



The Ultimate Chemical Compatibility Guide for Rubber Materials



The General Chemical Resistance of Various Elastomers

This chart is offered only as a general guide, indicating the suitability of various elastomers for service in these chemicals and fluids. The ratings are based for the most part, on published literature of various polymer suppliers, rubber manufacturers, and in some cases, the considered opinion of experienced compounders. We cannot guarantee their accuracy nor assume the responsibility for use thereof. Many factors must be considered in using a rubber part in service. The most important as we see them are:

1. **Temperature of service:** Higher temperatures increase the effect of all chemicals on polymers. The increase varies with the polymer and the chemical. a compound quite suitable at room temperature might fail miserably at elevated temperature.
2. **Conditions of Service:** A compound that swells badly might still function well as a static seal yet fail in any dynamic application.
3. **The Grade of the Polymer:** Many types of polymers are available in different grades that vary greatly in chemical resistance.
4. **The Compound itself:** compounds designed for other outstanding properties may be poorer in performance in a chemical than one designed especially for fluid resistance.
5. **The Durometer:** In general, the harder a compound the better its resistance.

In light of the above factors, its always best to test.

General Purpose - Non Oil Resistant

FLUID CHART KEY	(1)	(2)	(3)	(4)
TYPE OF RUBBER	Natural Rubber NR	Butadiene Styrene SBR	Butyl	Ethylene Propylene EPM
Material and ASTM Designation	Isoprene	Butadiene	IIR	EPDM
CHEMICAL GROUP	Poly Isoprene	Poly Butadiene Isoprene Butadiene Styrene Copolymer	Isobutylene Isoprene Polymer	Ethylene Propylene Copolymer and Terpolymer
GENERALLY RESISTANT TO	Most moderate chemicals, Wet of Dry, Organic acids, Alcohols, Ketones, Aldehydes	Similar to Natural Rubber	Animal and Vegetable Oils, Greases, Ozones, Strong and Oxidizing Chemicals	Animal and Vegetable Oils, Greases, Ozones, Strong and Oxidizing Chemicals
GENERALLY ATTACKED BY	Ozone, Strong Acids, Fats, Oils, Greases, Most Hydrocarbons	Similar to Natural Rubber	Petroleum Solvents, Coal Tar Solvents, Aromatic Hydrocarbons	Mineral Oils, and Solvents, Aromatic Hydrocarbons

General Purpose - Oil Resistant

(5)	(6)	(7)	(8)	(9)
Nitrile	Epichlorohydrin	Neoprene	Hypalon	Urethane
NBR	CO ECO	CR	CSM	AU EU
Butadiene Acrylonitrile Copolymer	Epichlorohydrin Polymer and Copolymer	Chloroprene Polymer	Chlorosulfonated Polyethylene	Urethane Polymer
Many Hydrocarbons, Fats, Oils, Greases, Hydraulic Fluids, Chemicals	Similar to Nitrile with Ozone Resistance	Moderate Chemicals and Acids, Ozone, Oils, Fats, Greases, Many Oils and Solvents	Similar to Neoprene with Improved Acid Resistance	ozone, hydrocarbons, moderate chemicals, fats,
Ozone * Ketones, Esters, Aldehydes, Chlorinated and Nitro Hydrocarbons, *except PVC Blends	Ketones, Esters, Aldehydes, Chlorinated and Hydrocarbons	Strong Oxidizing Acids, Esters, Ketones, Chlorinated, Aromatic, and Hydrocarbons	Concentrated Oxidizing Acids, Esters, Ketones, Chlorinated, Aromatic, and Hydrocarbons	Ozone, Hydrocarbons, Moderate Chemicals, Fats,

Specialty Elastomers

fluid chart key	(10)	(11)	(12)	(13)	(14)
TYPE OF RUBBER	Polysulfide	Silicone	Fluoro Silicone	Fluoro Elastomer	Poly Acrylate
Material and ASTM Designation	T	Si	FSi	FPM	ACM
CHEMICAL GROUP	Organic Polysulfide Polymer	Organic Silicone Polymer	Fluorinated Organic Silicone Polymer	Fluorocarbon Polymer	Copolymer of Acrylic Ester and Acrylic Halide
GENERALLY RESISTANT TO	Ozone, Oils, Solvents, Thinners, Ketones, Esters, Aromatic Hydrocarbons	Moderate or Oxidizing Chemicals, Ozone, Concentrated Sodium Hydroxide	Moderate or Oxidizing Chemicals, Ozone, Aromatic Chlorinated Solvents, Bases	All Aliphatic, Aromatic, and Halogenated Hydrocarbons, Acids, Animal and Vegetable Oils	Ozone, Extreme Pressure Lubricants, Hot Oils, Petroleum Solvents, Animal and Vegetable Fats
GENERALLY ATTACKED BY	Mercaptans, Chlorinated Hydrocarbons, Nitro Hydrocarbons, Ethers, Amines, Heterocyclics	Many Solvents, Oils, Concentrated Acids, Dilute Sodium Hydroxide	Brake Fluids, Hydrazine Ketones	Ketones, Low Mole Weight Esters and Nitro Containing Compounds	Water, Alcohols, Glycols, Alkali, Esters, Aromatic Hydrocarbons, Halogenated Hydrocarbons Phenol

RATING SYSTEM EMPLOYED: A - Recommended — Little or minor effect B - Minor to moderate effect — Rubber parts probably still useful in many applications C - Moderate to severe effect — Rubber parts perhaps still useful in limited application U - Not recommended — No data or insufficient evidence — It should be noted that it is not expected that a polymer unrated would perform better than those that are rated.

Fluid Resistance Key	(1) NR IR	(2) SBR BR	(3) IIR	(4) EPM EPDM	(5) NBR	(6) CO ECO	(7) CR	(8) CSM	(9) AU EU	(10) T	(11) SI	(12) FSI	(13) FPM	(14) ACM
Acetaldehyde	C	U	A	A	U		C	C	U	C	A	U	U	U
Acetamide	C	C	A	A	A		B	B	U	U	B	A	B	U
Acetic Acid, Glacial	B	C	B	A	C	U	C	C	U	B	B	C	C	U
Acetic Acid, 30%	B	B	B	A	B	B	A	A	C	B	A	B	B	U
Acetic Anhydride	B	B	B	B	C	U	A	A	U	B	C	U	U	U
Acetone	B	B	A	A	U	U	B	B	U	C	B	U	U	U
Acetophenone	C	U	A	A	U	U	U	U	U	U		U	U	U
Acetylene Chloride							U	U				A	A	
Acetylene	B	B	A	A	B		B	B		C	B		A	
Acrylonitrile	U	C	U	U	U		C	C		U	U	U	U	
Adipic Acid					A							A		
Alkazene				U			U		B			B	B	
Alum-NH ₃ -Cr-K	A	A	A	A	A		A	A			A		U	
Aluminum Acetate	A	B	A	A	B	B	B	A		U	U	U		U
Aluminum Chloride	A	A	A	A	A	A	A	A		U	B	A	A	A
Aluminum Fluoride	B	A	A	A	A	A	A	A		U	B	A	A	
Aluminum Nitrate	A	A	A	A	A	A	A	A		B				
Aluminum Phosphate	A	A	A	A	A	A	A	A			A		A	
Aluminum Sulfate	A	B	A	A	A		A	A		U	A	A	A	U
Ammonia Anhydrous	A		A	A	A		A	B			C	U	U	
Ammonia Gas (Cold)	A	A	A	A	A		A	A		A	A	A		
Ammonia Gas (Hot)			B	B			B	B		U	A	U	U	
Ammonium Carbonate	A	A	A	A	U	B	A							
Ammonium Chloride	A	A	A	A	A	A	A	A		A				
Ammonium Hydroxide	U	U	A	A	U	B	A	A	A	U	A	B	B	U
Ammonium Nitrate	C	A	A	A	A	A	B	A	U					A
Ammonium Nitrite	A	A	A	A	A		A	A			B			
Ammonium Persulfate	A	U	A	A	U		A	A	U					U
Ammonium Phosphate	B	A	A	A	A		A	A		A	A			
Ammonium Sulfate	A	B	A	A	A		A	A		U				U
Amyl Acetate	B	C	A	A	U	U	U	U	U	U	U	U	U	U
Amyl Alcohol	B	B	A	A	B	A	A	A	U	B	U	A	B	U
Amyl Borate	U	U	U	U	A		A	A		A			A	
Amyl Chloronapthalene	U	U	U	U			U	U	U	C	U	B	A	U
Amyl Napthalene	U	U	U	U	U		U	U	U	C	U	A	A	B
Aniline	U	U	B	B	U	U	C	C	U	C		C	C	U
Aniline Dyes	B	B	B	B	U		B	B	U	B		B	B	U
Aniline Hydrochloride	B	C	B	B	B		U	U	U	B	U	B	B	U
Animal Fats	U	U	B	B	A	A	B	B	A	U	B	A	A	A
Ansul Ether	U	U	C	C	C		U	U	B	A	U	C	U	U
Aqua Regia	U	U	U	C			U	C				C	B	
Arochlor(s)	U	U	C	C	C		U			U	B	B	A	U
Arsenic Acid	B	A	A	A	A	A	A	A	C	A	A	A	A	C
Arsenic Trichloride					A		A							
Askarel	U	U	U	U	B		U	U	U	U	U	B	A	U
Asphalt	U	U	U	U	B	A	C	C	B	A	U	B	A	B
Barium Chloride	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Barium Hydroxide	A	A	A	A	A	A	A	A	A	A	A	A	A	U
Barium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A	A	
Barium Sulfide	A	B	A	A	A	A	A	A	A	B	A	A	A	U
Beer	A	A	A	A	A	A	A	A		U	A	A	A	U
Beet Sugar Liquors	A	A	A	A	A		A	A		U	A	A	A	U
Benzene	U	U	U	U	U	U	U	U	U	C	U	A	A	U
Benzenesulfonic Acid							A	A				B	A	
Benzaldehyde		U	A	A	U	U	U	U	U	U	U	U	U	U
Benzyl Alcohol			B	B	U	U	A	B				B	A	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Fluid Resistance Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	T	Si	FSi	FPM	ACM
Benzyl Benzoate			B	B								A	A	
Benzyl Chloride					U		U					A	A	
Benzoic Acid											B	B	A	
Blast Furnace Gas	U	U			U		U				A	B	A	
Bleach Solutions	U	U	A	A			C	A			B	B	A	
Borax	B	B	A	A	B		A	A	A		B	B	A	B
Bordeaux Mixture	B	B	A	A			A	A			B	B	A	
Boric Acid	A	A	A	A	A	A	A	A	A	U	A	A	A	U
Brine			A	A	A		A	A						
Bromine — Anhydrous							U	U		B	C	B	A	
Bromine Trifluoride	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Bromine Water							B	A		B		B	A	
Bromobenzene	U	U	U	U	U	U	U	U	U	C	U	A	A	U
Bunker Oil					A				B	A	B		A	
Butadiene	U	U	C	C	U	U	B	B	U			B	B	A
Butane	U	U	U	U	A	A	A	A	A	A		A	A	A
Butter	U	U	B	A	A	A	B	B	A	U	A	A	A	A
Butyl Acetate			B	B		U	U	U		C	U	U	U	U
Butyl Acetyl Ricinoleate			A	A			B	B				B	A	
Butyl Acrylate		U	U	U						B			U	
Butyl Alcohol	A	A	B	B	A		A	A	U	B	B	A	A	U
Butyl Amine	U	U	U	U	C		U	U		U		U	U	
Butyl Benzoate			A	A			U	U				A	A	
Butyl Carbitol			A	A	A		B	B					A	
Butyl Cellosolve			A	A	C		B	B				U	U	
Butyl Oleate	U	U	B	B			U	U				B	A	
Butyl Stearate	U	U	B	B	B					A		B	A	
Butylene	U	U	U	U	B		C	C		B		B	A	
Butyraldehyde	C	C	B	B	C		C	C		B	C	U	U	U
Calcium Acetate	A		A	A	B		B	B				U	U	
Calcium Bisulfite	U	U	U	U	A		A	A	A	U	A	A	A	
Calcium Chloride	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Calcium Hydroxide	A	A	A	A	A	A	A	A	A	U	A	A	A	U
Calcium Hypochlorite	U	U	A	A	C	B	C	A			B	A	A	
Calcium Nitrate	A	A	A	A	A	A	A	A	A	A	B	A	A	A
Calcium Sulfide	B	B	A	A	B	B	A	A	A	U	B	A	A	U
Cane Sugar Liquors	A	A	A	A	A	A	A	A	U	U	A	A	A	U
Carbamate	U	U	B	B	C		B	B	U	B		A	A	U
Carbitol	B	B	B	B	B		B	B	U	B	B	B	B	U
Carbolic Acid	U	U	B	B	U		C	C		U	U	A	A	
Carbon Bisulfide			U	U	C	U	U	U		C		A	A	
Carbon Dioxide	B	B	B	B	A	A	B	A	A	A	A	A	A	B
Carbonic Acid	A	B	A	A	A	A	A	A	A	A	A	A	A	A
Carbon Monoxide	B	B	A	A	A	A	A	A	A	U	A	B	A	
Carbon Tetrachloride	U	U	U	U	C	B	U	U	C	C	U	A	A	
Castor Oil	A	A	B	B	A	A	A	A	A	C	A	A	A	A
Cellosolve	U	U	B	B				B		B			C	
Cellosolve Acetate	U	U	B	B	U				U	B		U	U	
Cellulube			A	A	U		U	U				B	A	U
Chlorine (Dry)	U	U				B	C	B		C		A	A	
Chlorine (Wet)	U	U	C	C		B	U	C	U	C		B	A	U
Chlorine Dioxide			C	C	U		U	C				B	A	
Chlorine Trifluoride	U	U	U	U	U	U	U	U	U	U	U	B	U	
Chloroacetone	B		B	A	U		B	B				U	U	
Chloroacetic Acid			B	B										
Chlorobenzene	U	U	U	U	U	U	U	U	C	U	U	B	A	U
Chlorobromomethane	U	U	B	B			U	U			U	B	B	
Chlorobutadiene	U	U	U	U	U		U					B	A	
Chlorododecane	U	U	U	U	U		U					A	A	
Chloroform	U	U	U	U	U		U	U			U	B	A	
O-Chloronapthalene	U	U	U	U	U		U				U		A	
1-Chloro 1-Nitro Ethane	U	U	U	U	U		U	U	U	U	U		C	U
Chlorosulfonic Acid	U	U	U	U	U		U	U	U	U			C	U
Chlorotoluene	U	U	U	U	U		U	U	U			B	A	
Chrome Plating Solutions	U	U	U	U	U		U	C	U	U	B	B	A	
Chromic Acid	U	U	C	C	U		U	B	U		C	C	A	
Citric Acid	A	A	A	A	A	A	A	A	A	U	A	A	A	
Cobalt Chloride	A	A	A	A	A		A		U	B	A	A		U
Cocoonut Oil	U	U	A	A	A		B	B	A		A	A		A

Fluid Resistance Key	(1) NR IR	(2) SBR BR	(3) IIR	(4) EPM EPDM	(5) NBR	(6) CO ECO	(7) CR	(8) CSM	(9) AU EU	(10) T	(11) Si	(12) FSi	(13) FPM	(14) ACM
Cod Liver Oil	U	U	A	A	A		B	B	A		B	A	A	A
Coke Oven Gas	U	U									B	A	A	
Copper Acetate			A	A	B		B	B						
Copper Chloride	A	A	A	A	A		A	A			A	A	A	A
Copper Cyanide	A	A	A	A	A		A	A	A		A	A	A	A
Copper Sulfate	B	B	A	A	A		A	A	A	U	A	A	A	U
Corn Oil	U	U	B	C	A	A	B	B	A	U	A	A	A	A
Cottonseed Oil	U	U	C	A	A	A	B	A	U	A	A	A	A	A
Creosote	U	U	U	U	B	U	C	C	B	C	U	A	A	A
Cresol	U	U	U	U	C		C	C	U			B	A	
Cresylic Acid	U	U	U	U	C		U	U				B	A	
Cumene							U	U		B	U	A	A	
Cyclohexane	U	U	U	U	A		U	U	B	A		A	A	B
Cyclohexanol	B	U	U	U	B		A	A		B		A	A	
Cyclohexanone			B	B	U	U	U	U		B		U	U	
p-Cymene							U	U		B		B	A	
Decalin	U	U					U	U		B		A	A	
Decane	U	U			B		U	U	B		B	A	A	A
Denatured Alcohol	A	A	A	A	A	A	A	A	C	A	A	A	A	U
Detergent Solutions	B	B	A	A	A	A	A	A	U		A	A	A	U
Developing Fluids	A	B	B	B	A		A	A		A	A	A	A	
Diacetone			A	A					B			U	U	
Diacetone Alcohol	U	U	A	A	U	U	A	A	B		A			
Dibenzyl Ether	U	U	B	B	U	U	B		B	B				
Dibenzyl Sebecate			B	B			U		B	B	C	C	B	
Dibutyl Amine	U	U	U	U	U		U	U			C	U	U	
Dibutyl Ether	U	U	C	C	C		C	C	B	A	U	C	C	C
Dibutyl Phthalate	C	U	B	A	U	B	U	U	C	A	B	B	B	U
Dibutyl Sebecate	U	U	B	B	U		U	U	U	B	B	B	B	
O-Dichlorobenzene	U	U	U	U	U		U	U	U	A	U	B	A	
Dichloro-Isopropyl Ether	U	U	C	C	U		U	U	B	A	U	C	C	B
Dicyclohexylamine	U	U			C					C				
Diesel Oil	U	U	U	U	A	A	B	B	B	A	U	A	A	A
Diethyl Benzene	U	U	U	U	U		U	U	U	B	U	A	A	
Diethyl Ether	U	U	U	U	U		C	C	A	A	U	C	U	C
Diethylene Glycol	A	A	A	A	A	A	A	A	U	U	B	A	A	U
Diethyl Sebecate			B	B	U		U	U		B	B	B	B	
Diisobutylene					B		C	C		A	U	C	A	
Diisopropyl Benzene	U	U	U	U	U		U	U		B	B	B	A	
Diisopropyl Ketone			A	A	U		U	U		B		U	U	
Dimethyl Aniline	U	U	U	B			U					U	U	
Dimethyl Formamide					B		C	C			B		U	
Dimethyl Phthalate	U	U	B	B	U		U	U		B		B	B	
Dinitrotoluene	U	U	U	U	U		U	U					C	
Diocetyl Phthalate			B	B		B	U	U		B	C	B	B	
Diocetyl Sebecate	U	U	B	B	U	C	U	U	B	C	C	C	B	U
Dioxane			B	B								C		
Dioxolane	U	U	C	B	U									
Dipentene					B					A		C	A	
Diphenyl										B		B	A	
Diphenyl Oxides				A							C	B	A	
Dowtherm Oil	U	U	U	U		U	U	U	B		B	A	A	
Dry Cleaning Fluids	U	U	U	U	C		U	U				B	A	
Epichlorohydrin	U	U	B	B								U	U	
Ethane	U	U	U	U	A		B	B	B	A	U	A	A	A
Ethanolamine	B	B	B	B	B	B	B	B	C	B	B	U	U	U
Ethyl Acetate	U	U	B	B	U	U	C	C	U	B	B	U	U	U
Ethyl Acetoacetate	C	C	B	B	U		C			B	B	U	U	
Ethyl Acrylate			B	B		U				B	B	U	U	
Ethyl Alcohol	A	A	A	A	A	A	A	A	B	A	A	A	A	U
Ethyl Benzene	U	U	U	U	U					C		A	A	
Ethyl Benzoate			B	B					U	B		A	A	
Ethyl Cellosolve			B	B						B		U	U	
Ethyl Cellulose	B	B	B	B			B	B	B	U	C	U	U	U
Ethyl Chloride	B	B	A	A	A	B	B	C	B	U	U	A	A	C
Ethyl Chlorocarbonate	U	U					C	C				B	A	
Ethyl Chloroformate	U						C	C				B	A	
Ethyl Ether			C	C	C	B	U	U	B	A		C	U	U

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Fluid Resistance Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	T	Si	FSi	FPM	ACM
Ethyl Formate	U	U	B	B	U	U	B	B				A	A	
Ethyl Mercaptan	U	U	U	U	U	U				U			A	A
Ethyl Oxalate	A	A	A	A	U	U	C		A	A			A	A
Ethyl Pentachlorobenzene	U	U	U	U	C	C	U	U	C	B		B	A	A
Ethyl Silicate	B	B	A	A	A	A	A	A				A	A	
Ethylene					A							A	A	
Ethylene Chloride			C	C								C	A	A
Ethylene Chlorohydrin	B	B			U		B	B		B	C	B	A	A
Ethylene Diamine	B	B	A	A	A	A	A	A		U	A	U	U	A
Ethylene Dichloride	U	U	C	C	U	U	U	U	U	U	C	C	A	
Ethylene Glycol	A	A	A	A	A	A	A	A	B	C	A	A	A	U
Ethylene Oxide			C	C	U		U	U			C	U	U	
Ethylene Trichloride			C	C	U		U	U			C	C	A	
Fatty Acids	C	C	U	U	B		B	B		U	C		A	
Ferric Chloride	A	A	A	A	A	A	A	A	A		A		A	
Ferric Nitrate	A	A	A	A	A	A	A	A		A	C	A	A	A
Ferric Sulfate	A	A	A	A	A	A	A	A		A	B	A	A	A
Fish Oil					A						A		A	A
Fluoroboric Acid	A	A	A	A	A		A	A						
Fluorine (Liquid)			C	C						U	U		B	B
Fluorobenzene	U	U	U	U	U		U	U			U			
Fluorocarbon Oils			A	A										
Fluorolube		U	A	A	A		A	A		A		B	B	
Fluorinated Cyclic Ethers			A	A										
Fluosilicic Acid	A				A		A	A						
Formaldehyde			A	A	B	B	A	A	U				A	
Formic Acid	A	A	A	A	B	B	A	A	U		B	C	C	
Freon 11	U	U	U	U	A		B	A	U	A	U	B	A	
Freon 12	B	A	B	B	A	A	A	A	A	A	U	C	B	
Freon 13	A	A	A	A	A	A	A	A		A			A	
Freon 21	U		U	U	U	B	B	U		U	U		U	
Freon 22	A	A	A	A	U	A	A	A	U	A		U	U	
Freon 31	B	B	A	A	U		A	B		B			U	
Freon 32	A	A	A	A	A		A	A		A				C
Freon 112	U		U	U	B		B	B		A			A	
Freon 113	C	B	U	U	A	A	A	A	B	A	U	U	B	B
Freon 114	A	A	A	A	A		A	A						
Freon 115	A	A	A	A	A		A	A		A			B	B
Freon 142b	A	A	A	A	A		A	A		A				U
Freon 152a	A	A	A	A	A		A	C		A			U	
Freon 218	A	A	A	A	A		A	A		A			A	
Freon C316	A	A	A	A	A		A	A						
Freon C318	A	A	A	A	A		A	A		A			A	
Freon 13B1	A	A	A	A	A		A	A	A	A	U		A	
Freon 114B2	U	C	U	U	B		A	A		A			B	
Freon 502	A	A			B		A	A		A			B	
Freon TF	C	B	U	U	A	A	A	A	A	A	U		A	
Freon T-WD602	C	B	A	B	B		B	B	A	A	U		A	
Freon TMC	B	C	B	B	B		B	B	B	A	C		A	
Freon T-P35	A	A	A	A	A		A	A	A	A	A		A	
Freon TA	A	A	A	A	A		A	A	A	A	A		C	
Freon TC	U	B	A	B	A		A	A	A	A	U		A	
Freon MF	U	B	U		A		C	U	C	A			A	
Freon BF	U	U	U		B		B	B	B	A				
Fuel Oil	U	U	U	U	A	A	B	B	B	A	U	A	A	A
Fumaric Acid	A	A	U		A		B	B			B		A	
Furan, Furfuran	U	U	C	C	U		U	U		B			U	
Fufural	C	C	B	B	U	U	B	B		C			U	
Gallic Acid	A	B	B	B	B		B	B	U			A	A	U
Gasoline	U	U	U	U	A	A	B	B	A	A	U	A	A	U
Gelatin	A		A	A	A	A	A	A	A	U	A	A	A	U
Glauber's Salt		U	B	B						U		A	A	
Glucose	A	A	A	A	A	A	A	A	A	U	A	A	A	
Glue	A	A	A	A	A	A	A	A	A	U	A	A	A	
Glycerin	A	A	A	A	A	A	A	A	A	B	A	A	A	U
Glycols	A	A	A	A	A	A	A	A	B	A	A	A	A	U
Green Sulfate Liquor	B	B	A	A	B	A	B	B	A	U	A	A	A	A

Fluid Resistance Key	(1) NR IR	(2) SBR BR	(3) IIR	(4) EPM EPDM	(5) NBR	(6) CO ECO	(7) CR	(8) CSM	(9) AU EU	(10) T	(11) Si	(12) FSi	(13) FPM	(14) ACM
Halowax Oil	U	U	U	U	U		U	U		A	U	A	A	
n-Hexaldehyde	U	U	B	A	U		A		B		U			
Hexane	U	U	U	U	A	A	B	B	B	A	U	A	A	A
n-Hexene-1	U	U	U	U	B		B	B	A	A	U	A	A	A
Hexyl Alcohol	A	A	C	C	A		B	B	U	A	B	A	A	U
Hydrazine			A	A	B		B	B	U		C			
Hydraulic Oil (Petroleum)	U	U	U	U	A	A	B	B	A	A	C	A	A	A
Hydrobromic Acid	A	C	A	A	U		A	A	U		U	C	A	U
Hydrochloric Acid (Hot) 37%	U	U	C	C	U	U	U	C	U	U	U	U	A	U
Hydrochloric Acid (Cold) 37%	B	B	A	A	B	U	B	A	U	U	B	B	A	U
Hydrocyanic Acid	B	B	A	A	B		B	A		U		B	A	U
Hydrofluoric Acid (Conc.) Hot	U	U	U	U	U		U	C	U	U	U	U	B	U
Hydrofluoric Acid (Conc.) Cold	U	U	B	B	U		B	A	U	U	U	U	A	U
Hydrofluoric Acid — Anhydrous	U	U	B	B				A						
Hydrofluosilicic Acid	A	B	A	A	B		B	A		U	U		A	
Hydrogen Gas	B	B	A	A	A		A	A	A	C	C	C	A	B
Hydrogen Peroxide (90%)	U	U	C	C	U			C		U	A	B	B	
Hydrogen Sulfide (Wet) (Cold)	U	U	A	A	U	B	A	B		A	C	C	U	U
Hydrogen Sulfide (Wet) (Hot)	U	U	A	A	U	B	B	C		A	C	C	U	U
Hydroquinone	B	B			C					C		B	U	
Hypochlorous Acid	B	B	B	B	U	B							A	
Iodine Pentafluoride	U	U	U	U	U	U	U	U	U	U	U	U	U	U
Iodoform			A	A										
Isobutyl Alcohol	A	B	A	A	B		A	A	U		A	B	A	U
Isooctane	U	U	U	U	A	A	B	B	B	A	U	A	A	A
Isophorone			A	A	U				B				U	
Isopropyl Acetate			A	A	U		U	U	A				U	U
Isopropyl Alcohol	A	B	A	A	B	A	A	A		A	A	B	A	U
Isopropyl Chloride	U	U	U	U	U					U		B	A	
Isopropyl Ether	U	U	U	U	B		B	B	B	A			U	C
Kerosene	U	U	U	U	A	A	C	C	B	B	U	A	A	A
Lacquers	U	U	U	U	U	U	U	U	U	A	U	U	U	U
Lacquer Solvents	U	U	U	U	U	U	U	U	U	A	U	U	U	U
Lactic Acid	A	A	A	A	A		A	A		U	A	A	A	
Lard	U	U	U	U	A	A	C	C	A	U	B	A	A	A
Lavender Oil	U	U	U	U	B		C			B		B	A	B
Lead Acetate	A		A	A	B	B	B			U	U			
Lead Nitrate	A	A	A	A	A		A	A			B	A		
Lead Sulfamate	B	B	A	A	B		A	A		U	B	A	A	U
Lime Bleach	A	A	A	A	A		B	B		U	B	A	A	U
Lime Sulfur	U	U	A	A	U		A	A		U	A	A	A	U
Lindol			A	A			C	C			C	C	B	
Linoleic Acid			U	U	B		U				B		B	
Linseed Oil	U	U	B	B	A		B	B	B	A		A	A	A
Liquified Petroleum Gas	U	U	U	U	A	A	B	B	A	A	C	B	A	C
Lubricating Oils (Petroleum)	U	U	U	U	A	A	B	B	B	C	U	A	A	A
Lye	B	B	A	A	B		B	A	B	C	B	A	B	U
Magnesium Chloride	A	A	A	A	A	A	A	A	A	C	A	A	A	
Magnesium Hydroxide	B	B	A	A	B	A	A	A	A	C		A	A	U
Magnesium Sulfate	B	B	A	A	A		A	A		B		A	A	
Maleic Acid	B	B	C	C						B			A	
Maleic Anhydride	B	B	C	C									A	
Malic Acid		B	U	U	A		B	B			B	A	A	U
Mercuric Chloride	A	A	A	A	A	A	A	A					A	
Mercury	A	A	A	A	A	A	A	A	A				A	
Mesityl Oxide	U	U	B	B	U		U	U		B	U	U	U	
Methane	U	U	U	U	A	A	B	B	B	A	U	B	A	A
Methyl Acetate	U	U	B	B	U	U	B					U	U	
Methyl Acrylate	U	U	B	B	U		B					U	U	
Methylacrylic Acid	U	U	B	B			B					U	B	U
Methyl Alcohol	A	A	A	A	A	B	A	A	U	B	A	A	C	U
Methyl Bromide					B		U	U				A	A	
Methyl Butyl Ketone	U	U	A	A	U		U	U		A	B	U	U	
Methyl Cellosolve	U	U	B	B			B	B					U	
Methyl Chloride	U	U	C	C	U		U	U			U	B	A	U
Methyl Cyclopentane	U	U	U	U			C			B		B	A	
Methyl Chloride	U	U	U	U	U		U	U	U			B	B	

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Fluid Resistance Key	NR IR	SBR BR	IIR	EPM EPDM	NBR	CO ECO	CR	CSM	AU EU	T	Si	FSi	FPM	ACM
Methyl Ethyl Ketone	U	U	A	A	U	U	U	U	U	A		U	U	U
Methyl Formate	U	U	B	B	U	U	B	B		B	B			
Methyl Isobutyl Ketone	U	U	C	C	U	U	U	U		B	C	U	U	U
Methyl Methacrylate	U	U	U	U	U	U	U	U		B	C	U	U	U
Methyl Oleate	U	U	B	B	U		U					B	A	
Methyl Salicylate			B	B			U							
Milk	A	A	A	A	A		A	A	U	B	A	A	A	U
Mineral Oil	U	U	U	U	A	A	B	B	A	B	B	A	A	A
Monochlorobenzene	U	U	U	U	U	U	U	U		B	U	B	A	
Monomethyl Aniline	U	U			U		U	U					B	
Monoethanolamine	B	B	B	B	U		U	U			B	U	U	
Monomethylether	B	B	A	A	A		A			B				
Monovinyl Acetylene	B	B	A	A	A		B	B		C	B		A	
Mustard Gas	A		A	A			A	A			A			
Naptha	U	U	U	U	C	A	C	U	C	B	U	B	A	B
Napthalene	U	U	U	U	U		U	U	B	B	U	A	A	
Napthenic Acid	U	U	U	U	B					B		A	A	
Natural Gas	C	C	U	U	A	A	A	A	B	B	A	C	A	B
Neatsfoot Oil	U	U	B	B	A					U	B	A	A	A
Neville Acid	U	U	B	B	C		C			A		B	A	
Nickel Acetate	A		A	A	B		B					U	U	
Nickel Chloride	A	A	A	A	A		A	A		A	A	A	A	
Nickel Sulfate	B	B	A	A	A		A	A	A		A	A	A	U
Niter Cake	A	A	A	A	A		A	A		C	A	A	A	U
Nitric Acid — Con.	U	U	C	C	U	U	C	B	U	U	U	U	A	U
Nitric Acid — Dilute	U	U	B	B	U	U	A	A	C	U	B	B	A	U
Nitric Acid — Red Fuming	U	U	U	U	U	U	U	U	U	U	U	U	C	U
Nitrobenzene	U	U	U	U	U	U	U	U	U	U	U	U	B	U
Nitrobenzine			C	C			U	U				A	A	
Nitroethane	B	B	B	B	U		C	C			U	U	U	U
Nitromethane	B	B	B	B	U		C	C			U	U	U	U
Nitrogen	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Nitrogen Tetroxide	U	U	C	C	U		U	U		A	C	U	U	
Octadecane	U	U	U	U	A		B	B	A	A	U	A	A	B
n-Octane	U	U	U	U						B	U	B	A	
Octachlorotoluene	U	U	U	U	U		U	U	U	U	U	B	A	U
Octyl Alcohol	B	B	A	A	B		A	A	U	B	B	B	A	U
Oleic Acid	C	C	B	B	C		C	C	B				B	
Oleum Spirits					B		C	B	C			B	A	
Olive Oil	U	U	B	B	A	B	B	B	A		U		A	A
o-Dichlorobenzene					U		U	U		B		B	A	
Oxalic Acid	B	B	A	A	B	C	B	B		U	B	A	A	
Oxygen — Cold	B	B	A	A	B	B	B	B	A	B	A	A	A	A
Oxygen — 200-400° F	U	U	U	U	U	U	U	U	U	U	B	U	B	
Ozone	U	U	B	A	U	A	B	A	A	A	A	U	A	B
Paint Thinner, Duco	U	U	U	U						B		B	B	
Palmitic Acid	B	B	B	B	A	B	B	B	A	U		A	A	
Peanut Oil	U	U	C	C	A	A	B	B	B	U	A	A	A	A
Perchloric Acid			B	B		C	A	A		U	U	A	A	
Perchloroethylene	U	U	U	U	C	B	U	U	U	A	B	B	A	
Petroleum — Below 250	U	U	U	U	A	A	B	B	B	U	B	B	A	A
Petroleum — Above 250	U	U	U	U	C	B	U	U	U	U	U	U	B	C
Phenol			B	B			C	C	U		C	B	A	
Phenylbenzene	U	U	U	U	U		U	U		B		B	A	
Phenyl Ethyl Ether	U	U	U	U	U		U	U		B				
Phenyl Hydrazine	A	B	C	C	U		C	C					A	
Phorone			B	B						C				
Phosphoric Acid — 20%	B	C	A	A	B		B	A	A	U		B	A	
Phosphoric Acid — 45%	U	U	B	B	U		B	B	A	U	U	B	A	
Phosphorous Trichloride	U	U	A	A	U		U	U				A	A	
Pickling Solution			C	C		U		C					B	U
Picric Acid	B	B	B	B	B		A	B	B		U	B	A	
Pinene	U	U	U	U	B		B	B	B	B	U	B	A	
Pine Oil	U	U	U	U	B		U	U		B		A	A	
Piperidine	U	U	U	U	U		U	U				U	U	

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Plating Solution — Chrome	U	U	A	A				C			U		A	
Plating Solution — Others			A	A	A			A			U		A	
Polyvinyl Acetate Emulsion	A		A	A	B		B	B					U	
Potassium Acetate	A	A	A	A	A	A	B	B	A	A	A	U	U	A
Potassium Chloride	A	A	A	A	A	A	A	A		A	A	A	A	A
Potassium Cupro Cyanide	A	A	A	A	A		A	A	A	A	A	A	A	A
Potassium Cyanide	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Dichromate	B	B	A	A	A		A	A	A	A	A	A	A	A
Potassium Hydroxide	B	B	A	A	B	A	A	A	B	B	C	C	B	U
Potassium Nitrate	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Sulfate	B	B	A	A	A	A	A	A	A	B	A	A	A	U
Producer Gas	U	U	U	U	A		B	B	A	U	B	B	A	B
Propane	U	U	U	U	A	A	A	A	B	A	U	B	A	A
Propyl Acetate	U	U	B	B	U	U	U	U		B		U	U	
n-Propyl Acetate	U	U	A	A	U	U				B		U	U	U
Propyl Alcohol	A	A	A	A	A	A	A	A	U	A	A	A	A	U
Propyl Nitrate			B	B						C		U	U	
Propylene	U	U	U	U	U		U	U		B		B	A	
Propylene Oxide			B	B			U	U			U			
Pyranol	U	U	U	U	A	U	U	U	B		B	A	A	A
Pydrauls	U	U	B	B	U	U	U	U	U		B	B	A	U
Pyridine	U	U	B	B	U	U	U	U					U	
Pyroligeneous Acid			B	B			B	B		B				
Pyrrole	C	C	C	C	U		U			U	B	B		U
Radiation	B	B	U	B	B		B	B	A	U	C	U	U	B
Rapeseed Oil	U	U	A	A	B	A	B	B	B	U	U	A	A	B
Red Oil	U	U	U	U	A		B	B	A	A	U	A	A	A
Sal Ammoniac	A	A	A	A	A		A	A	A	A	B	A	A	A
Salicylic Acid	A	B	A	A	A							A	A	
Salt Water	A	A	A	A	A		A	A		C		A	A	
Sewage	B	B	B	B	A		A	A	U	U	B	A	A	U
Silicate Esters	U	U	U	U	B		A	A	A		U	A	A	
Silicone Greases	A	A	A	A	A	A	A	A	A	A	C	A	A	A
Silicone Oils	A	A	A	A	A	A	A	A	A	A	C	A	A	A
Silver Nitrate	A	A	A	A	B		A	A	A	B	A	A	A	A
Skydrol 500	U	U	B	A	U	U	U	U	U		C	C	U	U
Skydrol 7000	U	U	A	A	U	U	U	U	U	U	B	C	B	U
Soap Solutions	B	B	A	A	A	A	A	A	A	U	A	A	A	U
Soda Ash	A	A	A	A	A	A	A	A		U	A	A	A	
Sodium Acetate	A	C	A	A	B		B	B	U	U		U	U	U
Sodium Bicarbonate	A	A	A	A	A	A	A	A		C	A	A	A	
Sodium Bisulfite	A	B	A	A	A	A	A	A		C	A	A	A	U
Sodium Borate	A	A	A	A	A	A	A	A		A	A	A	A	
Sodium Chloride	A	A	A	A	A	A	A	A	A	C	A	A	A	
Sodium Cyanide	A	A	A	A	A	A	A	A		A	A	A	A	
Sodium Hydroxide	A	A	A	A	B	B	A	A	B	U	B	B	B	A
Sodium Hypochlorite	C	C	B	B	B	A	B	B	U	U	B	B	A	U
Sodium Metaphosphate	A	A	A	A	A		B	B				A	A	
Sodium Nitrate	B	B	A	A	B	A	A	A			U			
Sodium Perborate	B	B	A	A	B		B	B		B	B	A	A	
Sodium Peroxide	B	B	A	A	B		B	B	U		U		A	U
Sodium Phosphate	A	A	A	A	A		A	A	A		U		A	A
Sodium Silicate	A	A	A	A	A		A	A					A	
Sodium Sulfate	B	B	A	A	A	A	A	A	A	B	A	A	A	U
Sodium Thiosulfate	B	B	A	A	B		A	A	A	B	A	A	A	U
Soybean Oil	U	U	C	C	A	A	B	B	B	U	A	A	A	A
Stannic(ous) Chloride	A	A	B	B	A		A	A			B	A	A	
Steam Under 300° F.	U	U	A	A	U		C	U	U		U	U	U	U
Steam Over 300° F.	U	U	C	B	U	U	U	U	U		U	U	U	U
Stearic Acid	B	B	B	B	B	B	B	B	A		A			
Stoddard Solvent	U	U	U	U	A	A	C	C	A	B	U	A	A	A
Styrene	U	U	U	U	U		U	U			U	C	B	
Sucrose Solution	A	A	A	A	A		A	A		U				
Sulfite Liquors	B	B	B	B	B	B	B	B		U	U	B	A	U
Sulfur	U	U	A	A	U	C	A	A		U	A	A	A	U
Sulfur Chloride	U	U	U	U	C		C	B				A	A	
Sulfur Dioxide	C	C	B	A	U		C	C		U	A	B	A	U

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Sulfur Hexafluoride		A	A	A	A	A	A	A			A	A	A	
Sulfur Trioxide	B	U	B	B	U		U	U		U	B	B	A	U
Sulfuric Acid (Dilute)	C	C	B	B	U	B	B	A	B	U	U	C	A	U
Sulfuric Acid (Concentrated)	U	U	B	B	U	U	U	B	U	U	U	U	A	U
Sulfuric Acid (20% Oleum)	U	U	U	U	U	U	U	U	U	U	U	U	A	U
Sulfurous Acid	B	B	B	B	B		B	A	U	U	U		A	U
Tannic Acid	A	B	A	A	A		A	A	A	A	B		A	U
Tar, Bituminous	U	U	U	U	B	B	C	C			B	A	A	U
Tartaric Acid	A	B	B	B	A	B	B	A	A	U	A	A	A	
Terpineol	U	U	C	C	B		U	U	B	A		A	A	
Tertiary Butyl Alcohol	B	B	B	B	B		B	B	U	B	B	B	A	U
Tertiary Butyl Catechol	U	C	B	B	U		B	B	U	U		A	A	U
Tertiary Butyl Mercaptan	U	U	U	U	U		U	U	U				A	
Tetrabromomethane	U	U	U	U	U							B	A	
Tetrabutyl Titanate	B	B	B	A	B		A	A				A	A	
Tetrachloroethylene	U	U	U	U	U				B	U		B	A	U
Tetraethyl Lead	U	U	U	U	B		C	C				B	A	
Tetrahydrofuran	U	U	B	B						A			U	
Tetralin	U	U	U	U	U		U	U				A	A	
Thionyl Chloride	U	U	U	U			U	U					A	
Titanium Tetrachloride	U	U	U	U	C		U	U		C		B	A	
Toluene	U	U	U	U	U	U	U	U	C	U	U	B	A	
Toluene Diisocyanate	C	C	A	A			U	U						
Transformer Oil	U	U	U	U	A		B	B			B	A	A	B
Transmission Fluid Type A	U	U	U	U	A	A	B	B	A	A		A	A	A
Triacetin	B	C	A	A	B		B	B	U	B		U	U	U
Tributoxy Ethyl Phosphate	B	B	A	A	U		U	U	U	A		B	A	
Tributyl Phosphate	B	U	A	A	U		U	C	U	A		U	U	U
Tributyl Mercaptan	U	U	U	U	U		U	U					A	
Trichloroethane	U	U	U	U	U		U	U	U	U	U	B	A	U
Trichloroacetic Acid	C	B	B	B	B		B	B					C	U
Trichloroethylene	U	U	U	U	C	U	U	U	U		B	B	A	
Tricresyl Phosphate	U	U	A	A	U	U	C	C	C	B	C	B	B	
Triethanol Amine	B	B	B	B	C		A	A	U	U		U	B	U
Triethyl Aluminum													B	
Triethyl Borane													U	
Trinitrotoluene	U	U	U	U	U		B	B		B		B	B	
Trioctyl Phosphate	U	U	A	A	U		U	U		B	C	B	B	U
Triaryl Phosphate	U	U	A	A	U		C	C	B	B	C	B	A	U
Tung Oil	U	U	C	U	A		B	B	B	B		B	A	
Turbine Oil	U	U	U	U	B	A	B	B		A		B	A	B
Turpentine	U	U	U	U	A	A	U	U	U	B	U	B	A	A
Unsymmetrical Dimethyl Hydrazine (UDMH)			A	A	B		B	A		U	U	U	U	
Varnish	U	U	U	U	B		C	C		A		B	A	
Vegetable Oils	U	U	A	A	A	A	B	B		U	A	A	A	A
Versilube	A	A	A	A	A	A	A	A		B	C	A	A	A
Vinegar	B	B	A	A	B		A	A		B			A	U
Vinyl Chloride				B			U	U					A	
Wagner 21B Fluid		A	B	A	C		A	B		U	C	U	U	
Water	A	A	A	A	A	B	A	A	A	U	A	A	A	U
Whiskey, Wines	A	A	A	A	A		A	A	A	U	A	A	A	U
White Pine Oil	U	U	U	U	B		U	U		B		A	A	
White Oil	U	U	U	U	A		B	B		A	U	A	A	A
Wood Oil	U	U	U	U	A		B	B		B	U	B	A	A
Xylene	U	U	U	U	U	U	U	U	C	B	U	A	A	
Xylidenes	U	U	U	U	C		U	U		U	U	U	U	
Zeolites	A	A	A	A	A		A	A				A	A	
Zinc Acetate	A	C	A	A	B		B	B		U	U	U	U	U
Zinc Chloride	A	A	A	A	A		A	A		C		A	A	U
Zinc Sulfate	B	B	A	A	A		A	A		U	A	A	A	U