

Service Guide

The following charts have been assembled based on experiences in actual field installations, as well as from commonly published corrosion data. Due to the many variables involved in determining the degree of compatibility between a certain material and a certain fluid, the charts must be used as a guide only, and cannot be interpreted as a guarantee. Factors such as temperature, concentration, pressure, velocity, aeration, abrasion, cavitation, flashing, etc. play an important application role in determining the suitability of any material in a particular application and must also be taken into consideration.

The selection of a suitable valve body material for a particular application is much easier than the selection of other valve components such as seats, ball, stem and packing. A certain

amount of corrosion is sometimes acceptable on the valve body, but the seats, ball and stem materials must be chosen carefully since corrosion of these components will likely affect the sealing characteristics of the valve.

In addition to the compatibility of the material to the fluid, care must be taken to select materials and designs that are capable of withstanding the actual pressures and temperatures. Consult pages 14-15 of this catalog for pressure/temperature ratings of valves with various seats.

Engineered Valves cannot accept responsibility for the accuracy, currency or reliability of the information contained herein. Selection of materials is at the sole risk of the user.

CONSULT FACTORY FOR SERVICES NOT LISTED.

Chemicals	Body/Trim					Seats/Packing					
	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Acetaldehyde	C	A	A	A	A	B	A	A	A	A	D
Acetamide	B	B			A			A	A	A	
Acetate Solvents	A	A		A	A		A	A	A	A	
Acetic Acid, Aerated	D	A		A	A			A	A	A	
Acetic Acid, Air Free	D	A	A	A	A			A	A	A	
Acetic Acid, Crude	C	A	A	B	A			A	A	A	
Acetic Acid, Glacial		D			A	B	A	A	A	A	
Acetic Acid, Pure	D	A	A	C	A		A	A	A	A	C
Acetic Acid, 10%	C	A	A	B	A	B		A	A	A	A
Acetic Acid, 80%	C	A	A	B	A	C		A	A	A	C
Acetic Acid Vapors		D	B	C	A		A	A	A	A	
Acetic Anhydride	D	B	B	B	A	C	A	A	A	A	C
Acetone	A	A	A	A	A	A	A	A	A	A	A
Acetyl Chloride		C		B	A	D	A	A	A	A	
Acetylene	A	A	A	A	A	A	A	A	A	A	
Acrylonitrile	A	A	B	A	A	D		A	A	A	
Adipic Acid	A	A	B	B			B		A	A	
Acid Fumes	D	B	B					C	A	A	
Air	A		A	A	A	A	A	B	A	A	A
Albumen		A							A		

A = Excellent

B = Fair

C = Poor

D = Not Recommended

Chemicals	Body/Trim					Seats/Packing					
	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Alcohol, Allyl	A	A	A	A					A	A	
Alcohol, Amyl	B	A	B	B	B	A	A	A	A	A	
Alcohol, Benzyl		A			A				A	A	
Alcohol, Butyl	B	A	A	A	A	C	A	A	A	A	
Alcohol, Diacetone	A	A	A	B	A	B		A	A	A	
Alcohol, Ethyl	B	B	A	B	A	A	A	A	A	A	A
Alcohols, Fatty	B	A	A					A	A	A	
Alcohol, Furfuryl		A							A	A	
Alcohol, Isopropyl	B	B	A	B	B	A		A	A	A	
Alcohol, Methyl	B	A	A	A	A	A	A	A	A	A	
Alcohol, Propyl	B	A	A	A	A	A	A	A	A	A	
Alumina		A			A	A	A	A	A	A	
Aluminum Acetate		A	B	C	B	A	A	A	A	A	A
Aluminum Chloride Dry	C	C	D	B	B	A	A	A	A	A	
Aluminum Chloride Solution		D	B	B	A		A	A	A	A	A
Aluminum Fluoride	D	C		B	A	A		A	A	D	A
Aluminum Hydroxide	D	A	B	B	B	A		A	A	A	A
Aluminum Nitrate		C	B	C	B	B		B	A	A	
Alum (Aluminum Potassium Sulfate)		B	B	C	A			A	A	A	A
Aluminum Sulfate	D	B	B	C	A	A		A	A	A	A

Service Guide

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Amines	B	A	A	B	B	C	A	A	A	A	
Ammonia, Alum		A	A		A			A	A	A	
Ammonia, Anhydrous Liquid	A	A	A	B	A	B	A	A	A	A	
Ammonia, Aqueous	A	A	A	B	B		A	A	A	A	
Ammonia Gas, Hot	A	A	A	B	B	A	A	A	A	A	A
Ammonia Liquor	A	A	A		B			A	A	A	
Ammonia Solutions	B	A	A	B	B			A	A	A	
Ammonium Acetate	B	A	B	B		A		A	A	A	
Ammonium Bicarbonate	C	B	B	B		A		A	A	A	A
Ammonium Bromide 5°	B	B	B					A	A	A	A
Ammonium Carbonate	B	B	B	B		A		A	A	A	A
Ammonium Chloride	D	C	B	B	B	A	A	A	A	A	A
Ammonium Hydroxide 28%	C	B	A	D	B	B		A	A	A	A
Ammonium Hydroxide, Concentrated	C	B	A	C	B	A		A	A	A	A
Ammonium Monophosphate	D	B	B	B				A	A		
Ammonium Monosulfate		A	B	B	B			A	A	A	
Ammonium Nitrate	D	A	B	D	B	A		B	A	A	A
Ammonium Persulfate		A	A	D		B		A	A	A	
Ammonium Phosphate	D	B	B	C		A		A	A	A	A
Ammonium Phosphate Di-basic	D	B	B	C	B			A	A	A	
Ammonium Phosphate Tri-basic	D	B	B	C	B		A	A	A		
Ammonium Sulfate	C	B	B	B	B	A		A	A	A	A
Ammonium Sulfide	D	B	B	B		A		A	A	A	A
Ammonium Sulfite	C	A	B	D		B		A	A	A	
Amyl Acetate	C	B	A	B	A	B		A	A	A	A
Amyl Chloride		A	A	B	B	D		A	A	A	D
Aniline	C	B	A	B	B	C		A	A	A	A
Aniline Dyes	C	A	A	A		C		A	A	A	
Antimony Trichloride	D	D	C	B				A	A		
Aqua Regia (Strong Acid)	D	B	B			D	D	D	A	A	C
Aromatic Solvents	C	A	A	B		D		A	A	A	
Arsenic Acid	D	B	B	D	B	B		A	A	A	A
Barium Carbonate	B	B	B	B	A	A		A	A	A	A
Barium Chloride	C	B	C	B		A		A	A	A	A
Barium Cyanide		B	B	D		B		A	A	A	
Barium Hydrate		A	A	B				A	A	A	
Barium Hydroxide	C	B	A	B		B		A	A	A	A
Barium Nitrate		A		A				B	A	A	

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Barium Sulfate	C	A	A	B		B		A	A	A	A
Barium Sulfide	C	B	B	C		A		A	A	A	A
Benzaldehyde	A	A	A	B	B	A		A	A	A	D
Benzene (Benzol)	B	B	A	A	B	D	D	A	A	A	D
Benzoid Acid	D	B	B	B	A	D		A	A	A	A
Beryllium Sulfate		B	A	B		B		A	A	A	
Benzyl Chloride	B	B							A	A	
Black Sulfate Liquor	C	B	B	B					A	A	
Bleaching Powders	D	B	B	D					A	A	
Bleaching Powder, Wet		C	B	D	A	B		A	A	A	A
Blood (Meat Juices)		A	A	B		B	A	A	A	A	
Borax (Sodium Borate)	C	A		A	A	A	A	A	A	A	A
Bordeaux Mixture		A	A					A	A	A	
Boric Acid	D	B	B	B	A	B	A	A	A	A	A
Brake Fluid		B		B		B		A	A	A	
Brines, saturated	D	B	B	B	A	A		A	A	A	A
Bromine, Dry	D	D	B	A	A	D	D	B	A	A	D
Bromine, Wet	D	D	D	D					A	A	
Bromic Acid									A	A	
Bunker Oils (Fuel)	B	A	A	A				A	A	A	D
Butadiene	B	A	A	C	B	C	A	A	C	C	D
Butane	B	A	A	B	A	D	A	A	A	A	A
Butyl Acetate		B	A	B	B	D		A	A	A	D
Butylene	A	A	A	A		D	A	A	A	A	
Butyric Acid	D	B	B	B	A	C	A	A	A	A	D
Calcium Bisulfite	D	B	B	D	B	D		A	A	A	
Calcium Carbonate	D	B	B	B	B	B	A	A	A	A	A
Calcium Chlorate		B	B	B		B		B	A	A	A
Calcium Chloride	C	B	B	B	A	B	A	A	A	A	A
Calcium Hydroxide	C	B	B	A	A	A	A	A	A	A	A
Calcium Hypochlorite	D	C	B	C					A	A	
Calcium Nitrate		B	B			B		B	A	A	A
Calcium Phosphate		B	B			B		A	A	A	A
Calcium Silicate		B	B			B		A	A	A	
Calcium Sulfate	C	B	B	B	B	B	A	A	A	A	A
Camphor		B	C	C		B		A	A	A	D
Cane Sugar Liquors		A	A	B		B		A	A	A	
Carbolic Acid (Phenol)	D	B	A	B		B	A	A	A	A	
Carbonated Beverages	D	B	B	C		B		A	A	A	
Carbonated Water	B	A	A	B		A		A	A	A	A
Carbon Bisulfide	B	B	B	B		D		A	A	A	D

Service Guide

Chemicals	Body/Trim				Seats/Packing						
	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMW
Carbon Dioxide, Dry	A	A	A	A		B	A	A	A	A	A
Carbon Monoxide		A	A	A	A	B	A		A	A	A
Carbon Tetrachloride, Dry	B	A	A	A	A	D	A	A	A	A	D
Carbon Tetrachloride, Wet	D	B	B	B	B	D	A	A	A	A	D
Castor Oil	B	A	A	A	A	B		A	A	A	A
Caustic Potash (KOH)		A	A	B			B	A	A	A	
Caustic Soda (NaOH)	B	A	A	A		B	B	A	A	A	
Cellulose Acetate		B		B	B	B		A	A	A	
Chlorinated Solvents	C	A	A	B		D	D	A	A	A	
Chlorinated Water		C	A	D	D		D	A	A	A	C
Chlorine, Dry	B	D	B	A	A				A	A	
Chlorine, Wet	D	D	C	D	A				A	A	
Chlorine Gas, Dry	B	B	A	A	A	D	D	A	A	A	D
Chlorobenzene, Dry	B	A	A	B	B	D	B	A	A	A	D
Chloroform, Dry	B	A	A	A	B	D		A	A	A	
Chlorophyll, Dry		B	A	B	B		B	A	A	A	
Chlorosulfonic Acid, Dry	B	B	B	B	A	D	D		A	D	D
Chlorosulfonic Acid, Wet	D	D	D	C				A	A	A	
Chrome Alum	B	A	A	B		B		A	A	A	A
Chromic Acid <50%	D	C	B	C	B	C	D	A	A	A	A
Chromic Acid >50%	D	C	B	D	B	C	D	A	A	A	
Chromium Sulfate		B	C	B		B		A	A	A	
Citric Acid	D	B	A	B	A	B	A	A	A	A	A
Coke Oven Gas	B	A	A	B		D		A	A	A	
Cooking Oil	B	A	A	A		D		A	A	A	
Copper Acetate	D	A	A	C	B	B		A	A	A	
Copper Carbonate		A	A					A	A	A	
Copper Chloride	D	D	D	C				A	A		
Copper Cyanide		A	A	C		B		A	A	A	A
Copper Nitrate	D	B	B	D		B		B	A	A	A
Copper Sulfate	D	B	B	C	A			A	A	A	A
Corn Oil	C	B	B	B		C		A	A	A	A
Cottonseed Oil	C	B	B	B		C	A	A	A	A	A
Cresol		B	B			D		A	A	A	D
Creosote Oil	B	B	A	B	B	D	A	A	A	A	D
Cresylic Acid	C	B	B	B		D		A	A	A	A
Crude Oil, Sour	B	A	A	B		D		A	A	A	
Crude Oil, Sweet	B	A	A	A			A	A	A	A	
Cumene	B	B	B	B				A	A	A	
Cupric Nitrate		A	A	D				B	A	A	
Cutting Oils (Water Emulsions)	B	A		A				A	A	A	

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMW
Cyanide Plating Solution		B	B	D		B		A	A	A	
Cyclohexane	A	A	A	B	B	D	A	A	A	A	C
Cyclohexanone		A	A	B	B		B	A	A	A	D
Denatured Alcohol	B	A	A	A					A	A	A
Detergents, Synthetic		B	A	B		B		A	A	A	A
Dextrin		B	B	B		B		A	A	A	A
Diacetone Alcohol	A	A	A	A					A	A	
Diamylamine		A	A						A	A	
Dibutyl Phthalate										A	A
Dichloroethane		C	B	B		D		A	A	A	
Dichloroethyl Ether		B	B			D			A	A	
Diesel Oil Fuels	A	A	A	A		D		A	A		
Diethylamine	A	A	A	B		C		A	A	A	
Diethyl Benzene		B	B			D		A	A	A	
Diethylene Glycol		A	A	B		A	A	A	A	A	A
Diethyl Sulfate		B	B	B		C		A	A	A	
Dimethyl Formamide		A	A	B		D		A	A	A	
Dimethyl Phthalate		D						A	A	A	
Dioxane		B	B	B		C	A	A	A	A	
Dipentane (Pinene)		A	A			D		A	A	A	
Disodium Phosphate		B	B	C				A	A	A	A
Dowtherm	B	A	A	A		D	A	A	A	A	
Drilling Mud	B	A	A	B		A		A	A	A	
Dry Cleaning Fluids	B	A	A	B				A	A	A	
Drying Oil	C	B	B	B				A	A	A	
Enamel		A				D		A	A	A	
Epsom Salts (MgSo4)	C	B	B	B				A	A	A	
Ethane	C	B	B	B		D	A	A	A	A	
Ether	A	A	A	B		C	A	A	A	A	D
Ethyl Acetate	B	B	B	B	B	C		A	A	A	C
Ethyl Acrylate	C	A	A	B	A	C		A	A	A	
Ethylamine		A								A	A
Ethyl Benzene		B	A		A	D		A	A	A	
Ethyl Bromide		B	C	B		B		A	A	A	
Ethyl Chloride, Dry	B	A	A	B	B	C		A	A	A	D
Ethyl Chloride, Wet	D	B	B	B	B	B		A	A	A	A
Ethylene	A	A	A	A					A	A	
Etylenediamene		A							A	A	
Ethylene Chloride			A	A	B	B		A	A	A	
Ethylene Dichloride, Dry	B	A	A	A					A	A	
Ethylene Dichloride, Wet	D	C	A	B					A	A	

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Chemicals	Body/Trim				Seats/Packing						
	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Ethylene Glycol	B	B	A	B	A	A	A	A	A	A	A
Ethylene Oxide	B	B	B	B	A	D	A	D	A	A	C
Ethyl Ether		A	A	A	B	D	A	A	A	A	
Ethyl Silicate		B	B	B		B		A	A	A	
Ethyl Sulfate		B	B			C		A	A	A	
Fatty Acids	D	A	A	B	A	D	A	A	A	A	A
Ferric Chloride	D	D	D	D					A	A	
Ferric Hydroxide		A	A	A				A	A	A	
Ferric Nitrate	D	C	A	D	B	A		B	A	A	A
Ferric Sulfate	D	B	A	D		A		A	A	A	A
Ferrous Ammonium Citrate		B	B					A	A	A	A
Ferrous Chloride	D	D	D	D	D	A		A	A	A	A
Ferrous Sulfate	D	B	B	B	B	A		A	A	A	A
Ferrous Sulfate, Saturated	C	A	A	B	B	B		A	A	A	
Fertilizer Solutions	B	B	B	B				A	A	A	
Fish Oils	B	A	A	A		D		A	A	A	
Flue Gases		A	A	B		D		A	A	A	
Fluoride Salts		B						A	D		
Fluorine Gas, Dry		B	A	A	A		D		A	D	
Fluoboric Acid		B	A						A	D	A
Fluorosilicic Acid	D	B	B	A	B	C		A	D	A	
Formaldehyde, Cold	A	A	A	A	B	B		A	A	A	A
Formaldehyde, Hot	D	C	B	B	B			A	A	A	A
Formic Acid, Cold	D	B	A	B	A			A	A	A	A
Formic Acid, Hot	D	B	B	B	B			A	A	A	A
Freon Gas, Dry	B	A	A	A	B	C	A	A	A	A	
Freon 11, MF, 112, BF		A	A	B	B	C	A	A	A	A	
Freon 12, 13, 32, 114, 115		A	A	B	B	A	A	A	A	A	
Freon 21, 31		A	A	B	B	D	A	A	A	A	
Freon 22		A	A		B	D	A	A	A	A	
Freon 113, TF		A	A	B	B	C	A	A	A	A	
Freon, Wet		C	B	B	B	B	D	A	A	A	
Fuel Oil	B	A	A	B			D	A	A	A	D
Fumaric Acid			A						A	A	
Gallic Acid 5%	D	B	B	B	B	C			A	A	A
Gas, Manufactured	B	B	B	A		D		A	A	A	
Gas, Natural	B	A	B	A		D		A	A	A	
Gas, Odorizers	B	B	A	B				A	A	A	
Gasoline, Aviation	A	A	A	A	A			A	A	A	D
Gasoline, Leaded	A	A	A	B	A			A	A	A	D
Gasoline, Motor	A	A	A	A	A	D		A	A	A	D

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Gasoline, Refined	B	A	A	B	A	D		A	A	A	D
Gasoline, Sour	B	A	A	C	A	D		A	A	A	D
Gasoline, Unleaded	A	A	A	A	A			A	A	A	D
Glue	A	B	A	B	A	B	A	A	A	A	A
Glutamic Acid		B	A						A	A	
Glycerine (Glycerol)	C	A	A	A	A	A	A	A	A	A	A
Glycol Amine		B				D	D		A	A	A
Glycol	C	B	A	B		A	A	A	A	A	
Helium Gas		A	A	B	A	B	A	A	A	A	A
Heptane	B	A	A	B	A	D	A	A	A	A	C
Hexane	B	A	A	B	A	D	A	A	A	A	D
Hexanol, Tertiary	A	A	A	A	A	D		A	A	A	A
Hydraulic Oil, Petroleum Base	A	A	A	A		D		A	A	A	
Hydrazine		B	B	D		B			A	A	
Hydrobromic Acid	D	D	D	D					A	A	
Hydrochloric Acid	D	D	D	D					A	A	
Hydrocyanic Acid	D	A	A	C	B	B	A		A	A	A
Hydrofluoric Acid, Anhydrous	B	B	B	A					A	D	
Hydrofluosilicic Acid	D	C	B	B		B	D	A	A	A	D
Hydrogen Gas, Cold	B	A	A	A		B	A	A	A	A	A
Hydrogen Gas, Hot	B	B	A		A	B	A	A	A	A	A
Hydrogen Bromide Gas									A	A	
Hydrogen Chloride Gas, Dry	D	B	A	B					A	A	
Hydrogen Peroxide, Concentrated	D	B	B	D	D	B	A	D	A	A	C
Hydrogen Peroxide, Dilute	D	B	B	D	D	B	A	C	A	A	A
Hydrogen Sulfide, Dry	B	A	B	B	B	A	A	A	A	A	A
Hydrogen Sulfide, Wet	C	B	B	C	D	B	A	A	A	A	A
Hypo (Sodium Thiosulfate)	D	B	B	B		A			A	A	
Illuminating Gas	A	A	A	A		D		A	A	A	
Ink-Newsprint	D	A	A	B		B		A	A	A	A
Iso-Butane		B	B			D		A	A	A	
Iso-Octane	A	A	A	A		D	A	A	A	A	
Isopropyl Acetate		B	A			D	A	A	A	A	
Isopropyl Ether	A	A	A	B	A	D	A	A	A	A	
J P-4 Fuel	A	A	A	A	A			A	A	A	A
J P-5 Fuel	A	A	A	A	A			A	A	A	A
J P-6 Fuel	A	A	A	A	A			A	A	A	A
Kerosene	B	A	A	A	A	D	A	A	A	A	C
Ketones	A	A	A	A		D	A	A	A	A	
Lacquer (and Solvent)	C	A	A	A		D	A	A	A	A	

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Service Guide

Chemicals	Body/Trim				Seats/Packing						
	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMW
Lactic Acid Concentrated, Cold	D	A	A	D	A	B	A	A	A	A	A
Lactic Acid Concentrated, Hot	D	B	A	D	B	B	A	A	A	A	A
Lactic Acid Dilute Cold	D	A	A	C	A	B	A	A	A	A	A
Lactic Acid Dilute Hot	D	A	A	D	B	A	A	A	A	A	A
Lactose		B	B	B		B	A	A	A	A	A
Lard Oil	C	B	A	B		B	A	A	A	A	A
Lead Acetate	D	B	B	B		B	A	A	A	A	A
Lead Arsenate	B							A	A		
Lead Oxide								A	A		
Lead Sulfate		B	B	B		B		A	A	A	
Lecithin		B	B	B		D		A	A		
Linoleic Acid	B	A	A	B		D		A	A	A	
Linseed Oil	A	A	A	B		D	A	A	A	A	A
Lithium Chloride		B	A	B		B	A	A	A	A	
LPG	B	B	B	B		D	A	A	A	A	
Lubricating Oil (Petroleum Based)	A	A	A	B		D		A	A	A	C
Lye — See Sodium Hydroxide & Potassium Hydroxide											
Magnesium Bisulfate	B	A	A	B		B	A	A	A	A	
Magnesium Bisulfide		B	B	B		B	A	A	A	A	
Magnesium Carbonate		A	A	B		B	A	A	A	A	A
Magnesium Chloride	C	B	B	B	A	A	A	A	A	A	A
Magnesium Hydroxide	B	A	A	B	B	A	A	A	A	A	A
Magnesium Hydroxide, Hot	B	A	A	A	B		A	A	A	A	A
Magnesium Oxide								A	A		
Magnesium Nitrate		A	A	B			A	B	A	A	A
Magnesium Sulfate	B	A	A	B	A	A	A	A	A	A	A
Maleic Acid	B	B	B	B	A	D	A	A	A	A	A
Maleic Anhydride		B	B	B	B	D		A	A	A	
Malic Acid	D	B	B	B			A	A	A	A	
Manganese Carbonate		B	A				A	A	A	A	
Manganese Sulfate		A	A	B		B	A	A	A	A	
Meat Juices		A	A				A	A	A	A	A
Melamine Resins		C	C				A	A	A	A	
Methanol		A	A	B		D		A	A	A	
Mercuric Chloride	D	B	B	D	B	A	A	A	A	A	A
Mercuric Cyanide	D	A	A	C	B	A	A	A	A	A	A
Mercurous Nitrate		A	A	D			A	B	A	A	A
Mercury	A	A	A	B	B	A	A	A	A	A	A
Methane	B	A	A	B	A		A	A	A	A	
Methyl Acetate	B	A	A	B	A	B	A	A	A	A	

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMW
Methyl Acetone	A	A	A	A		A	A	A	A	A	
Methylamine	B	A	A	C	B	B	A	A	A	A	
Methyl Bromide 100%		B	A	B		D	A	A	A	A	D
Methyl Cellosolve	B	A	A	B	B	B		A	A	A	
Methyl Cellulose		A	A	A		B		A	A	A	
Methyl Chloride	B	A	A	B		D	A	A	A	A	D
Methyl Ethyl Ketone	A	A	A	A	B	B	C	A	A	A	D
Methylene Chloride	B	A	A	B	B	D	A	A	A	A	D
Methyl Formate	C	B	A	B	B	B		A	A	A	
Methyl Isobutyle Ketone		A	A					A	A	A	
Mineral Oils	B	A	A	A		D	A	A	A	A	D
Mine Water (Acid)	D	C	C	C				A	A		
Mineral Spirits	B	B	B	B				A	A	A	D
Molybdic Acid		A	A					A	A	A	
Monochloroacetic Acid	D	D	C	D				A	A		
Monocloro Benzene, Dry		B	B	B			B	A	A	A	
Morpholine		A	A	B		B		A	A	A	
Muriatic Acid	D	D	D	D	D			A	A		
Naptha	B	B	B	B	A	D	A	A	A	A	D
Napthalene	B	B	B	B	B	D	A	A	A	A	D
Natural Gas, Sour	B	A	A	D	A	D	A	A	A	A	A
Nickel Ammonium Sulfate	D	A	A	C		B		A	A	A	
Nickel Chloride	D	B	A	B	A	B	A	A	A	A	A
Nickel Nitrate	D	B	A	B		A	A	B	A	A	A
Nickel Sulfate	D	B	A	B	B	B	A	A	A	A	A
Nicotinic Acid (Niacin)	B	A	A	A		D		A	A	A	A
Nitric Acid 10%	D	A	A	D			B	B	A	A	A
Nitric Acid 30%	D	A	A	D		B	B	D	A	A	A
Nitric Acid 80%	D	C	B	D		D	D	D	A	A	D
Nitric Acid 100%	D	A	A	D		D	D	D	A	A	D
Nitric Acid Anhydrous	D	A	A	D		D	D	D	A	A	
Nitrobenzene	B	A	A	B	B	C	C	A	A	A	D
Nitrocellulose	B	B	B	B				A	A		
Nitrogen	A	A	A	A		B		A	A	A	A
Nitrous Acid 10%	D	B	B	D			D	A	A	A	
Nitrous Gases	B	A	A	D				A	A	A	A
Nitrous Oxide	B	B	B	D	B			A	A	A	A
Oil, Linseed	A	A	A	B				A	A		
Oil, Lubricating	A	A	A	B				A	A		
Oils Petroleum Refined	A	A	A	A	A	D		A	A	A	A
Oils, Petroleum Sour	B	A	A	A	A	D		A	A	A	A

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Oils Water Mixture	B	A	A		A	A	A	A	A		
Olaic Acid		B	B	A				A	A	A	
Oleic Acid	C	B	A	B	B	D	D	A	A	A	C
Oleum	B	B	B	C	B	D			A	A	D
Oleum Spirits		B	B	D		D			A	A	
Olive Oil	B	A	A	A		B	A	A	A	A	A
Oxalic Acid	D	B	B	B		B	A	A	A	A	A
Oxygen	B	A	A	A	A	A	D	D	A	A	A
Ozone, Dry	A	A	A	A	A	A	D		A	A	C
Ozone, Wet	C	A	A	A	A	B	D		A	A	C
Paints & Solvents	A	A	A	A		D		A	A	A	A
Palmitic Acid	C	B	B	B		B	A	A	A	A	
Palm Oil	C	B	A	A		D		A	A	A	A
Paraffin	B	A	A	A	A	D	A	A	A	A	C
Paraformaldehyde	B	B	B	B		D		A	A	A	
Paraldehyde		B	B			D		A	A	A	
Pentane	B	A	A	B		D	A	A	A	A	
Perchlorethylene, Dry	B	A	A	B	B	D		A	A	A	
Phenol	D	A	A	A	A	D		A	A	A	D
Phosphate Ester	A	A	A	A		A		A	A	A	
Phosphoric Acid 10% Cold	D	C	B	C					A	A	
Phosphoric Acid 10% Hot	D	C	B	B					A	A	
Phosphoric Acid 50% Cold	D	B	B	C		B	D	A	A	A	A
Phosphoric Acid 50% Hot	D	D	B	C		B	D	A	A	A	A
Phosphoric Acid 85% Cold	B	A	B	A				D	A	A	A
Phosphoric Acid 85% Hot	C	B	B					D	A	A	A
Phosphoric Anhydride		A	A					D	A	A	A
Phosphorous Trichloride	B	A	A			B	D	A	A	A	A
Phthalic Acid	C	B	B	A	B		B	A	A	A	
Phthalic Anhydride	C	B	B	A	A			A	A	A	A
Pine Oil	B	A	A	B		D		A	A	A	D
Pitch (Bitumen)		A	A			D		A	A	A	
Polysulfide Liquor		B	A	B		B		A	A	A	
Polyvinyl Acetate		B	B	B		B		A	A	A	
Polyvinyl Chloride		B	B	B	B			A	A	A	
Potassium Bicarbonate		A	A	B				A	A	A	A
Potassium Bichromate		A	A	A				A	A	A	
Potassium Bisulfate		A	A	B				A	A	A	
Potassium Bisulfite	D	B	B	D	B			A	A	A	
Potassium Bromide	D	A	B	B	B			A	A	A	A
Potassium Carbonate	B	B	B	B		B		A	A	A	A

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Potassium Chlorate	B	B	B	C		B		C	A	A	A
Potassium Chloride	C	B	A	B	B	A		A	A	A	A
Potassium Chromate		B	B	B		B			A	A	A
Potassium Cyanide	B	B	B	B	B	A		A	A	A	A
Potassium Dichromate	C	B	A	B		B			A	A	A
Potassium Ferricyanide	C	A	B	B		B		A	A	A	A
Potassium Ferrocyanide	C	B	B	A				A	A	A	A
Potassium Hydroxide, Dilute Cold	A	B	B	A				A	A	A	A
Potassium Hydroxide, To 70%, Cold	B	B	B	A		B		A	A	A	A
Potassium Hydroxide, Dilute Hot	B	B	B	A				A	A	A	A
Potassium Hydroxide, To 70%, Hot	A	B	B	A		A		A	A	A	A
Potassium Iodide	C	B	B	B	B	B		A	A	A	
Potassium Nitrate	B	B	B	B	B	B		B	A	A	A
Potassium Oxalate		A	A				A	A	A	A	
Potassium Permanganate	B	B	B	B	B	B	D		A	A	A
Potassium Phosphate		B	B	B	B	A	D		A	A	A
Potassium Phosphate, Di-basic	A	A	A	B	B	B		A	A	A	
Potassium Phosphate, Tri-basic	A	B	B	B		B		A	A	A	
Potassium Sulfate	B	A	A	B		A		A	A	A	A
Potassium Sulfide	B	A	A	C	A	B		A	A	A	A
Potassium Sulfite	B	A	A	C	B	A		A	A	A	A
Propane Gas B	B	A	B	A	D	A	A		A	A	
Propionic Acid	D	B	B	B					A	A	
Propyl Alcohol	B	A	A	A					A	A	
Propyl Bromide		B	A	B		B		A	A	A	
Propylene Glycol	B	B	B	B		B	A		A	A	A
Pyridine		B	A						A	A	A
Pyrolgalic Acid	B	B	A	B					A	A	
Pyroligenous Acid		A	B						A	A	
Quinine, Sulfate, Dry		A	A	B					A	A	A
R P-1 Fuel	A	A	A	A					A	A	A
Rubber Latex Emulsions	B	A	A						A	A	A
Salicyclic Acid	D	A	B	B		B	A		A	A	A
Salt (NaCl)	C	B	A	A					A	A	A
Salt Brine		B	B	B		B	A		A	A	A
Sea Water	D	B	B	A		A	A		A	A	A
Sewage	C	B	B	B		B	A		A	A	A

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Service Guide

Chemicals	Body/Trim					Seats/Packing					
	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Shellac	A	A	A	A		A	A	A	A		
Silicone Fluids		B	B			A	A	A	A	C	
Silver Bromide		A	A	B			A	A	A		
Silver Cyanide		A	A	B			A	A	A		
Silver Nitrate	D	A	A	D		A	B	A	A	A	
Silver Plating Sol.		A	A					A	A		
Soap Solutions (Stearates)	A	A	A	A		A	A	A	A		
Sodium Acetate	C	B	B	B	B	B	A	A	A	A	
Sodium Aluminate	C	A	B	B	B	B	A	A	A		
Sodium Benzoate		B	B	B			A	A	A	A	
Sodium Bicarbonate	C	B	A	B		A	A	A	A	A	
Sodium Bichromate		B	B				A	A	A		
Sodium Bisulfate 10%	D	A	A	B		B	A	A	A	A	
Sodium Bisulfite 10%	D	A	B	B	B	B	A	A	A	A	
Sodium Borate	C	B	B	B		B	A	A	A	A	
Sodium Bromide 10%	C	B	B	B		B	A	A	A	A	
Sodium Carbonate (Soda Ash)	B	A	A	B	B	B	A	A	A	A	
Sodium Chlorate	C	B	B	C	B	B	B	A	A	A	
Sodium Chloride	C	B	A	A	B	B	A	A	A	A	
Sodium Chromate	B	A	B	B		B		A	A		
Sodium Citrate		B	B				A	A	A		
Sodium Cyanide	B	A	A	B		B	A	A	A		
Sodium Ferricyanide		A	A	B			A	A	A	A	
Sodium Fluoride	D	B	A	B		B	A	A	D	A	
Sodium Hydroxide, 20% Cold	A	A	B	A		B	A	A	D	A	
Sodium Hydroxide, 20% Hot	B	A	A	A		B	A	A	D	A	
Sodium Hydroxide, 50% Cold	A	A	A	A		B	A	A	D	A	
Sodium Hydroxide, 50% Hot	B	A	A	B			A	A	D	A	
Sodium Hydroxide, 70% Cold	A	A	B	A		B	A	A	D	A	
Sodium Hydroxide, 70% Hot	B	A	B	B		B	A	A	D	A	
Sodium Hypochlorite (Bleach)	D	D	C	D	A		A	A	A	A	
Sodium Hyposulfite		B	B	B			A	A	A		
Sodium Lactate		A	A	B			A	A	A		
Sodium Metaphosphate	B	B	B		A	B	A	A	A		
Sodium Metasilicate Cold	C	A	A	A			A	A	A		
Sodium Metasilicate Hot	D	A	A	A	A		A	A	A		
Sodium Nitrate	B	A	A	B	B	B	D	A	A	A	
Sodium Nitrite		B	B	C	B	A		B	A	A	A
Sodium Perborate	B	B	B	B	B	A		A	A	A	
Sodium Peroxide	C	B	B	B	B	A		A	A	A	

Chemicals	Body/Trim					Seats/Packing					
	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Sodium Phosphate	C	B	B	B	B	A		A	A	A	A
Sodium Phosphate, Di-basic	C	B	B	B	B	A		A	A	A	
Sodium Phosphate, Tri-basic	C	B	B	B	B	A		A	A	A	
Sodium Polyphosphate		B	B	B	B	A		A	A	A	
Sodium Salicylate		A	A					A	A	A	
Sodium Silicate	B	B	B	B		B	A	A	A	A	A
Sodium Silicate, Hot	C	B	B	B		B	A	A	A	A	A
Sodium Stearate		B						A	A		
Sodium Sulfate	B	A	A	A		A		A	A	A	A
Sodium Sulfide	B	B	B	B		B		A	A	A	A
Sodium Sulfite		A	A	B	B	B		A	A	A	A
Sodium Tetraborate		A	A			B		A	A	A	
Sodium Thiosulfate	B	B	B	B		A		A	A	A	
Soybean Oil	C	A	A	A		B	A	A	A	A	A
Stannous Chloride	D	B	A	C				A	A		
Stannous Fluoride		B	B					A	D		
Starch	C	B	A	A		C	A	A	A	A	A
Steam (212°F)	A	A	A	B		B	A	A	A	A	A
Stearic Acid	C	B	B	B	A	B		A	A	A	A
Styrene	A	A	A	B	A	D	A	A	A	A	
Succinic Acid	B	B	B					A	A		
Sulfate, Black Liquor	C	B	B	B		B		A	A	A	
Sulfate, Green Liquor	C	B	B	B				A	A	A	
Sulfate, White Liquor	C	B	D	C				A	A	A	
Sulfite Liquors	D	B	D	D				A	A		
Sulfonic Acid		B	B	B				A	A		
Sulfur	C	B	A	B		B	A	A	A	A	A
Sulfur Chlorides	D	D	A	B		C		A	A	A	
Sulfur Dioxide, Dry	B	A	B	B	A	A		A	A	A	A
Sulfur Dioxide, Wet		A	B	A	B	B		A	A	A	A
Sulfur Hexafluoride			A	A				A	A	D	
Sulfur, Molten	C	B	A	D	B	B	D	A	A	A	
Sulfur Trioxide	B	B	B		B			D	A	A	
Sulfur Trioxide, Dry	B	B	B	B	B	B		D	A	A	
Sulfuric Acid (0-7%)	D	B	C	C				A	A		
Sulfuric Acid (7-40%)	D	D	B	C				A	A		
Sulfuric Acid (40-75%)	D	D	C	B			B	A	A		
Sulfuric Acid (75-95%)	C	D	B	D				A	A		
Sulfuric Acid (95-100%)	C	C	D	B				A	A		
Sulfurous Acid	D	B	B	D	B	C		A	A	A	A
Synthesis Gas	B	B	B	A				A	A		

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Service

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Tall Oil	B	B	B	B	A	D	A	A	A	A	
Tannic Acid	C	B	B	B	B	B	A	A	A	A	A
Tartaric Acid	D	A	A	B	B	B		A	A	A	A
Tetraethyl Lead	C	B	B	A			A	A	A	A	
Thioglycolic Acid		B	B					A	A		
Toluol (Toluene)	A	A	A	A	A	D	A	A	A	A	D
Toluene Diisocyanate		A	A					A	A		
Transformer Oil	A	A	A	A			A	A	A	A	C
Tributyl Phosphate	A	A	A	A		B		A	A	A	
Trichlorethylene	B	B	B	B	A	D		A	A	A	D
Trichloroacetic Acid		D	B	B	A			A	A	C	
Triethanolamine		B	B	B	A	B		A	A	A	C
Triethylamine		B	B		A			A	A		
Triethylene Glycol	C	B	B	B				A	A		
Trisodium Phosphate		B	B		A	B		A	A	A	A
Tung Oil	B	A	A	C	A	D	A	A	A	A	
Turpentine	B	B	B	B	A	D	A	A	A	A	D
Urea	C	B	B	B	A	B	A	A	A	A	A
Uric Acid		A	A		A		A	A	A	A	

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	Carbon Steel	316 Stainless Steel	Alloy 20	Monel	Hastelloy C	EPDM	PEEK	Graphite	PTFE	Reinforced (PTFE)	UHMWP
Varnish	C	A	A	A	A	D	A	A	A	A	A
Vegetable Oils		B	A	A	B	A	D		A	A	A
Vinegar	D	A	A	B	A	A	A	A	A	A	A
Vinyl Acetate		B	B	B	A	A	A	A	A	A	
Vinyl Chloride, Dry	A	B	B	B					A	A	
Water, Deionized	D	A	A	A					A	A	
Water, Distilled	D	A	A	A	A	B	A	A	A	A	A
Water, Fresh	C	A	A	A	A	B	A	A	A	A	A
Water, Sea	D	B	B	A					A	A	
Water, Acid Mine	D	B		D	C	A	A	A	A	A	A
Wax Emulsions	A	A	A	A					A	A	
White Water	C	B	B	C					A	A	
Xylene (Xylol), Dry	B	A	A	A	A	D	A	A	A	A	D
Zinc Acetate		B							A	A	
Zinc Chloride	D	D	A	B					A	A	
Zinc Bromide		B	B	B	A	B		A	A	A	
Zinc Hydrosulfite	A	A	A	B	A	A			A	A	
Zinc Sulfate	D	B	A	B	A	A	A	A	A	A	A

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