

## BUTTERFLY VALVES

# MATERIAL SELECTION GUIDE

This chemical resistance guide has been compiled to assist in selecting chemical resistant materials. The information given is intended as a **guide only**. Many conditions can affect the material choices. Careful consideration must be given to temperature, pressure and chemical concentrations before a final material can be selected.

CHEMICALS	STEM & DISC MATERIAL									SEAT MATERIAL						
	NICKEL PLATED DUCTILE IRON	416 SS	316 SS	MONEL	MANGANEZE BRONZE	ALUMINUM BRONZE	LEAD	ALLOY 20	HASTELLOY C	PVF	BUNA-N	NEOPRENE	HYPALON	VITON	EPT	NATURAL RUBBER
Acetaldehyde	U	U	E	F	U	U	F	E	E	G	G	F	U	F	E	U
Acetic Acid - Crude	U	U	E	F	U	U	F	E	E		G	E	E			
Acetic Acid - Pure	U	U	E	F	F	F	F	E	E	E	G	E	E			
Acetic Acid - 10%	U	U	E	F	U	U	F	E	E		G	E	E			
Acetic Acid - 80%	U	U	E	F	U	U	F	E	E		G	E	E			
Acetic Acid - Anhydride	U	U	E	F	U	U	F	E	E	U	U	E	E	U	F	F
Acetone	G	G	E	E	E	E	G	E	E	U	U	U	U	U	E	F
Acetophenone	U	U	G	E	U	U	E			F	U				E	
Acetylene	G	E	E	E	E	E	G	E	U		G	F	F	E	E	F
Acrylonitrile	G	G	E	E	E	E	E			U	U	F	F	U	U	U
Air (Dry)	E	E	E	E	E	E					E	E	E	E	E	
Alcohol - Amyl	F	G	E	E	E	E	G	E	E	E	F	F	G	G	E	G
Alcohol - Butyl	F	G	E	E	E	E	G	E	E	E	F	G	G	E	F	F
Alcohol - Ethyl	U		E	E	E	E	G	E	E	E	G	G	G	G	G	G
Alcohol - Methyl	U		E	E	E	E	G	E	E		F	E	E	F	E	G
Alum - Ammonium	U		G								G	G	F	G		F
Alum - Chrome	U		G								G	G	G	G		F
Alum - Potassium	U	G				G					G					
Alumina	G	G	G	G	G	G	U	E	E		E	F	G	G	E	E
Aluminum Chloride	U	U	F	G	U	U	U	E		E	G	G	G	E	E	G
Aluminum Fluoride	U		G	G			G	E		E	G	G	G	G	E	G
Aluminum Hydroxide	U		G	G	G	G	G			E	G	G		G	G	
Aluminum Sulphate	U	G	G		U	U	U	G	E		E	E	E	E	E	E
Amines	U	F	E	G	G			E	U		U	U	U	U	F	
Ammonia Anhydrous	F		E	E	U	U	U		E	E	G	G	U	U	G	U

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CHEMICALS	STEM & DISC MATERIAL										SEAT MATERIAL					
	NICKEL PLATED DUCTILE IRON	416 SS	316 SS	MONEL	MANGANEZE BRONZE	ALUMINUM BRONZE	LEAD	ALLOY 20	HASTELLOY C	PVF	BUNA-N	NEOPRENE	HYPALON	VITON	SEPT	NATURAL RUBBER
Ammonia Solutions	F	G	F	G	U	U	F	F	F							
Ammonium Chloride 50% 180 F	U	F	G	G	U	U	F	F	F	F	F	F	F	F	F	
Ammonium Hydroxide	F	G	F	F	U	U	U	F	F	F	F	F	G	F	U	
Ammonium Nitrate 5% 60 F	F	G	F	U	U	U	F	F	F	F	F	G	F	F	G	
Ammonium Phosphate	U	G	F	G	U	U	U	F	F	F	F	F	F	F	G	
Ammonium Sulfate 90% 180 F	U	F	G	G	U	U	U	G	G	F	F	F	F	F	G	
Amyl Acetate	F	G	F	G	G	G	F	F	U	F	U	U	U	G	U	
Amyl Chloride	F	G	F	G	F	F		F	F	F	U	U	U	U	U	
Aniline 90% 70 F	F	G	G	G	U	U	E	F	F	F	U	U	U	F	U	
Aniline Dyes	F	G	F	F	F	F	F	F	F				G			
Antimony Chloride	U			G			F	F	F		G	G	G	F		
Arsenic Acid	U	G	G	G	U	U	U	F		F	F	F	F	G	G	
ASTM Oil #1	F	E	E	E	E	F	G	F	F		F	G	G	F	U	
ASTM Oil #3	F	E	E	E	E	F	G	F	F		F	U	U	F	U	
ASTM Ref. Fuel A	F	E	E	E	G	G	G	F	F		F	G	G	F	U	
ASTM Ref. Fuel B	F	E	E	E	G	G	G	F	F		G	F	F	F	U	
ASTM Ref. Fuel C	F	E	E	E	G	G	G	F	F		G	F	F	F	U	
Asphalt	E	E	E	E	E	F	F	F	F		G			F	U	
Barium Carbonate 60 F	U		G	G	G	G			F	F	F	F	F	F	U	
Barium Chloride	U		G	G	G	F	G		F	F	F	F	F	F	F	
Barium Hydroxide	F	E	E	G	U	U		F		F	F	F	F	F	G	
Barium Sulphate 60 F	U		E	G	G	G				F	F	F		F		
Barium Sulphide	F	E	G	F	U	U	U	F		F	F	F	U		U	
Beer (Beverage)	U	E	E	E	E	U	U	F	F	F	G	G	F	F	G	
Beet Sugar Liquors	F	E	E	E	F	F	U	F			F	F	G	F	G	
Benzaldehyde	F	E	E	G	F	F	U	F		F	U	U	U	U	U	
Benzene (Benzol) 70 F	F	E	E	G	E	E	E	F	F	G	U	U	U	G	U	
Benzoic Acid 5% 70 F	U	G	E	G	G	G	U	F	F	F	U	U	U	F	U	
Black Sulphate Liquor	F	G	E		F	F		F			G	G	G	F	F	
Bleaching Powder-Wet	U	G	G		U	U		F			G	E	F		F	
Borax (Sodium Borate)	U	F	E	E	U	U		F	F	F	G	F	F	F	G	
Boric Acid 5% 200 F	U	F	E	G	F	F	F	F	F	F	F	F	F	F	G	
Brine (Acid)	U		G	G	G	G	G			F	F	G	G	F	U	
Brine-Chlorinated			U	G	G	G								G	G	
Bromine-Gas	U	U	U	F	G		F	U	F	F	U	U	U	F	U	
Bromine-Water	U	U	U	F			F	U	F	F	U	G	G	E	U	
Butadiene	F	G	E	E	G	G	F	F	F	F	F	G	G		U	
Butane-Butylene	G	E	E	E	E	E	F	F	F	F	G	G	G	F	U	
Butyl Acetate	G	E	E	E	E	E	E	F	F	F	U	U	U	U	U	
Butyric Acid 5% 70 F	U	G	E	G	F	G	U	F	F		U	U	U	G	U	
Calcium Bisulfite	U	G	E	U	U	U	E	G		F	F	F	F	U	U	
Calcium Carbonate 60 F	F		G	F	G	G	F		F	F	F	F	F			
Calcium Chlorate 20% 160 F		G	E	G	U	U		F	F	F		F	F			
Calcium Chloride	F	G	G	G	F	F	U	G	F	F	F	F	F			
Calcium Hydroxide 50% 175 F	F	E	E	E	U	U	G	F	F	F	G	F	F	F		
Calcium Hypochloride		G	G				G	G			U	U	F	F	U	
Calcium Sulphate 90% 60 F	F	E	E	G	E	E		F	F	F	F	F	F	F		
Calgon	F		E					F			F	F	F	F		
Caliche Liquor	U		E					F			F	F	F	F	F	
Cane Sugar Liquors	F	E	E	G	E	E		F			F	F	F	F	F	

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CHEMICALS	STEM & DISC MATERIAL									SEAT MATERIAL						
	NICKEL PLATED DUCTILE IRON	416 SS	316 SS	MONEL	MANGANEZE BRONZE	ALUMINUM BRONZE	LEAD	ALLOY 20	HASTELLOY C	PVF	BUNA-N	NEOPRENE	HYPALON	VITON	EPT	NATURAL RUBBER
Carbon Dioxide (Dry)	F	F	F		F	F		F		F	F	G	G			G
Carbon Disulfide	U		F	G	G	G	F			G	U	U		F	U	U
Carbon Tetrachloride (Dry)	U	G	G	F	G	G	F	F		F	F			F		
Carbonic Acid	U	G	F	F	F		G	F	F	F	G	F	F	F	F	F
Castor Oil	G	G	F	F	G	G	G	F	F	F	G	F	F	F	G	G
Caustic Solutions 34% 200 F	U	G	F	F	U	U		F	F		F	F	F	F	G	U
China Wood Oil (Tung)	F		F	F	F	F		F	F		F	F	G	F	U	U
Chlorine Gas-Dry 70 F	U	F	G	G	G	G	U	G	F		F	U	U	G	F	U
Chlorobenzene 90% 70 F	F	F	G	G	G	G		F		F	U	U	U	G	U	U
Chloroform 70 F	F	G	F	F	G	G		F		F	U	U	U	F	U	U
Chlorosulfonic Acid 10%	U	U	G	F	U	G		F	U	F	U	U	U	U	U	U
Chocolate										F	U					
Chromic Acid 5% 70 F	U	G	G	F	U	U	U	E		F	U	U	F	F	U	U
Citric Acid 5% 150 F	U	F	F	G	F	F	F	F	F	F	F	F	F	F	F	F
Coconut Oil (Food)	U	U	F	G	G	G	U	F		F	F	F	F	F	F	U
Coffee (Food)	U	U	F	G	F	F		F		F	F	F	F	F	F	F
Copper Chromate			F													
Copper Sulfate 80% 175 F	F	G	F	F	U	U	E	E		F	F	F	F	F	F	F
Corn Syrup			F													
Cottonseed Oil	G	F	F	F	F	F		F	F	F	F	G	G	F	U	
Creosol	U	F	F	F				F		F	U	U	U	F	U	U
Creosota	F	F	F	F	G	G	F	F	F		G	U	F	F	U	U
Cresylic Acid	U	G	F	G	F	G		F		G	U	U	U	F	U	U
Crude Oil	G	G	F	F	F	F	F	F	F	F	F	F	F	F	U	U
Cyclonexane	F	F	F	G	G	G		F		F	U	U	U	F	U	U
Dextrose (Food)	U	U	F					F			F					
Diacetone	U		F		F	F				U	U	U	U	F	U	U
Diamylamine	F	F	F		F	F		F			G	F		U		G
Dichlorethene	U		G	G	F	G		G		F	U	U		G	U	
Diesel Fuels	F	F	F	F	G	G		F	F	F	F	F	F	F	U	F
Diethyl Amine	F	F	F	G	F	F		F		U	G	F	F	U	F	U
Dimethane Sulfide													F	F	U	G
Dowtherms	G	F	F	F	F	G		F			U	G	G	F		
Drilling Mud	G		F	F	G	G					F	F	F	F		G
Ethers	U		G	G	G	G	F	F	F	F	U	U	U	F	F	U
Ethyl Acetate	F	G	F	F	G	G		F	F	F	U	U	U	U	G	U
Ethyl Chloride 5% 60 F	F	G	F	G	F	F		F	F	F	F	G	G	G	G	G
Ethyl Dichloride	U		G	G	G	G	F			F	U	U	U	F	U	
Ethyl Glycol	G	F	F	F	F	F	F	F	F	F	F	G	F	F	F	F
Ethylene Oxide	G	G	G	G	U	U		F		U	U	U	U	U	F	U
Ferric Chloride	U	U	U	U	U	U	U		U	F	F	G	G	F	F	F
Ferric Nitrate (pH7+) 5% 60 F	U		G	F	U	U		F		F	F	F	F	F	F	F
Ferric Suphate 5% 60 F	U		F	F	U	U				F	F	F	F	F	F	F
Ferrous Sulphate	F	G	G		U	U	F	F		F	F	F		F	F	F
Fluorine 70 F	U	U	F	G	U	U	G	G		F	G	F	G	G	F	
Fluosilicic Acid	U	F	G	G	F	F		F		F	F	G	F			G
Formaldehyde 70 F	U	G	F	G	F	F		F	F	G	F		F	F		F
Formic Acid 5% 150 F	U	G	F	G	G	G	F	F	F	F	G	F	F	F	F	F
Freon 11	F	F	F	F	F	F	F	F		F	G	G	F	G	U	
Freon 12	F	F	F	F	F	F	F	F		F		G	U	U	U	

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	NICKEL PLATED DUCTILE IRON	416 SS	316 SS	MONEL	MANGANEZE BRONZE	ALUMINUM BRONZE	LEAD	ALLOY 20	HASTELLOY C	PVF	BUNA-N	NEOPRENE	HYPALON	VITON	EPT	NATURAL RUBBER
Freon 22	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Freon 113	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Freon 114	F	F	F	F	F	F	F	F	F	G	F	F	F	F	F	
Fructose	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Fruit Juices (Food) 70 F	U	U	F	F	U	U	F	F	F	F	F	F	F	G	G	
Fuel Oil	F	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Furfural	F	F	F	G	G	G	F	F	F	U	U	U	U	F	U	
Gallic Acid 5% 200 F	U	F	F	G	F	F	F	F	F	F	G	G	F	G	F	
Gasohol	F	G	F	F	G	G	F	F	F	F	U	F	G	U	F	
Gasoline - Regular	G	F	F	F	F	F	F	F	F	F	G	F	F	U	U	
Gasoline - Unleaded	F	F	F	F	F	F	F	F	F	F	U	F	F	U	U	
Gelatin (Food)	U	U	F	G	G	G	F	F	F	F	F	F	F	F	F	
Glucose	U	F	F	F	F	F	F	F	F	F	F	F	F	F	F	
Glycerin/Glycerol 70 F	F	F	F	G	G	G	F	F	F	F	F	F	F	F	F	
Heptane	F	G	F	G	F	F	F	F	F	F	F	G	G	F	U	
Hexane	F	G	F	G	F	F	F	F	F	F	F	G	G	F	U	
Hydraulic Oils	F	G	F	F	F	F	F	F	F	F	G	F	F	F	U	
Hydrobromic Acid 200 F	U	U	U	U	U	U	G	U	F	F	U	U	F	F	F	
Hydrochloric Acid 10% 60 F	U	U	U	F	U	U	G	U	F	F	F	G	G	F	G	
Hydrochloric Acid 20% 60 F	U	U	U	U	U	U	G	U	F	F	F	G	G	F	F	
Hydrochloric Acid 35% 60 F	U	U	U	U	U	U	F	U	G	G	F	G	G	F	F	
Hydrocyanic Acid	U	F	G	F	U	U	U	F	F	F	G	G	F	F	G	
Hydrofluoric Acid 48%	U	F	U	F	U	U	U	F	F	F	U	U	F	F	F	
Hydrofluoric Acid 60%	U	U	U	U	U	U	U	F	F	F	G	U	G	G	F	
Hydrofluoric Acid 100%	U	U	U	U	U	U	U	F	F	F	F	U	U	F	F	
Hydrofluosilicic Acid 5% 70 F	U	G	G	G	F	F	F	G	F	G	G	G	F	F	F	
Hydrogen	F	G	F	F	F	F	F	F	F	F	F	F	F	F	G	
Hydrogen Peroxide 90%	U	F	G	G	U	U	U	G	F	F	U	U	G	G	F	
Hydrogen Sulfide - Dry	F	F	F	G	U	U	F	F	F	F	F	F	G	G	F	
Hydrogen Sulfide - Wet	F	F	G	F	F	F	G	F	F	F	F	F	G	G	U	
Iodine Solution	U	U	U	U	U	U	F	U	F	F	F	U	G	F	G	
Iso-Octane	F	F	F	F	F	F	F	F	F	F	F	F	G	F	U	
Isopropyl Alcohol	F	F	F	F	F	F	F	F	F	F	F	G	F	F	F	
Isopropyl Ether	F	F	F	F	F	F	F	F	F	F	F	G	F	F	U	
Kerosene	F	F	F	F	F	F	F	F	F	F	F	G	U	F	U	
Lacquer Solution	F	F	F	F	F	F	F	F	F	F	F	U	U	U	F	
Lactic Acid 5% 70 F	U	F	G	G	U	U	F	F	F	F	F	F	F	F	G	
Lard Oil 70 F	G	F	F	G	G	G	F	F	F	F	F	F	F	F	U	
Lemon Oil	U	F	F	F	G	F	U	F	F	F	F	G	F	F	F	
Linseed Oil	F	F	F	F	F	F	F	F	F	F	F	G	G	F	U	
Lubricating Oil	F	F	F	F	F	F	F	F	F	F	F	F	G	F	U	
Magnesium Chloride 4% 75 F	F	F	G	G	F	F	U	F	F	F	F	F	F	F	F	
Magnesium Hydroxide	F	F	F	G	G	G	F	F	F	F	F	F	F	F	G	
Magnesium Sulphate 5% 120 F	F	G	F	F	F	F	F	F	F	F	F	F	F	F	G	
Mercuric Chloride 3% 60 F	U	U	F	U	U	U	F	F	F	F	F	F	F	F	F	
Mercuric Cyanide	U	F	F	U	U	U	F	F	F	F	F	F	F	F	G	
Mercurous Nitrate (pH7+)	U	F	G	U	U	U	F	F	F	F	F	F	F	F	F	
Mercury	F	F	F	F	U	U	F	F	F	F	F	F	F	F	F	
Methyl Acetate	F	G	F	F	F	F	F	F	F	F	F	U	U	U	G	
Methyl Acetone	F	F	F	F	F	F	F	F	F	F	F	U	U	U	U	

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Methyl Cellosolve	F	F	F	F	F	F	F	F		F	U	U	U	U	U	
Methyl Chloride	G	G	F	G	F	F	F	F		F	U	U	U	G	F	
Methyl Ethyl Ketone (MEK)	F	F	F	F	F	F	F	F		U	U	U	U	F	U	
Milk (Food)	U	U	F	F	U	U		F	F	F	F	F	F	U		
Mineral Oil	F		F	F	G	G		F	F	F	G	G	F	U	U	
Molasses (Food)	U	U	F	F	U	U		F	F	G	F	F	F	F		
Naptha	F	F	F	G	G	G		F	F	G	U	U	F	U	U	
Napthalene	F	F	F	G	G	G	U	F	F	F	U	U	F	U	U	
Natural Gas (Methane)	G	F	F	F	F	F	F	F		F	F	F	F	U	F	
Nickel Ammonium Sulphate	U		F	F	U	U				F	F	F	F	F		
Nickel Chloride	U		G	G	U	U		G	F	F	F	F	F	F	F	
Nickel Sulphate 10% 60 F	U		F	G	G	G	F	F	F	F	F	F	F	F	G	
Nitric Acid 10% 70F	U		G	U	U	U	U	G	G	U	U	G	F	G	U	
Nitric Acid 30% 70 F	U		G	U	U	U	U	G	G	U	U	F	F	F	U	
Nitric Acid 60% 175 F	U		G	U	U	U	U	G	G	U	U	U	F	U	U	
Nitric Acid 70%	U	U	G	U	U	U	U	G	G	U	U	U	F	U	U	
Nitrobenzene	U		F	G			F	F		F	U	U	U	G	U	
Oils and Fats	E	E	E	G	E	E		F		F	F	F	F	U	U	
Oils, Fish	U	G	F	F	F	F		F		F	F	F	F	U	U	
Oleic Acid 100 F	U	F	G	G	G	G	U	F	F	F	G	G	G		U	
Oleum (Fuming Sulfuric Acid)	U	U	F					G	G		U	U	U	F	U	
Oxalic Acid	U	F	G	F	F	F	G	G	G	F	G	G	G	F	G	
Oxygen	E	E	E	E	E	E	E	F		E	G	F	F	F		
Ozone	U	G	F							F	U	F	F	F	U	
Palmitic Acid	U	G	F	G	G	G		E		F	F	G	F	G	F	
Perchlorethylene	F	G	F	G	G	G		F		F	U	U	F	U	U	
Petroleum - Refined	G		F	F	F	F				F	F	F	F	U	U	
Petroleum - Sour	U	G	G	G	F	F		G	F	F	F	F	F	G	U	
Phenol	U		F	F	G	G		F	F	F	U	U	U	G	U	
Phosgene			F								G	U	U	G	U	
Phosphoric Acid 10% 70 F	U	F	G	F	U	U	U	G	F	F	G	G	G	F	G	
Phosphoric Acid 25% 70 F	U	U	G	F	U	U	U	G	G	F	F	G	G	F	U	
Phosphoric Acid 75% 70 F	U	U	G	F	U	U	U		F	F	U	G	G	F	U	
Phosphorous Oxychloride	U							E								
Pickling Sol. (20% Nitric - 4HF)	U		G	G			G				U	U	U	G	F	
Picric Acid 80% 70 F	U		G	U			G	F	F	F	G	F	F	G	G	
Polyethylene Gly. Dimeth. Ether														U	G	
Potassium Chloride	U		G	G	F	F		F		F	F	F	F	F	F	
Potassium Cyanide	F	G	G	G	U	U		F		F	F	F	F	F	F	
Potassium Hydroxide 5% 70 F	F	G	F	F	U	U		F	F	G	F	G	F	F	G	
Potassium Nitrate 6% 68 F	F	G	F	G	F	F		F	F	F	F	F	G	F	F	
Potassium Phosphate	U		G	G	F	F				F	F	F	F	F		
Potassium Sulphate 7% 180 F	F	G	F	F	G	F	E	F		F	F	F	G	F		
Potassium Sulfide	U	G	F	F	U	U		F		F	F	G	G	G	G	
Potassium Sulfite	U		F					F		F	F	G	G	F	G	
Propane	F	F	F	F	F	F		F		F	F	G	G	F	U	
Resins and Rosins	U	F	F	G	F	F		F	F	F	F	F	F	F	F	
SAE #10 oil	G				F	F				F		F	F	U		
Sea Water 70 F	U	F	G	F	G	F		G	F	F	F	F	F	G	F	
Sewage	U	G	F	G	G	G		F		F	F	F	F	G	F	

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CHEMICALS	STEM & DISC MATERIAL									SEAT MATERIAL							
	NICKEL PLATED	DUCTILE IRON	416 SS	316 SS	MONEL	MANGANEZE BRONZE	ALUMINUM BRONZE	LEAD	ALLOY 20	HASTELLOY C	PVF	BUNA-N	NEOPRENE	HYPALON	VITON	LEPT	NATURAL RUBBER
Silicate Ester Synthetic Oil																	
Skydrol 500	G	E	E		E	E		E	E			U	U	U	U	E	U
Soap Solution (Stearate) 70 F	U	F	E	E	E	E		E	E	E	E	E	E	E	E	E	F
Sodium Acetate 5% 75 F	U	F	E	G	G	G	F	E	E	E	E	G	G	U	U	E	E
Sodium Aluminate	U		E	G	G	G		E				F	F	G	F	G	G
Sodium Bisulfate	U	F	E								E	E	E	E	E	E	E
Sodium Carbonate 80% 60 F	U	G	E	E	G	G	U	E	E	E	E	E	E	E	E	E	E
Sodium Chloride 30% 180 F	U	F	E	E	F	E	E	E	E	E	E	E	E	E	E	E	E
Sodium Cyanide	U		G	U	U	U	E	E			E	E	E	E	E	E	E
Sodium Fluoride 5% 60 F	U		G	G	F	F			E	E	E	E	E	G	E	G	G
Sodium Hydroxide 5%	U	G	E	G	F	F	U	E	E	E	G	G	F	E	G	E	E
Sodium Hydroxide 20%	U	F	E	E	F	F	U	E	E	E	G	G	U	E	G	E	E
Sodium Hydroxide 50%	U	F	G	G	U	U	U	E	E	E	E	G	U	G	F	G	G
Sodium Hydroxide 70%	U	U	F	F	U	U	U	G	G	G	G	F	U	U	U	G	F
Sodium Hypochlorite 5% 60 F	U		G	G	U	U	E	G	E	E	E	F	U	E	E	G	F
Sodium Nitrate 30% 60 F	U	G	E	G	G	G		E	E	E	E	G	G	E	E	E	G
Sodium Perborate	U	G	G	G	G	G						G	G	G	E	E	G
Sodium Peroxide	U	G	E	G	U	U					E	G	G	G	E	E	G
Sodium Phosphate 5% 60 F	U	G	E	G	F	F	E	E	E	E	E	E	G	E	E	E	E
Sodium Silicate	U	G	E	G	G	G		E	E	E	E	E	E	E	E	E	E
Sodium Sulphate 80% 60 F	U	G	E	G	G	G	U	E	E	E	E	E	E	E	E	E	G
Sodium Sulfide 70% 70 F	U	G	E		U		F	E	E	E	E	E	E	E	E	E	G
Sodium Sulfite 5% 70 F	U		E	G	U	U	E	E	E	E	E	E	E	E	E	E	G
Steam 225 F	U	U	E	E	E	E	U					U	U	U	U	G	U
Steam 300 F	U	U	E	E	G	G	U					U	U	U	U	U	U
Stearic Acid 90% 200 F	U	G	E	G	F	F	U	E	E	E	E	G	G	G	E	G	G
Steep Water														G	G		U
Styrene (Fumes)			E									U			G	U	
Sulfomic Acid								E		E			E		G		
Sulphur (Molten)	U	F	G	U	U	U	U	E	E			U	F	U	G	F	U
Sulphur Dioxide 60 F	U	G	E	E	F	F	U	E	E	E	E	U	G	F	E	E	G
Sulphur Trioxide	U	G	E				U	E	E	E		U	U	U	E	G	G
Sulfuric Acid 7-7% 70 F	U	F	G	F	U	U	E	E	E	E	E	U	G	E	E	U	U
Sulfuric Acid 7-40% 70 F	U	U	U	U	U	U	E	G	G	E	E	U	U	E	E	U	U
Sulfuric Acid 40-75% 70 F	U	U	U	U	U	U	E	G	G	E	E	U	U	G	G	U	U
Sulfuric Acid 75-95%	U	U	U	U	U	U	G	U	U	E	E	U	U	U	G	U	U
Sulfuric Acid 95-100%	U	U	U	U	U	U	G	U	U	E	E	U	U	G	G	U	U
Sulphurous Acid 80% 100 F	U	U	G	F	U	U	E	E	E	E	G	U	U	E	E	U	
Tall Oil	G	G	E	G				E		E	E	G	G		E		E
Tannic Acid 150 F	U	F	E	G	G	G		E	E	G	E	G	G	E	E	E	E
Tar	F	E	E	E	E	E	E	E	E			F	F		E	U	U
Tartaric Acid 150 F	U	G	E	G	F	G	E	E	E	E	G	G	G	E	E	G	E
Toluol and Toluolene	G	E	E		E	E		E			G	U	U	U	E	U	U
Toluene Sulfomic Acid			U								U				G		
Transformer Oil												U			E	U	
Tributyl Phosphate	G	F	E					E			E	U	U	U	U	E	G
Trichloroacetic Acid	U	U	U	G	U	G					F	G	U	U	F	G	F
Trichloroethylene	F	U	E	G	F	G		E			G	U	U	U	E	U	U
Triethinolamine	U	U	E	G							G	F	E	E	U	G	G
Trisodium Phosphate	U	U	G	G	F	F	E				E	F	F				

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CHEMICALS	STEM & DISC MATERIAL										SEAT MATERIAL					
	NICKEL PLATED	DUCTILE IRON	416 SS	316 SS	MONEL	MANGANEZE BRONZE	ALUMINUM BRONZE	LEAD	ALLOY 20	HASTELLOY C	PVF	BUNA-N	NEOPRENE	HYPALON	VITON	EPT
Tung Oil	U	U	F	F	F	F		F	F	F	F	G	G	F	U	U
Turpentine	U	U	F	F	G	G		F			F	U	F	F	F	
Vinegar 70 F	U		F	F				F	F	F	G	G	G	F	F	G
Water, Acid-Mine	U		F	U				F	F	F	G	F	F	F	F	F
Water - Deionized			F		F						F	F	F		F	
Water - Demineralized	U		F	F	F	F		F			F	F	F	F	F	F
Water - Fresh 180 F	G	E	F	F	F	F		F	F	F	E	G	G	F	U	E
Water - Fresh 225 F	G	F	F	F	F	F		F	F	F	F	U	U	U	U	F
Water - Salt 180 F	U	U	G	F	G	G		F	F	F	F	G	G	F	U	E
Water - Sewage 80 F	U	G	F	F	G	F		F	F		F			F	F	
Whiskey and Wines	U	U	F	F	G	G		F	F	F	F	F	F	G	F	F
White Liquor	U		F					F	F		G		G			F
Xylene, Xylol	F	E	F		F	F		F			F	U	U	U	F	U
Zinc Chloride 5% 160 F	U	U	F	G	U	U	U	G	G	F	F	F	F	F	F	F
Zinc Phosphate			G								F	F			F	
Zinc Sulphate 25% 180 F	U	G	F	G	G	G	E	E	E	F	F	F	F	F	F	G

This chemical resistance guide has been compiled to assist in selecting chemical resistant materials. The information given is intended as a **guide only**. Many conditions can affect the material choices. Careful consideration must be given to temperature, pressure and chemical concentrations before a final material can be selected.

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