B	N/A	A	N/A	A	N/A	A1	A	C	N/A	A	N/A	N/A	A	
Salicylic Acid	B	B1	A	D	B	B	C	A	B	A	A	N/A	A	A	N/A	A	A	B1	A	D	N/A	A	A	A	A	B	A	N/A	A	B	A	
Salt Brine (NaCl saturated)	B	A	A1	A	A	B	A	B	A	D	B	A	A	A	N/A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	N/A	A	
Sea Water	C	C	A1	A	A	B	D	A	A	D	B	A	A	A	D	A	A	A1	A	B	A	A1	A1	A	A	A	A	A	A	N/A	A	
Shellac (Bleached)	A	A	N/A	A	N/A	A	B	A	A	A	A	N/A	A	N/A	N/A	N/A	N/A	A	A	B	N/A	A	N/A	A	A	N/A	N/A	N/A	N/A	N/A	A	
Shellac (Orange)	A	A	N/A	A	N/A	A	B	A	A	A	A	N/A	A	N/A	N/A	N/A	N/A	A	D	D	N/A	A	N/A	A	A	N/A	N/A	N/A	N/A	N/A	A	
Silicone	A	A	D	A	N/A	A	A	A	A	A	A	A	A	A	A	A	N/A	C	A	A	A	A	A1	A	A	A	A	C	N/A	N/A	A	
Silver Bromide	D	D	N/A	C	A	D	N/A	D	N/A	D	N/A	N/A	N/A	B	N/A	A	N/A	A	N/A	N/A	A	N/A	N/A	N/A	A	N/A	N/A	N/A	N/A	N/A	N/A	
Silver Nitrate	B	B	B	A	A	D	D	B	B	C	D	A	A	A	D	A	A	A	A	A	A	A	A1	A	A	A	A	A	A	B	A	
Soap Solutions	A	A	A	A	A	C	B	B	A	A	A	A	A	A	A	N/A	B	D	B	B	A	A	A	A	A	A	A	A	A	B	A	
Sodium Acetate	B	B	B	B	B	B	B	B	B	B	A	A	A	A	N/A	A	A	A	A	B	A	B	A	A	A	B	A	D	A	N/A	D	
Sodium Benzoate	N/A	N/A	A	N/A	A	A	N/A	A	B	N/A	N/A	A	A	A	N/A	N/A	B	A1	A	A	N/A	B	A1	A1	A	B	A1	N/A	A	B	A	
Sodium Bicarbonate (Baking Soda)	A	A	A	A	A	D	D	A	A	C	B	A	A	B	B	A	A	A1	A	A	A	A	A1	A	A	A	A	A	A	A	B	A
Sodium Bisulfate, 10%	D	C	A	B	A	D	D	A1	B	D	B	A1	A	B	C	A1	B	A1	A	A	A	A	A	A	A	A1	A	A	A	B	A	
Sodium Bisulfite	B	B	A	C	A	D	D	B	A	D	B	A1	A	B	B	N/A	B	A1	A	A	A	C	A	A	A	A1	A	A	A	B	A	
Sodium Bromide	C	C	B	A	A	D	N/A	A	N/A	C	D	A1	A	B	N/A	A	A	A1	A	A	A1	B	A	A	A	B1	A1	N/A	A	B1	A	
Sodium Carbonate	A	A	B	A	B	D	B	A1	A	B	A	A1	A	A	B	A	A	B1	A	A	A	B	A1	A	A	A1	A	A	A	B	A	



# Chemical Compatibility

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### Ratings - Chemical Effect

A = Excellent. B = Good -- Minor Effect, slight corrosion or discoloration. C = Fair – Moderate Effect, not recommended, swelling may occur.  
 D= Severe Effect, not recommended for ANY use. N/A = No information available. 1– Satisfactory to 120°F (48°C)

All data is based on ambient or room temperature conditions, about 64°F (18°C) - 73°F (23°C)

	304 Stainless Steel	316 Stainless Steel	ABS Plastic	Acetal, POM	Acrylic (PMMA)	Aluminum	Brass	Bronze	Buna N (Nitrile)	Cast Iron	Copper	CPVC	EPDM	Hastelloy® - C	Hyrel® (TPE)	Kel-F® (PCTFE)	HDPE	LDPE	Natural Rubber	Neoprene (CR)	Noryl® (PPO)	Nylon (PA)	Polycarbonate (PC)	Polypropylene (PP)	PTFE	PVC	PVDF (Kynar®)	Silicone (VMQ)	Titanium	Tygon	Viton® (FKM)
Sodium Chlorate	A	B	A	A	A	C	B	B	B	B	B	A	A	B	N/A	N/A	B	B1	A	A	A	D	A	A	A	A	C	A	B	A	
Sodium Chloride	B	B	A	A	A	C	D	B	A	D	B	A1	A	A	A	A	A	A1	A	A	A	A	A1	A	A	A1	A	A	A	B	A
Sodium Hydroxide, 80%	C	B	A	D	A	D	D	C	D	D	D	A	B	A	D	A	C	D	A	B	A	C	D	A	A	A	A	A	D	A	D
Sodium Hypochlorite, <20%	C	C	B	D	A	D	D	C	B	D	D	A	B	A	A	A	A	A	C	C	A	D	C	A	A	A	A	B	C	C	A
Sodium Hypochlorite, 100%	D	D	D	D	N/A	D	D	C	D	D	D	C	B	B	D	A	C	B1	C	C	A	D	D	B	A	B	A	B	C	N/A	A
Sodium Hydrosulfite (Sodium Dithionite)	N/A	N/A	N/A	N/A	A	A	N/A	N/A	C	N/A	N/A	C	B	A	N/A	N/A	N/A	N/A	C	B	N/A	A	N/A	N/A	A	C	N/A	C	N/A	A	B
Sodium Nitrate	B	B	A1	A	A	B	B	B	A	B	D	A	A	B	B	A	B	A1	B	B	A	A	D	A	A	A	A	D	A	B	A
Sodium Perborate	B	B	A	B	A	C	D	B	B	C	B	A	A	B	B	A	A	A	B	B	A	B	A	A	A	A	N/A	B	N/A	N/A	A
Sodium Peroxide	A	A	A1	D	C	C	D	A	B	C	B	A	A	B	B	A	B	A	B	B	N/A	A	A	B	A	B	A	D	N/A	N/A	A
Sodium Polyphosphate	B	B	N/A	B	N/A	D	D	B	A	D	A	A	A	A	N/A	A	B	A	C	B	A	A	N/A	A	A	A	A	D	A	N/A	A
Sodium Silicate (Water Glass)	A	B	A1	C	A	A	D	B	A	B	B	A	A	B	A	A	A	A1	A	A	A	A	A	A	A	A	A	A	A	B	A
Sodium Sulfate (Salt Cake, Thenardite)	B	B	A1	B	A	A	B	B	A	B	B	A	A	B	A	A	A	A1	B	A	A	A	A1	A	A	A	A	A	A	N/A	A
Sodium Sulfide	B	D	A1	B	A	D	D	B	A	C	D	A	A	B	A	A	B	A	B	A	A	A	D	A	A	A	A	A	A	B	A
Sodium Sulfite	B	A	A1	A	A	C	D	B	A	A	D	A	A	B	A	A	B	B	B	A	A	D	A	A1	A	A	A	A	A	A	A
Sodium Thiosulfate (hypo)	A	B	A1	C	B	A	D	A	B	C	D	A	A	A	N/A	A	A	A	B	A	A	B	D	A1	A	A	A	A	A	N/A	A
Starch	A	A	A1	A	A	A	A	B	A	C	N/A	A	A	N/A	B	A	A	B	A	A	A	A	A	A	A	A	A	N/A	N/A	N/A	A
Stearic Acid	B	A	A1	A	A	B	D	B	B	C	D	B	B	B	C	N/A	A	B	C	B	A	A1	A	A1	A	B	A	B	A	B	A
Stoddard's Solvent	A	A	B	A	A	A	A	A	A	A	A	C	D	A	A	A	N/A	C1	D	C	D	A	A1	C	A	C	A	D	A	C	A
Styrene (Vinylbenzene) C6H5CHCH2	A	A	N/A	A	D	A	A	A	D	A	B	D	D	D	D	N/A	N/A	N/A	D	D	A	A	D	N/A	A	D	A	D	N/A	N/A	B
Sulfite Liquors	B	B	N/A	D	N/A	D	D	B	A	C	D	B	A	B	N/A	N/A	A	A1	B	B	N/A	B	N/A	A	A	B	A	B	N/A	N/A	A
Sulfur Dioxide	D	A	D	B	D	B	D	B	D	N/A	B	A	A	C	C	A	D	B	N/A	B	A	C	B	A	A	A	A	B	A	C	A
Sulfur Dioxide Gas, dry	D	A	A	B	B	B	D	B	D	A	A	A	A	B	C	A	A	A	C	D	A	B	A	A	A	A	A	B	A	C	A
Sulfur Dioxide Gas, wet	A	C	A	B	D	A	D	C	D	B	D	A	C	B	X	N/A	D	A	C	D	D	D	A	C	A	A	A	B	N/A	A	A
Sulfur Trioxide, dry	D	A	N/A	D	N/A	A	A	B	D	A	B	A	C	B	X	N/A	A	C	C	D	D	A	N/A	D	A	A	C	B	D	B	A
Sulfuric Acid, <10%	D	B	B	D	A	D	D	B	A	C	D	A	A	B	A	A	A	A	B	A	C	A	A1	A	A	A	C	D	B	A	



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Sulfuric Acid, 10-75%	D	D	B	D	D	D	D	B	B	D	D	A	B	B	X	A	A	A	C	B	A	D	B	A	A	A	D	D	N/A	A	
Sulfuric Acid, 75-100%	C	D	A	D	D	D	D	B	C	D	D	C	B	B	C	A	B	B	D	D	A	D	D	C	A	D	A	D	D	D	A
Sulfuric Acid, cold concentrated	C	B	D	D	D	B	D	B	D	D	D	D	C	A	B	A	B	C	D	D	A	D	N/A	A1	A	D	A	D	D	D	B
Sulfurous Acid, 10%	B	B	N/A	C	A	B	D	B	B	D	D	A	B	B	C	A	B	B1	B	C	A	D	D	A	A	A	A	D	A	B	A
Tannic Acid, 10%	B	A	A	B	A	C	B	B	A	C	A	A	A	B	A	A	A	B1	A	A	A	C	C	A	A	A	B	B	A	B	A
Tetrachloroethane	B	A	D	A	D	C	C	N/A	D	A	A	C	D	A	N/A	A	D	N/A	D	D	D	C	D	C	A	C	A	D	A	N/A	A
Toluene (Toluol)	A	A	D	C	D	A	A	A	D	A	A	D	D	A	B	B	D	C	D	D	D	A	D	C	A	D	A	D	A	D	C
Trichloroacetic Acid	D	C	N/A	N/A	C	D	N/A	N/A	C	D	D	N/A	B	B	D	A	C	A	C	D	N/A	C	D	A	A	B	B	D	D	C	C
Trichloroethylene	B	B	D	D	D	D	N/A	B	D	C	A	D	D	A	C	A	D	D	D	D	D	C	D	C	A	D	B	D	A	N/A	A
Triethylamine	A	A	N/A	D	A	N/A	N/A	C	C	A	A	A	A	N/A	N/A	A	N/A	N/A	B	A	B	A	D	D	A	B	A1	N/A	N/A	A	D
Trisodium Phosphate	B	B	B	A	B	D	A	A	A	N/A	B	A	A	A	A	N/A	A	A	A	A	A	A	A	A	A	A	A	A	N/A	A	A
Turpentine (C0H16)	A	A	D	A1	B	A	D	A	A	N/A	B	A	D	B	B	A	B	D	D	D	D	B	D	D	A	D	A	D	B	B	A
Urea	B	B	B	A	A	B	N/A	B	B	N/A	D	A	A	B	B	N/A	A	A	N/A	B	A	A	D	A	A	D	A	B	A	B	A
Varnish	A	A	N/A	A	N/A	A	A	B	B	C	B	D	D	A	N/A	A	B	A	D	D	D	A	D	A	A	D	A	D	N/A	D	A
Vegetable Juice	A	A	B	A	N/A	D	A	A	A	D	A	N/A	A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	A	A	A	N/A	A	N/A	N/A	B	N/A	A	A
Vinegar	A	A	A	B	A	D	D	A	B	D	B	A	A	A	C	A	A	A	B	B	A	A	A1	A	A	B	B	A	A	A	A
Water, Deionized	A	A1	A1	N/A	A	A	A	N/A	A	D	B	A	A	A	N/A	A	A	N/A	A	A	A	A	N/A	A1	A	A	A1	N/A	A	A	A
Water, Distilled	A	A	B	B	A	A	A	A	A	D	B	A	A	A	N/A	A	A	A1	A	A	A	A	A1	A	A	A	A	C	A	B	A
Water, Fresh	A	A	A	A1	A	B	B	A	A	D	B	A	A	A	A	A	A	A1	A	A	A	A	A1	A	A	B	A	B	A	B	A
Water, Salt	B	B	A1	A	A	B	D	A	A	D	B	A	A	A	A	A	A	A1	A	A	A	A1	A1	A	A	B	A	B	A	B	A
Weed Killers	A	A	N/A	A	N/A	D	N/A	N/A	B	N/A	N/A	N/A	N/A	N/A	B	N/A	N/A	N/A	N/A	C	N/A	A	N/A	C	N/A	N/A	N/A	A	N/A	N/A	A
Whiskey and Wines	A	A	C	A	A	C	B	A	A	D	B	A	A	N/A	B	A	B	C	A	C	A	A	A	A	A	A	A	A	A	C	A
Xylene (Xylol, Dimethylbenzene)	B	B	D	A	D	A	A	A	D	B	A	D	D	A	B	A	D	B	D	D	B	A1	D	B	A	D	A	D	A	D	B
Zinc Chloride, 10%	B	B	A	C	B	D	D	B	A	D	C	A	A	B	A	A	A	A	A	A	A	A	A	A	A	B	A	B	A	A	A
Zinc Sulfate, 10%	B	A	A	C	B	D	B	B	A	D	B	A	A	A	D	A	A	A1	B	A	A	A	A1	A	A	A	A	A	A	A	A

