CHEMICAL RESISTANCE CHART

This chart is designed to help you select the correct hose or hoses to conduct the many types of materials found in industry. It should be used only as a guide because the ability of a particular tube compound to resist a material depends on many variables—temperature, concentration, pressure, velocity, duration of exposure, aeration, stability of the fluid, etc. The special variations in elastomer types and their compounding for specific service conditions play an important part in the service life of the hose.

WARNING: The following data has been compiled from generally available sources and should not be relied upon without consulting and following the hose manufacturer's specific chemical recommendations. Neglecting to do so might result in failure of the hose to fulfill its intended purpose, and may result in possible damage to property and serious bodily injury.

Refer to additional information and warnings on pages 2, 7-13, 117 and 128.

If you have any questions about the suitability of a hose for a particular service, contact HBD Industries' Customer Service Department, 800/438-2312, for a recommendation.

The most commonly used chemicals, materials, oil, solvents, etc., are listed here. Ratings are for concentrated or saturated solutions at room temperature (70°F) unless otherwise specified. The rating code indicates the degree or range of serviceability for each style of hose listed under the group headings.

RATING CODE:

A – Excellent. Suitable for continuous service.
B – Good. Generally suitable for continuous service and for intermittent service.
C – Fair or Conditional. NOT recommended for continuous service, but generally suitable for intermittent service.
D – Unsatisfactory. Not Recommended.

These ratings are to be used only as a guide.

1. Anhydrous Ammonia Hose Only
2. FDA Tube Required
3. Use Butane-Propane Hose Only
4. (See HCL 37%)
5. Contact HBD Technical

As a guide to the user of hose in contact with oil, the oil resistance classes and corresponding description are listed.

PHYSICAL PROPERTIES AFTER EXPOSURE TO OIL

	Volume Change Maximum	Tensil Strength Retained
Class A (High oil resistance)	+25%	80%
Class B (Medium-High oil resistance)	+65%	50%
Class C (Medium oil resistance)	+100%	40%

Hose information is subject to change. For full details, visit our website or contact Customer Service.

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Acetal	C	C	B	D	C	C	C	D	D	B		B
Acetaldehyde	C	D	A	D	C	C	A	D	D	A		A
Acetamide	C	C	A	B	B	B	A	C	B	A		A
Acetate Solvents	C	D	C	D	D	D	C	D	D	A	B	A
Acetic Acid, 10%	D	D	B	D	C	B	B	B	C	A	A	A
Acetic Acid, 30%	D	D	B	B	C	B	B	C	C	A	A	A
Acetic Acid, 50%	D	D	B	C	C	D	B	C	D	B	A	B
Acetic Acid, Glacial	D	D	B	D	C	D	D	D	D	B	A	B
Acetic Anhydride	D	D	B	D	D	B	B	D	D	B	A	B
Acetic Ester (Ethyl Acetate)	D	D	B	D	D	D	B	D	D	A	B	A
Acetic Ether (Ethyl Acetate)	D	D	B	D	D	C	B	D	D	A	B	A
Acetic Oxide (Acetic Anhydride)	D	D	C	D	D	B	B	D	D	A	A	A
Acetone	B	B	A	D	C	C	A	D	D	A	A	A
Acetophenone	C	D	A	D	D	D	A	D	D	B		B
Acetyl Acetone	D	D	B	D	D	D	A	D	D	A	B	A
Acetyl Chloride	D	D	C	D	D	D	C	D	B	B	A	B
Acetylene	A	A	A	A	C	C	B	B	A	A		A
Acrylonitrile	B	D	D	D	D	D	D	D	D	B	A	B
Air	A	A	A	A	A	A	A	A	A	A	A	A
Alcohols, Aliphatic	A	B	A	A	A	A	A	A	C	A	A	A
Alcohols, Aromatic	C	D	D	C	C	D	D	B	A	A	C	A
Alk-Tri (Trichloroethylene)	D	D	D	D	D	D	D	B	A	D	A	D
Allyl Alcohol	A	B	A	A	A	A	A	A	B	A	A	A
Allyl Bromide	D	D	D	D	D	D	D	D	B	B	A	B
Allyl Chloride	D	D	D	D	D	D	D	B	B	B	A	B
Alum (Ammonium) Potassium Sulfate)	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum Acetate	A	C	B	B	B	B	B	B	C	A	A	A
Aluminum Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum Fluoride	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum Hydroxide	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum Phosphate	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Aluminum Sulfate	B	A	A	A	A	A	A	A	A	A	A	A
Ammonia, Anhydrous	A	C	A	B	A	B	A	C	D	A	A	A
Ammonia, Liquid	B	B	A	A	A	A	A	C	A	A	A	A
Ammonia, in Water	B	B	B	B	B	B	A	B	B	A	A	A
Ammonia, Gas (Cold)	Anhydrous Ammonia Hose Only											1
Ammonia, Gas (150°F)	Anhydrous Ammonia Hose Only											1
Ammonium Carbonate	A	A	A	C	A	A	A	A	A	A		A
Ammonium Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Hydroxide	B	B	A	B	B	A	B	B	B	A	A	A
Ammonium Metaphosphate	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Nitrate	B	A	A	A	A	A	A	A	A	A	A	A
Ammonium Nitrite	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Persulfate	A	D	A	D	A	A	B	C	A	A		A
Ammonium Phosphate	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Sulfide	A	A	A	A	A	A	A	A	A	A	A	A

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Ammonium Sulfite	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Thiocyanate	A	A	A	A	A	A	A	A	A	A	A	A
Ammonium Thiosulfate	A	A	A	A	A	A	A	A	A	A	A	A
Amyl Acetate	C	D	B	D	D	D	B	D	D	D	C	D
Amyl Acetone	D	D	B	D	D	D	B	D	D	A		A
Amyl Alcohol	A	A	A	A	A	A	A	B	A	A	A	A
Amylamine	C	B	B	C	D	C	D	C	D	A	B	A
Amyl Borate	D	D	D	A	C	C	D	C	A	A		A
Amyl Chloride	D	D	D	D	D	D	D	D	A	A	C	A
Amyl Chloronapthalene	D	D	D	B	D	D	D	C	A	A		A
Amyl Napthalene	D	D	D	D	D	D	D	C	A	A		A
Amyl Oleate	D	D	B	D	D	D	B	C	C	A		A
Amyl Phenol	D	D	D	D	D	D	D	C	A	A		A
Anethole	D	D	D	D	D	D	D	D	B	B	D	B
Aniline	D	D	B	D	C	C	B	D	B	B	B	B
Aniline Dyes	C	C	B	C	C	C	B	C	B	A		A
Aniline Hydrochloride	A	C	C	C	D	D	B	C	B	A		A
Animal Fats	D	D	B	A	B	B	B	A	A	A	A	A
Animal Grease	D	D	C	B	B	C	B	B	A	A	B	A
Animal Oils	D	D	B	A	D	D	C	B	A	A	A	A
Ansul Ether	D	D	C	C	D	D	C	D	D	A		A
Antifreeze (Ethylene Glycol)	A	A	A	A	A	A	A	A	A	A	A	A
Antimony Trichloride	D	D	A	B	B	B	B	C	A	A		B
Antimony Pentachloride	D	D	C	D	D	D	C	C	A	B		B
Aqua Regia	D	D	D	D	D	C	C	D	B	D	B	B
Aromatic Hydrocarbons	D	D	D	C	D	D	D	B	A	A	C	A
Arguad	A	A	A	A	A	A	A	A	A	A		A
Arsenic Acid	A	A	A	A	A	A	A	A	A	A	A	A
Arsenic Chloride	D	D	D	C	A	D	B	C	D	D		D
Arsenic Trichloride	D	D	D	C	A	D	B	C	D	D		D
Asphalt	D	D	D	A	B	D	B	A	A	B		B
Astm #1 Oil	D	D	D	A	A	B	D	A	A	A	A	A
Astm #2 Oil	D	D	D	A	B	C	D	A	A	A	A	A
Astm #3 Oil	D	D	D	A	B	C	D	A	A	A	A	A
Aviation Gasoline	D	D	D	A	C	D	D	A	A	A	B	A
Barium Carbonate	A	A	A	A	A	A	A	A	A	A	A	A
Barium Chloride	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
Barium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Barium Sulfide	A	A	A	A	A	A	A	A	A	A	A	A
Beer	(F.D.A. Tube Required)											2
Beet Sugar Liquors	A	A	A	A	A	A	A	A	A	A	A	A
Benzaldehyde	D	D	B	D	D	D	B	D	D	A	C	A
Benzene (Benzol)	D	D	D	C	D	D	D	C	A	A	C	A
Benzene Sulfonic Acid	D	D	D	C	A	A	C	B	A	A		A
Benzine Solvent (Ligroin)	D	D	D	A	B	D	D	B	A	A		A
Benzoic Acid	B	D	A	D	A	B	B	C	A	A	A	A
Benzoic Aldehyde	D	D	D	D	D	D	D	C	D	A		A
Benzotrichloride	D	D	D	D	D	D	D	D	B	B	D	B

These ratings are to be used only as a guide.

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Benzoyl Chloride	D	D	D	D	D	D	D	D	B	B	D	B
Benzyl Acetate	D	D	B	D	D	B	B	D	D	A	A	A
Benzyl Alcohol	B	B	B	D	B	B	B	D	A	A	A	A
Benzyl Chloride	D	D	C	D	D	D	D	D	A	A	D	A
Bichromate of Soda (Sodium Dichromate)	D	D	A	D	B	B	C	C	A	A	A	A
Black Sulfate Liquor	B	B	A	B	A	B	A	A	A	A		A
Blast Furnace Gas	D	D	C	C	B	B	C	C	A	A		A
Bleach Solutions	D	D	B	D	D	C	B	D	B	B	A	B
Borax	B	B	A	B	A	A	A	A	A	A	A	A
Bordeaux Mixture	B	B	A	A	A	A	A	A	A	A		A
Boric Acid	A	A	A	A	A	A	A	A	A	A	A	A
Brandy	(F.D.A. Tube Required)											2
Brine	A	A	A	A	A	A	A	B	A	A	A	A
Bromine	D	D	D	D	D	C	D	D	C	D		D
Bromine Water	D	D	C	C	B	A	C	C	A	A		A
Bromobenzene	D	D	D	D	D	D	D	D	B	C	D	C
Bunker Oil	D	D	D	A	B	D	D	A	A	A	A	A
Butanol (Butyl Alcohol)	A	A	A	B	A	A	A	A	A	A	A	A
Butadiene	D	D	D	D	C	B	D	D	A	C		C
Butane	Use Butane—Propane Hose Only											3
Butter (Non F.D.A.)	C	C	A	A	B	A	B	A	A	A	A	A
Butyl Acetate	D	D	B	D	D	D	C	D	D	A	B	A
Butyl Acrylate	D	D	D	D	D	D	D	D	D	B	B	B
Butylamine	B	C	C	C	D	C	C	C	D	A	B	A
Butyl Benzene	D	D	D	D	D	D	D	D	A	A	C	A
Butyl Bromide	D	D	D	D	D	D	D	D	B	B	C	B
Butyl Butyrate	D	D	C	D	D	D	B	C	C	B	C	B
Butyl Carbitol	D	D	A	B	B	B	A	A	A	A	A	A
Butyl Cellosolve	D	D	A	B	B	B	A	A	D	A	B	A
Butyl Chloride	D	D	C	D	D	D	D	C	A	B	C	B
Butyl Ether	D	D	C	B	B	B	C	B	D	A	A	A
Butyl Ethyl Acetaldehyde	D	D	C	D	D	D	D	C	D	A		A
Butyl Ethyl Ether	D	D	C	D	D	B	C	C	C	A	A	A
Butyl Oleate	D	D	B	D	D	D	B	C	A	A		A
Butyl Phthalate	D	D	C	D	D	D	C	C	C	A	C	A
Butyl Stearate	D	D	C	B	D	D	C	C	A	A	B	A
Butyraldehyde	C	D	D	D	D	D	D	D	D	A	B	A
Butyric Acid	C	D	C	C	C	B	C	B	C	A	A	A
Butyric Anhydride	C	D	C	C	D	B	C	B	C	A		A
Calcium Acetate	C	D	A	D	D	D	A	C	D	A	B	A
Calcium Bisulfate	A	A	A	A	A	A	A	A	A	A	A	A
Calcium Bisulfite	C	A	B	A	A	A	C	A	A	A	A	A
Calcium Carbonate	A	A	A	A	A	A	A	A	A	A	A	A
Calcium Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Calcium Hydroxide	A	B	A	B	A	B	A	A	C	A	A	A
Calcium Hypochlorite	D	D	B	D	D	C	B	C	A	B	A	B
Calcium Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Calcium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Calcium Sulfide	A	A	A	A	A	A	A	A	A	A	A	A
Calcium Sulfite	A	A	A	A	A	A	A	A	A	A	A	A
Caliche Liquor (Crude Sodium Nitrate)	A	A	A	C	B	A	A	A	A	A	A	A
Cane Sugar Liquors (Non F.D.A.)	A	A	A	A	A	A	A	A	A	A	A	A
Carbitol	D	D	A	B	B	B	B	C	A	A	A	A
Carbitol Acetate	D	D	B	D	D	D	B	C	D	A		A
Carbolic Acid (Phenol)	D	D	B	D	C	C	C	D	A	A	A	A
Carbon Bisulfide (See Carbon Disulfide)												
Carbon Dioxide	A	A	A	A	A	A	A	A	A	A	A	A
Carbon Disulfide	D	D	D	D	D	D	D	D	A	A	C	C
Carbonic Acid	A	A	A	A	A	A	A	A	A	A	A	A
Carbon Monoxide	A	A	A	A	A	A	A	A	A	A	A	A
Carbon Tetrachloride	D	D	B	C	D	D	B	D	A	C	C	C
Carbon Tetrafluoride	D	D	D	C	D	D	D	C	A	C		C
Castor Oil	C	D	B	A	B	C	B	A	A	A	A	A
Caustic Potash (Potassium Hydroxide)	A	B	A	A	B	A	A	A	C	A	A	A
Caustic Soda (Sodium Hydroxide)	A	B	A	B	B	B	A	A	C	A	A	A
Cellosolve	D	D	B	B	A	B	B	B	C	A	A	A
Cellulose Acetate	C	D	B	D	C	C	B	C	D	B		B
Cellulube	C	D	B	D	D	D	A	D	C	A		A
China Wood Oil (Tung Oil)	D	D	B	A	B	B	B	B	A	A	A	A
Chlorine Dioxide	D	D	D	D	D	C	D	D	A	B		B
Chlorine Gas (Dry)	C	C	C	C	D	B	C	B	A	B		B
Chlorine, Water Solns. (2%)	C	D	C	D	D	B	C	C	A	A		A
Chloroacetic Acid	B	D	C	D	D	D	C	D	C	A		D
Chloroacetone	D	D	B	D	D	B	D	D	D	A	D	A
Chlorobenzene	D	D	D	D	D	D	D	D	A	B	D	B
Chlorobutane	D	D	D	D	D	D	D	D	A	B	C	B
Chlorobutadiene	D	D	D	D	D	D	D	D	A	B		B
Chloroform	D	D	D	D	D	D	D	D	A	B	C	B
Chlorinated Hydrocarbons	D	D	D	D	D	D	D	D	A	B	D	B
Chloropentane	D	D	D	D	C	D	D	C	A	A	C	A
Chlorophenol	D	D	D	D	D	D	D	D	B	B	C	B
Chloropropanone	D	D	C	D	D	D	C	D	D	A	D	A
Chlorosulfonic Acid	D	D	D	D	D	C	D	C	D	B		B
Chlorothene (Trichloroethane)	D	D	D	D	D	D	D	C	A	B	C	B
Chlorotoluene	D	D	D	D	D	D	D	D	A	B	B	B
Chromic Acid	D	D	D	D	D	A	C	C	A	A	A	A
Citric Acid	A	A	A	B	B	A	A	A	A	A	A	A
Coal Oil	D	D	D	A	B	D	D	B	A	A	A	A
Coal Tar	D	D	D	A	B	B	B	A	A	A	A	A
Coal Tar Naptha	D	D	D	C	C	D	D	C	A	A	A	A
Cobalt Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Coconut Oil	D	D	B	A	B	B	A	A	A	A	A	A
Cod Liver Oil	D	D	A	A	B	B	A	A	A	A	A	A

These ratings are to be used only as a guide.

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Coke Oven Gas	D	D	C	D	D	B	D	C	A	A		A
Copper Arsenate	A	A	A	A	A	A	A	A	A	A	A	A
Copper Chloride	A	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 Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Copper Nitrite	A	A	A	A	A	A	A	A	A	A	A	A
Copper Sulfate	C	A	A	A	A	A	A	A	A	A	A	A
Copper Sulfide	C	A	A	A	A	A	A	A	A	A	A	A
Corn Oil	D	D	B	A	B	B	B	A	A	A	A	A
Cottonseed Oil	D	D	A	A	B	B	A	A	A	A	A	A
Creosote (Wood)	D	D	D	B	C	C	D	B	A	A		A
Creosote (Coal Tar)	D	D	D	B	C	C	D	B	A	A		A
Cresols	D	D	D	C	C	C	D	C	A	A	A	A
Cresylic Acid	D	D	D	C	C	C	D	C	A	A		A
Crotonaldehyde	D	D	A	D	D	D	C	D	D	A	A	A
Crude Oil	D	D	D	A	C	D	D	A	A	A	A	A
Cumene	D	D	D	C	C	D	D	C	A	A	C	A
Cupric Carbonate	C	C	A	B	B	B	A	B	A	A	A	A
Cupric Chloride	C	C	A	A	B	A	A	B	A	A		A
Cupric Nitrate	C	C	A	A	B	A	A	B	A	A	A	A
Cupric Nitrite	C	C	A	A	B	A	A	B	A	A	A	A
Cupric Sulfate	C	B	A	A	B	B	A	A	A	A	A	A
Cyclohexane	D	D	D	B	D	D	D	B	A	A	A	A
Cyclohexanone	D	D	D	D	D	D	D	D	C	A	C	A
Cyclohexanol	D	D	D	B	B	D	D	B	B	A	A	A
Cyclopentane	D	D	D	C	D	D	D	B	A	A	C	A
P-Cymene	D	D	D	C	D	D	D	B	A	A	C	A
DDT In Kerosene	D	D	D	A	B	C	D	A	A	A	A	A
Decaline	D	D	D	D	D	D	D	D	A	A	C	A
Decane	D	D	D	B	D	D	D	B	A	A		A
Detergent Solutions	B	B	A	A	B	A	A	A	A	A	A	A
Diacetone Alcohol	D	D	A	D	B	B	B	D	D	A	A	A
Diamylamine	B	C	A	B	A	C	C	B	B	A	A	A
Dibenzyl Ether	D	D	B	D	D	D	D	D	C	A	C	A
Dibenzyl Sebacate	C	D	B	D	D	D	B	D	B	A		A
Dibromobenzene	D	D	D	D	D	D	D	D	A	B		B
Dibutylamine	B	C	C	B	A	C	B	B	D	A	A	A
Dibutylether	D	D	D	D	D	D	B	C	C	A	A	A
Dibutylphthalate	D	D	B	D	D	D	A	D	D	A	C	A
Dibutyl Sebacate	D	D	B	D	D	D	B	D	B	B	B	B
Dicalcium Phosphate	A	A	A	A	A	A	A	A	A	A	A	A
Dichloroacetic Acid	D	D	C	D	D	D	C	D	C	A	B	A
P-Dichlorobenzene	D	D	D	D	D	D	D	D	A	A	D	B
Dichlorobutane	D	D	D	D	D	D	D	D	A	A	C	A
Dichloroisopropyl Ether	D	D	C	D	D	D	C	D	C	A		A
Dicyclohexylamine	D	D	D	D	D	B	D	D	A	B		B
Dichlorodifluoromethane (Freon 12)	D	D	D	A	B	D	D	B	A	A		A
Dichloroethane	D	D	C	D	D	D	D	D	A	A	C	C

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Dichloroethylene	D	D	C	D	D	D	D	D	A	A		D
Dichloroethyl Ether	D	D	D	D	D	D	D	D	C	A	B	A
Dichlorohexane	D	D	D	D	D	D	D	D	A	A	C	A
Dichloromethane	D	D	D	D	D	D	D	D	A	A	C	A
Dichloropentane	D	D	D	D	D	D	D	D	A	A	C	A
Dieldrin In Xylene	D	D	D	D	D	D	D	D	A	A		A
Dieldrin In Xylene And Water Spray	D	D	D	B	B	D	D	B	A	A		A
Diesel Oil	D	D	D	A	B	C	D	A	A	A	A	A
Diethanolamine	B	C	B	B	B	C	C	B	B	A	A	A
Diethylamine	B	C	B	B	B	C	C	B	D	A	B	A
Diethyl Benzene	D	D	D	D	D	D	D	D	A	A	C	A
Diethyl Ether	D	D	D	B	C	D	D	D	D	A	A	A
Diethylene Dioxide	D	D	B	D	D	D	B	C	D	A	B	A
Diethylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Diethylenetriamine	B	B	A	B	C	C	A	B	C	A	A	A
Diethyl Oxa!ate	C	D	C	D	D	D	A	D	C	A	A	A
Diethyl Phthalate	D	D	A	D	D	D	C	D	C	A	B	A
Diethyl Sebacate	D	D	A	D	D	D	C	D	B	A	B	A
Diethyl Sulfate	D	D	B	D	D	D	B	D	A	A	A	A
Diethyl Triamine	B	C	A	B	B	C	B	B	C	A	A	A
Dihydroxyethyl Amine	B	C	A	B	B	C	B	B	C	A		A
Dihydroxyethyl Ether	A	A	A	A	B	A	B	A	A	A	A	A
Diisobutylene	D	D	D	A	B	D	D	A	A	A	C	A
Diisobutyl Ketone	D	D	B	D	D	D	B	D	D	A		A
Diisodecyl Adipate	D	D	A	D	D	C	A	D	C	A		A
Diisodecyl Phthalate	D	D	A	D	D	C	A	D	C	A		A
Diisooctyl Adipate	D	D	A	D	D	D	A	D	C	A		A
Diisooctyl Phthalate	D	D	A	D	D	C	A	D	C	A		A
Diisopropanol Amine	B	C	A	B	D	C	A	B	C	A		A
Diisopropyl Benzene	D	D	D	C	D	D	D	C	A	A		A
Diisopropyl Ether	D	D	D	B	D	D	D	B	B	A	A	A
Diisopropyl Ketone	D	D	A	D	D	D	A	D	D	A	C	A
Dilauryl Ether	D	D	D	C	D	C	D	D	C	A		A
Dimethylamine	B	C	A	B	B	C	A	B	C	A	A	A
Dimethyl Benzene	D	D	D	D	D	D	D	D	A	A	D	A
Dimethylaniline	D	D	D	D	D	D	C	D	D	B	C	B
Dimethylformamide (DMF)	C	C	C	D	C	C	C	D	D	A		A
Dimelhyl Ketone (Acetone)	B	C	A	D	C	C	A	D	D	A	A	A
Dimethyl Phthalate	D	D	A	D	D	D	B	D	C	A	A	A
Dimethyl Sulfate	D	D	B	D	D	D	D	D	D	A	A	A
Dimethyl Sulfide	D	D	C	D	D	D	D	D	C	B	B	B
Dinitrobenzene	D	D	C	D	C	D	C	D	A	A		A
Dinitrotoluene	D	D	D	D	D	D	D	D	B	A		A
Dioctyl Adipate (DOA)	D	D	A	D	D	D	B	D	C	A	C	A
Dioctylamine	B	B	A	B	D	C	B	B	C	A		A
Dioctyl Phthalate (DOP)	D	D	B	D	D	D	B	B	A	A	C	A
Dioctyl Sebacate (DOS)	D	D	B	D	D	D	B	D	B	A	C	A
Dioxane	D	D	B	D	D	D	B	D	D	A	B	A

These ratings are to be used only as a guide.

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Dioxolane	D	D	C	D	D	D	B	D	C	A	B	A
Dipentene (Limonene)	D	D	D	C	D	D	D	C	A	A	B	A
Diphenyl (Biphenyl)	D	D	D	D	D	D	D	D	A	A		A
Diphenyl Oxide (Phenyl Ether)	D	D	D	D	D	C	D	D	A	A		A
Dipropylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Dipropyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Dipropylamine	B	B	A	B	B	C	A	B	C	A	B	A
Disodium Phosphate	A	A	A	A	A	A	A	A	A	A	A	A
Divinyl Benzene	D	D	D	D	D	D	D	D	A	A	D	A
D.M.P. (Dimethyl Phenols)	D	D	D	D	D	D	D	D	D	C	A	C
Dodecyl Benzene	D	D	D	D	D	D	D	D	A	A		A
Dodecyl Toluene	D	D	D	D	D	D	D	D	A	A		A
Dowfume W 40, 100%	D	D	D	D	C	C	C	D	C	B		B
Dow-Per (Perchloroethylene)	D	D	D	C	D	D	D	C	A	A	C	A
Dowtherm Oil, A and E	D	D	D	D	D	C	D	D	A	A	C	A
Dowtherm S.R.I.	A	A	A	A	A	A	A	A	A	A		A
Dry Cleaning Fluids	D	D	D	C	D	D	D	C	A	B		B
Epichlorohydrin	D	D	C	D	D	C	B	D	D	B		B
Ethanol (Ethyl Alcohol)	A	A	A	A	A	A	A	A	C	A	A	A
Ethanolamine	B	C	B	B	B	C	B	B	D	A	A	A
Ethers	D	D	C	D	D	C	D	D	C	A	A	A
Ethyl Acetate	D	D	B	D	D	C	B	D	D	A	B	A
Ethyl Acetoacetate	D	D	B	D	D	D	B	D	D	A	A	A
Ethyl Acrylate	D	D	C	D	D	D	D	D	D	B	B	B
Ethyl Benzene	D	D	D	C	D	D	D	C	A	A	C	A
Ethyl Benzoate	D	D	B	B	C	C	B	B	C	A		A
Ethyl Butyl Alcohol	A	A	A	A	A	A	A	A	B	A	A	A
Ethyl Butyl Amine	B	C	A	B	B	C	B	B	B	A		A
Ethyl Butyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Ethyl Cellulose	B	B	B	B	B	B	B	B	D	A		A
Ethyl Chloride	C	C	D	C	C	D	D	B	A	A		B
Ethyl Dichloride	D	D	D	D	D	D	D	D	B	B	C	B
Ethylene	D	D	D	A	B	C	D	A	A	A		A
Ethylene Bromide	D	D	D	D	D	D	D	D	A	B		B
Ethylene Chloride	D	D	D	D	D	D	D	D	A	B		B
Ethylene Diamine	B	C	A	B	A	C	A	A	D	A	A	A
Ethylene Dibromide	D	D	D	D	D	D	D	D	B	B	C	B
Ethylene Dichloride	D	D	D	D	D	D	D	D	B	B	C	B
Ethylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Ethylene Oxide	D	D	C	D	D	D	C	D	D	C		C
Ethylene Trichloride (Trichloroethylene)	D	D	D	C	D	D	D	C	A	B	C	B
Ethyl Ether	D	D	D	C	D	D	D	B	D	A	A	D
Ethyl Formate	D	D	B	D	D	D	C	D	D	A	A	A
Ethyl Hexanol	A	A	A	A	A	A	A	A	B	A	A	A
Ethyl Methyl Ketone	C	D	B	D	D	D	B	D	D	A	C	A
Ethyl Oxalate	A	A	A	D	D	D	B	D	C	A	A	A
Ethyl Phthalate	D	D	A	D	D	D	B	D	C	A	B	A

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Ethyl Propyl Ether	D	D	D	D	D	D	D	D	C	A	A	A
Ethyl Propyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Ethyl Silicate	C	C	A	A	A	A	A	A	A	A	A	A
Ethyl Sulfate	D	D	B	D	D	D	B	D	D	A		A
EX. TRI (Trichloroethylene)	D	D	D	C	D	D	D	C	A	B	C	B
Fatty Acids	D	D	D	B	B	B	C	A	A	A		A
Ferric Bromide	A	A	A	A	A	A	A	A	A	A	A	A
Ferric Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Ferric Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Ferric Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Ferrous Acetate	D	D	A	D	D	D	B	D	D	A		A
Ferrous Ammonium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Ferrous Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Ferrous Hydroxide	B	C	A	B	A	B	A	A	C	A		A
Ferrous Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Fish Oil	D	D	A	A	A	A	A	A	A	A	A	A
Fluoroboric Acid	A	C	A	A	B	A	A	A	C	A	A	A
Fluorine	D	D	D	D	D	D	D	D	D	D		D
Fluosilicic Acid	B	B	A	B	B	A	B	C	A	A	A	A
Formaldehyde (Formalin)	C	C	A	B	B	B	B	B	A	A	A	A
Formamide	A	A	A	A	A	A	A	A	D	A		A
Formic Acid	B	B	A	C	C	C	C	C	D	B		B
Freon 11	D	D	D	A	B	A	D	A	A	A		A
Freon 12	D	D	D	B	C	D	C	A	B	B		B
Freon 13	A	A	A	A	A	A	A	A	A	A	A	A
Freon 21	D	D	D	D	B	D	D	B	D	A		A
Freon 22	D	D	A	D	A	D	A	A	D	A		A
Freon 31	B	B	A	D	A	B	A	D	D	A		A
Freon 32	A	A	A	A	A	A	A	A	C	A		A
Freon 112	D	D	D	B	B	B	D	B	A	A		A
Freon 113	C	B	D	A	A	A	D	A	B	A		A
Freon 114	A	A	A	A	A	A	A	A	B	A	A	A
Freon 115	A	A	A	A	A	A	A	A	B	A		A
Freon 142b	A	A	A	A	A	A	A	A	D	A		A
Freon 152a	A	A	A	A	A	C	A	A	D	A		A
Freon 218	A	A	A	A	A	A	A	A	A	A	A	A
Freon C316	A	A	A	A	A	A	A	A	A	A		A
Freon C318	A	A	A	A	A	A	A	A	A	A	A	A
Freon 13B1	A	A	A	A	A	A	A	A	A	A	A	A
Freon 114B2	D	C	D	B	A	A	D	B	B	A		A
Freon 502	A	A	A	B	A	A	A	B	B	A		A
Freon TF	C	B	A	A	A	A	A	A	A	A		A
Freon T-WD602	C	B	A	A	B	B	B	A	A	A		A
Freon TMC	B	C	B	B	B	B	B	B	A	A		A
Freon T-P35	A	A	A	A	A	A	A	A	A	A	A	A
Freon TA	A	A	A	A	A	A	A	A	C	A		A
Freon TC	D	B	A	A	A	A	B	A	A	A		A
Freon MF	D	B	D	A	C	B	D	A	A	A		A
Freon BF	D	D	D	B	B	B	D	B	A	A		A
Fuel Oil	D	D	D	A	B	C	D	A	A	A	A	A

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	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Fuel, ASTM A	D	D	D	A	A	C	D	A	A	A	A	A
Fuel, ASTM B	D	D	D	A	B	C	D	A	A	A	B	A
Fuel, ASTM C	D	D	D	B	C	D	D	B	A	B	C	B
Fumaric Acid	A	A	D	A	B	B	D	A	A	A	A	A
Furan	D	D	C	D	D	D	C	D	D	A	A	A
Furfural	D	D	B	D	C	B	B	D	D	A	A	A
Furfuryl Alcohol	D	D	C	D	C	C	C	D	D	A	A	A
Gallic Acid	A	A	B	B	B	B	B	B	B	A	A	A
Gasoline, Reg	D	D	D	A	A	C	D	A	A	A	B	A
Gasoline, Hi-Test	D	D	D	A	B	D	D	A	A	A	A	A
Gasoline, Lead Free	D	D	D	B	B	D	D	A	A	A		A
Gelatin	A	A	A	A	A	A	A	A	A	A	A	A
Gluconic Acid	D	D	C	C	C	B	C	C	A	A	A	A
Glucose	A	A	A	A	A	A	A	A	A	A	A	A
Glue	A	A	A	A	A	A	A	A	A	A	A	A
Glycerine (Glycerol)	A	A	A	A	A	A	A	A	A	A	A	A
Glycols	A	A	A	A	A	A	A	A	A	A	A	A
Grease	D	D	D	A	B	C	D	A	A	A		A
Green Sulfate Liquor	A	A	A	A	B	A	A	A	B	A	A	A
Halowax Oil	D	D	D	D	D	D	D	D	A	A		A
Heptachlor in Petroleum Solvents	D	D	D	B	B	D	D	B	A	A		A
Heptachlor in Petroleum Solvents, Water Spray	D	D	D	B	B	D	D	B	A	A		A
Heptanal (Heptaldehyde)	D	D	D	D	D	D	B	D	D	A	C	A
Heptane	D	D	D	A	A	B	D	A	A	A	A	A
Heptane Carboxylic Acid	D	D	C	C	B	B	C	A	A	A	A	A
Hexaldehyde	D	D	B	D	B	C	B	D	D	A		A
Hexane	D	D	D	A	A	C	D	A	A	A	A	A
Hexene	D	D	D	B	B	C	D	B	A	A	A	A
Hexanol (Hexyl Alcohol)	A	A	A	A	A	A	A	A	A	A	A	A
Hexylamine	B	C	B	B	B	C	B	B	D	A	B	A
Hexylene	D	D	D	A	B	D	C	A	A	B		B
Hexylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Hexyl Methyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Hi-Tri (Trichloroethylene)	D	D	D	C	D	D	D	C	A	B	C	B
Hydraulic Fluid (Petroleum)	D	D	D	A	B	B	D	A	A	A		A
Hydraulic Fluid (Phosphate Ester Base)	D	D	A	D	D	D	A	D	D	A		A
Hydraulic Fluid (Poly Alkylene Glycol Base)	B	B	A	A	A	A	A	A	A	A	A	A
Hydrobromic Acid	A	D	A	D	C	A	B	C	A	A	A	A
Hydrochloric Acid, 37%	A	B	A	C	C	A	B	D	A	A	A	A
Hydrochloric Acid, 50%	A	C	B	D	D	A	C	D	A	A	A	A
Hydrochloric Acid, 100%	B	C	C	D	D	B	C	D	C	A	A	A
Hydrocyanic Acid	B	C	A	B	C	A	B	C	B	A		A
Hydrofluoric Acid	B	D	B	D	C	A	B	D	B	A	A	A
Hydrofluosilic Acid	A	D	A	D	C	A	B	C	B	A	A	A
Hydrogen Gas	B	B	A	A	A	A	B	A	A	A		A
Hydrogen Peroxide, 3%	A	B	A	B	C	A	B	B	A	A	A	A
Hydrogen Peroxide, 10%	D	D	C	D	C	C	C	C	A	A	A	A
Hydrogen Peroxide, 30%	D	D	D	D	D	D	C	D	A	A	A	A
Hydrogen Peroxide, 90%	D	D	D	D	D	D	C	D	B	B		B
Hydrogen Sulfide	D	D	A	D	A	B	A	C	A	A		A
Hydroquinone	B	B	B	D	D	C	B	D	D	A		A
Hypochlorous Acid	B	B	B	D	B	A	B	B	A	A		A
Ink Oil (Linseed Oil Base)	D	D	B	B	B	B	B	A	A	A	A	A
Insulating Oil	D	D	D	A	B	D	D	A	A	A	A	A
Iodine	D	D	D	D	D	C	D	D	C	A	A	A
Iron Acetate	D	D	A	D	D	D	B	D	D	A		A
Iron Hydroxide	C	C	A	B	A	B	B	B	C	A		A
Iron Salts	A	A	A	A	A	A	A	A	A	A	A	A
Iron Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Iron Sulfide	A	A	A	A	A	A	A	A	A	A	A	A
Isoamyl Acetate	D	D	A	D	D	D	B	D	D	A	C	A
Isoamyl Alcohol	A	A	A	A	A	A	A	A	A	A	A	B
Isoamyl Bromide	D	D	D	D	D	D	D	D	B	B	C	B
Isoamyl Butyrate	D	D	C	D	D	D	C	D	D	B		B
Isoamyl Chloride	D	D	C	D	D	D	D	D	B	B	C	B
Isoamyl Ether	D	D	D	D	D	D	D	D	D	A	A	A
Isoamyl Phthalate	D	D	A	D	D	D	B	D	C	A	C	A
Isobutane	D	D	D	A	A	D	D	A	A	A		A
Isobutanol (Isobutyl Alcohol)	A	A	A	A	A	A	A	A	A	A	A	A
Isobutyl Acetate	D	D	A	D	D	D	B	D	D	A	B	A
Isobutyl Aldehyde	C	D	B	D	D	D	B	D	D	A	B	A
Isobutyl Amine	B	C	B	D	D	C	B	D	D	A	B	A
Isobutyl Bromide	D	D	D	D	D	D	D	D	B	B	C	B
Isobutyl Carbinol	A	A	A	A	B	A	A	A	B	A	A	A
Isobutyl Chloride	D	D	D	D	D	D	D	D	B	B	C	B
Isobutylene	D	D	D	A	D	D	D	B	A	A		A
Isobutyl Ether	D	D	D	D	D	D	D	D	D	A	A	A
Isocyanates	C	D	B	D	D	C	B	C	C	B		B
Isooctane	D	D	D	A	A	B	D	A	A	A	A	A
Isopentane	D	D	D	A	A	D	D	A	A	B	A	B
Isopropyl Amine	B	C	A	B	A	C	B	B	D	A		A
Isopropyl Acetate	D	D	A	D	D	C	B	D	D	A	B	A
Isopropyl Alcohol (Iso-propanol)	A	A	A	A	A	A	B	A	B	B	A	B
Isopropyl Amine	B	D	B	C	A	C	B	C	D	A		A
Isopropyl Benzene	D	D	D	D	D	D	D	D	A	A	C	A
Isopropyl Chloride	D	D	D	D	D	D	D	D	B	B	C	B
Isopropyl Ether	D	D	D	C	D	C	D	C	D	A	A	A
Isopropyl Toluene	D	D	D	D	D	D	D	D	A	A	C	A
Jet Fuels (JP 1-JP 6)	D	D	D	A	B	C	D	A	A	A		A
Kerosene	D	D	D	A	B	C	D	A	A	A	A	A
Ketones	B	B	B	D	D	D	B	D	D	A	C	A
Lactic Acid	B	B	B	A	A	A	B	A	A	A		A
Lacquers	D	D	D	D	D	D	D	D	D	A		A
Lacquer Solvents	D	D	D	D	D	D	D	D	D	A		A
Lard	D	D	D	A	B	D	C	A	A	A	A	A
Lauryl Alcohol	A	A	A	A	A	A	A	A	B	A	A	A

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	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Lead Acetate	D	D	A	C	C	D	B	B	C	A	A	A
Lead Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Lead Sulfamate	B	B	A	B	A	B	A	B	A	A		A
Lead Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Ligroin	D	D	D	A	A	D	D	A	A	A		A
Lime Water	D	D	A	C	A	A	A	C	A	A	A	A
Linseed Oil	D	D	A	A	B	B	B	A	A	A	A	A
Lindol (Tricresyl Phosphate)	D	D	A	D	D	B	A	D	A	A	A	A
Liquid Soap	A	A	A	A	A	A	A	A	A	A	A	A
Liquified Petroleum Gas	D	D	D	A	B	B	D	A	A	A		A
Lubricating Oils	D	D	D	A	B	C	D	A	A	A	A	A
Lye (Sodium Hydroxide)	A	B	A	B	A	A	A	B	D	A	A	A
Magnesium Acetate	D	D	A	D	D	D	B	D	D	A	A	A
Magnesium Carbonate	A	A	A	A	A	A	A	A	A	A	A	A
Magnesium Chloride	A	A	A	A	A	A	B	A	A	A	A	A
Magnesium Hydrate	A	B	A	B	A	B	A	C	B	A		A
Magnesium Hydroxide	A	A	A	A	A	A	B	A	A	A	A	A
Magnesium Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Magnesium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Malathion 50 in Armomatic Solvents	D	D	D	C	C	D	D	D	A	A		A
Malathion 50 in Aromatic Solvents, Water Spray	D	D	D	A	A	D	D	A	A	A		A
Maleic Acid	D	D	C	D	C	D	C	C	A	B		B
Maleic Anhydride	D	D	C	D	C	D	C	C	A	A		A
Malic Acid	A	B	D	B	C	B	D	C	A	A		A
Manganese Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Manganese Sulfide	C	A	A	A	B	A	B	C	A	A	A	A
Manganese Sulfite	C	A	A	A	B	A	B	C	A	A	A	A
Mercuric Chloride	B	B	B	C	C	B	C	A	A	A		A
Mercury	B	B	A	A	B	A	A	A	A	A	A	A
Methane	D	D	D	A	B	B	D	A	A	A	A	A
Methyl Acetate	C	D	B	D	D	D	B	D	D	A	A	A
Methyl Acrylate	C	D	B	D	C	D	B	D	D	A		A
Methacrylic Acid	D	D	B	D	B	C	B	D	B	A		A
Methyl Alcohol (Methanol)	A	A	A	A	A	A	A	B	C	A	A	A
Methyl Benzene (Toluene)	D	D	D	D	D	D	D	D	A	A	C	A
Methyl Bromide	D	D	B	B	D	D	B	C	A	A		A
Methyl Butyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Methyl Cellosolve	D	D	B	C	B	C	B	C	D	A	A	A
Methyl Chloride	D	D	D	C	D	D	D	C	B	B		C
Methyl Cyclohexane	D	D	D	D	D	D	D	C	B	B	B	B
Methylene Bromide	D	D	D	D	D	D	D	D	B	B	C	C
Methylene Chloride	D	D	D	D	D	D	D	D	B	A	C	B
Methyl Ethyl Ketone (MEK)	B	D	B	D	D	D	B	D	D	A	C	A
Methyl Formate	C	C	B	D	B	C	B	D	C	B		B
Methyl Hexanol	A	A	A	A	A	A	A	A	B	A		A
Methyl Hexyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Methyl Isobutyl Carbinol	B	C	A	B	B	B	A	C	B	A	A	A
Methyl Isobutyl Ketone (MIBK)	D	D	B	D	D	D	B	D	D	A	C	A

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Methyl Isopropyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Methyl Propyl Ether	D	D	D	D	D	D	D	D	D	A		A
Methyl Propyl Ketone	D	D	B	D	D	D	B	D	D	A	C	A
Methyl Methacrylate	D	D	D	D	D	B	D	D	D	B	C	B
Methyl Salicylate	D	D	B	D	D	D	B	D	C	B		B
Mineral Oil	D	D	D	A	B	B	D	A	A	A	A	A
Mineral Spirits	D	D	D	A	B	D	D	A	A	A		A
Monochlorobenzene	D	D	D	D	D	D	D	D	A	A		A
Monochlorodifluoromethane (Freon 22)	D	D	A	D	A	D	A	A	D	A		A
Monoehanolamine	B	C	B	C	B	B	B	C	D	A		A
Monomethylether	B	B	A	A	A	C	A	A	C	A	A	A
Monovinyl Acetate	D	D	B	D	D	C	C	C	A	A		A
Motor Oil	D	D	D	A	A	D	D	A	A	A	A	A
Muriatic Acid	(See HCL 37%)											4
Naphtha	D	D	D	A	B	D	D	A	A	A	A	A
Napthalene	D	D	D	D	D	D	D	D	A	A		A
Napthenic Acid	D	D	D	C	D	D	D	C	A	A	A	A
Natural Gas	Contact HBD Tech.											5
Neatsfoot Oil	D	D	B	A	B	B	B	A	A	A	A	A
Neu-Tri (Trichloroethylene)	D	D	D	C	D	D	D	C	A	B	C	B
Nickel Acetate	D	D	A	D	D	D	B	D	D	A		A
Nickel Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Nickel Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Nickel Plating Solution	A	D	B	B	C	B	B	B	A	A	A	A
Nickel Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Niter Cake	A	A	A	A	A	A	A	A	A	A	A	A
Nitric Acid,10%	D	D	B	D	C	B	B	D	A	A	A	A
Nitric Acid, 20%	D	D	B	D	D	B	C	D	A	A	A	A
Nitric Acid, 30%	D	D	B	D	D	C	C	D	A	B	C	B
Nitric Acid, 30-70%	D	D	C	D	D	D	D	D	C	C	D	C
Nitric Acid, Red Fuming	D	D	D	D	D	D	D	D	D	D	D	D
Nitrobenzene	D	D	D	D	D	D	D	D	B	A	C	A
Nitrogen Gas	A	A	A	A	A	A	A	A	A	A	A	A
Nitrogen Tetraoxide	D	D	D	D	D	D	D	D	D	D		D
Nitromethane	B	B	B	D	C	C	B	C	D	A	A	A
Nitropropane	C	C	A	D	C	C	B	C	D	A		A
Nitrous Oxide	A	A	A	A	A	A	A	A	A	A	A	A
Octadecanoic Acid	D	D	B	A	B	D	C	A	C	A	A	A
Octane	D	D	D	A	B	D	D	A	A	B	A	B
Octanol (Octyl Alcohol)	B	B	B	B	A	B	B	A	A	A	A	A
Octyl Acetate	D	D	A	D	D	D	B	D	D	A	C	A
Octyl Amine	C	C	B	C	B	C	B	C	D	A	B	A
Octyl Carbinol	A	A	A	A	A	A	A	A	B	A	A	A
Octylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Oil, Petroleum	D	D	D	A	A	C	D	A	A	A	A	A
Oil, Astm #1	D	D	D	A	A	B	D	A	A	A	A	A
Oil, Astm #2	D	D	D	A	A	C	D	A	A	A	A	A
Oil, Astm #3	D	D	A	B	C	D	A	A	A	A	A	A
Oleic Acid	D	D	B	B	C	C	B	B	C	A	A	A

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Hose information is subject to change. For full details, visit our website or contact Customer Service.

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Oleum (Fuming Sulfuric Acid)	D	D	D	D	D	D	D	D	D	D	D	D
Olive Oil (Non F.D.A.)	D	D	B	A	B	B	B	B	A	A		A
Orthodichlorobenzene	D	D	D	D	D	D	D	D	A	B		B
Oxalic Acid	C	C	A	C	B	B	A	C	C	A	B	A
Oxygen, Cold	B	B	A	B	B	B	B	B	A	A		A
Oxygen, Hot	D	D	D	D	D	D	D	D	B	A		A
Ozone	D	C	B	D	B	A	A	A	A	A	A	A
Paint Thinner (Duco)	D	D	D	D	D	D	D	D	C	A		A
Palmitic Acid	D	D	B	A	B	B	B	B	A	B	A	B
Palm Oil	D	D	A	A	B	B	B	A	A	A		A
Papermaker's Alum	A	A	A	A	A	A	A	A	A	A	A	A
Paradichlorobenzene	D	D	D	D	D	D	D	D	A	B	D	B
Paraffin	D	D	D	A	A	D	D	A	A	D	A	D
Paraformaldehyde	D	D	B	B	B	B	B	B	C	A		A
Peanut Oil	D	D	C	A	B	B	D	A	A	A	A	A
Pentane	D	D	D	A	A	B	D	A	A	A	C	A
Perchloroethylene	D	D	D	D	D	D	D	C	A	B	C	B
Perchloric Acid	B	B	B	D	A	A	B	C	A	A		A
Petrolatum	D	D	D	A	A	C	D	A	A	A		A
Petroleum, Crude	D	D	D	A	B	D	D	A	A	A		A
Petroleum Ether (Naphtha)	D	D	D	A	A	D	D	A	A	A	A	A
Petroleum Oils	D	D	D	A	A	C	D	A	A	A		A
Phenol	C	C	B	D	C	C	C	C	A	A	A	A
Phenolsulfonic Acid	D	D	C	D	C	D	C	C	A	B	A	B
Phenyl Chloride	D	D	D	D	D	D	D	D	A	A	D	A
Phenylhydrazine	C	D	B	D	D	C	C	D	A	A		A
Phorone	D	D	A	D	D	D	B	D	C	A		A
Phosphate Esters	D	D	A	D	D	D	A	D	C	A		A
Phosphoric Acid, 10%	A	A	A	A	A	A	A	A	A	A	A	A
Phosphoric Acid, 10-85%	C	C	A	C	B	A	A	C	A	A	A	A
Phosphorous Trichloride	D	D	A	D	D	D	A	C	A	A		A
Pickling Solution	C	C	C	C	C	C	C	C	B	A		A
Picric Acid, Molten	C	C	C	C	C	B	C	C	C	D		D
Picric Acid, Water Soln.	A	C	A	B	B	A	B	B	C	A		A
Pinene	D	D	D	A	D	D	D	A	A	A	B	A
Pine Oil	D	D	D	C	C	D	D	C	B	A	B	A
Piperidine	D	D	D	D	D	D	D	D	D	B		B
Pitch	D	D	D	B	B	C	D	B	C	A		A
Plating Solutions, Chrome	D	D	A	B	B	C	A	B	A	A		A
Plating Solutions, Others	A	A	A	B	B	C	A	B	B	A	A	A
Polyvinyl Acetate Emulsion (PVA)	C	C	A	C	B	B	A	C	C	A		A
Polyethylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Polypropylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Acetate	D	D	A	D	D	D	B	D	D	A	A	A
Potassium Bicarbonate	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Bisulfate	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Bisulfite	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Carbonate	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Chromate	D	D	A	D	C	C	B	C	A	B	A	B

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Potassium Cyanide	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Dichromate	D	D	A	D	B	C	B	C	A	A	A	A
Potassium Hydrate	A	B	A	B	B	B	A	B	C	A		A
Potassium Hydroxide	A	A	A	A	B	A	A	A	D	A	A	A
Potassium Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Permanganate	D	D	A	D	D	D	A	D	A	A		A
Potassium Silicate	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Sulfide	A	A	A	A	A	A	A	A	A	A	A	A
Potassium Sulfite	A	A	A	A	A	A	A	A	A	A	A	A
Producer Gas	D	D	D	A	B	B	D	A	A	A		A
Propane Gas	Use Butane-Propane Hose Only											3
Propanediol	A	A	A	A	B	A	A	A	A	A	A	A
Propyl Acetate	D	D	B	D	D	D	B	D	D	A	B	A
Propyl Alcohol (Propanol)	A	A	A	A	A	A	A	A	A	A	A	A
Propyl Aldehyde	C	D	B	D	D	D	B	D	D	A		A
Propyl Chloride	D	D	C	D	C	D	C	C	B	B	C	B
Propylene Diamine	B	B	A	B	B	C	B	B	C	A	A	A
Propylene Dichloride	D	D	D	D	D	D	D	D	B	B		B
Propylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Pydraul Hydraulic Fluids	D	D	B	D	D	D	B	D	C	B		B
Pyranol	D	D	D	C	D	D	D	C	A	A		A
Pyridine	D	D	B	D	D	D	B	D	D	A		A
Pyroligneous Acid	C	C	B	C	B	B	B	C	A	A		A
Pyrrole	C	B	B	D	D	D	C	D	C	A		A
Rape Seed Oil	D	D	A	B	B	B	B	A	A	B	A	B
Red Oil (Crude Oleic Acid)	D	D	B	B	B	B	B	B	A	A	A	A
Richfield A Weed Killer, 100%	D	D	D	D	D	D	D	D	C	B		B
Richfield B Weed Killer, 33%	D	D	B	B	B	C	D	C	C	B		B
Rosin Oil	D	D	D	A	A	B	D	A	A	A		A
Rotenone And Water	A	A	A	A	A	A	A	A	A	A	A	A
Rum	(F.D.A. Tube Required)											2
Sal Ammoniac (Ammonium Chloride)	A	A	A	A	A	A	A	A	A	A	A	A
Salicylic Acid	A	B	A	D	D	A	A	C	A	A	A	A
Salt Water (Sea Water)	A	A	A	A	A	A	A	A	A	A	A	A
Sewage	C	C	C	A	B	A	B	A	A	A		A
Silicate of Soda (Sodium Silicate)	A	A	A	A	A	A	A	A	A	A	A	A
Silicate Esters	D	D	D	B	A	A	D	C	A	A		A
Silicone Greases	A	A	A	A	A	A	A	A	A	A	A	A
Silicone Oils	A	A	A	A	A	A	A	A	A	A	A	A
Silver Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Skelly Solvent	D	D	D	A	B	C	D	A	A	A		A
Skydrol Hydraulic Fluids	D	D	A	D	D	D	A	D	D	A	B	A
Soap Solutions	A	A	A	A	A	A	A	A	A	A	A	A
Soda Ash (Sodium Carbonate)	A	A	A	A	A	A	A	A	A	A	A	A
Soda, Caustic (Sodium Hydroxide)	A	B	A	B	A	A	A	B	D	A	B	A
Soda, Lime	A	B	A	B	B	B	A	B	C	A	A	A
Soda Niter (Sodium Nitrate)	A	A	A	A	A	A	A	A	A	A	A	A

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	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Sodium Acetate	D	D	A	D	D	D	B	D	D	A	A	A
Sodium Aluminate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Bicarbonate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Bisulfate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Bisulfite	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Borate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Carbonate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Chromate	D	D	A	D	C	C	B	C	C	B	A	B
Sodium Cyanide	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Dichromate	D	D	A	D	C	C	B	C	C	A	A	A
Sodium Fluoride	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Hydroxide	A	B	A	B	A	A	A	B	D	A	A	A
Sodium Hypochlorite	C	D	B	D	D	C	B	C	A	B	A	B
Sodium Metaphosphate	A	A	A	A	B	B	A	A	A	A	A	A
Sodium Nitrate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Nitrite	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Perborate	C	D	A	D	B	D	B	C	A	A		A
Sodium Peroxide	B	B	A	B	B	B	A	B	A	B		B
Sodium Phosphate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Silicate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Sulfate	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Sulfide	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Sulfite	A	A	A	A	A	A	A	A	A	A	A	A
Sodium Thiosulfate	A	A	A	A	A	A	A	A	A	A	A	A
Soybean Oil	D	D	B	B	B	B	B	B	A	A	A	A
Stannic Chloride	A	A	B	A	A	A	A	A	A	A	A	A
Stannic Sulfide	A	A	A	A	A	A	A	A	A	A	A	A
Stannous Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Stannous Sulfide	A	A	A	A	A	A	A	A	A	A	A	A
Steam, under 300°F	Steam Hose Only											
Steam, over 300°F	Steam Hose Only											
Stearic Acid	D	D	B	A	B	B	C	B	A	A		A
Stoddards Solvent	D	D	D	A	C	D	D	A	A	A	A	A
Styrene	D	D	D	D	D	D	D	D	B	A	C	A
Sugar Solutions (Sucrose) (Non F.D.A.)	A	A	A	A	A	A	A	A	A	A	A	A
Suifamic Acid	C	C	A	B	B	B	A	C	A	A	A	A
Sulfite Liquors	B	B	A	B	B	A	B	B	A	A		A
Sulfonic Acid	D	D	D	D	C	C	D	C	D	B		B
Sulfur (Molten)	D	D	B	C	C	C	C	B	A	D		D
Sulfur Chloride	D	D	D	D	D	B	D	C	A	B		B
Sulfur Dioxide	C	C	B	D	B	B	C	C	A	A		A
Sulfur Hexafluoride	A	A	A	A	A	A	A	A	A	A		A
Sulfur Trioxide	D	D	B	D	D	D	C	D	A	B		B
Sulfuric Acid, 25%	B	B	B	B	A	A	B	C	A	A	A	A
Sulfuric Acid, 25-50%	B	D	A	D	C	A	B	D	A	A	A	A
Sulfuric Acid, 50-93%	D	D	C	D	C	B	B	D	A	A	C	A
Sulfuric Acid, Fuming	D	D	D	D	D	D	D	D	D	D	D	D
Sulfurous Acid	B	C	B	C	B	A	B	C	A	A	A	A

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Tall Oil	D	D	D	A	B	B	D	B	A	A		A
Tallow	D	D	D	A	A	D	D	A	A	A		A
Tannic Acid	A	B	A	C	B	B	A	C	A	A	A	A
Tar	D	D	D	B	B	D	D	B	A	D		D
Tartaric Acid	A	A	B	B	B	A	A	B	A	A	A	A
Terpineol	D	D	C	D	D	D	C	D	A	B	A	B
Tertiary Butyl Alcohol	A	A	A	A	A	A	A	A	A	A	A	A
Tetrachlorobenzene	D	D	D	D	D	D	D	D	B	B	D	B
Tetrachloroethane	D	D	D	D	D	D	D	D	A	B		B
Tetrachloroethylene	D	D	D	D	D	D	D	D	A	B	C	B
Tetraethylene Glycol	A	A	A	A	A	A	A	A	A	A		A
Tetrachloromethane	D	D	D	C	D	D	D	D	A	B		B
Tetrachloronapthalene	D	D	D	D	D	D	D	D	B	B		B
Tetraethyl Lead	D	D	D	B	C	D	D	C	A	A		A
Tetrahydrofuran (THF)	D	D	D	D	D	D	D	D	D	A	C	A
Thionyl Chloride	D	D	D	D	D	D	D	D	B	A		A
Tin Chloride	A	A	A	A	A	A	A	A	A	A	A	A
Tin Tetrachloride	A	A	A	A	A	A	A	A	A	A	A	A
Titanium Tetrachloride	D	D	D	B	C	C	C	C	A	A	C	A
Toluene (Toluol)	D	D	D	D	D	D	D	D	A	A	C	A
Toluene Diisocyanate (TDI)	C	C	A	C	D	D	A	C	B	A		A
Toxaphene	D	D	D	B	B	D	D	B	A	A		A
Transformer Oils (Petroleum Base)	D	D	D	A	B	B	D	A	A	A	A	A
Transformer Oils (Chlorinated Phenyl Base Askerels)	D	D	D	D	D	D	D	D	A	B	A	B
Transmission Fluids, A	D	D	D	B	C	D	D	A	A	A		A
Transmission Fluids, B	D	D	D	C	D	D	D	C	A	A		A
Tricetin	A	B	A	B	B	B	A	B	D	A		A
Tributyl Amine	B	B	A	B	B	C	A	B	D	A	A	A
Tributyl Phosphate	D	D	B	D	D	D	B	D	D	A	C	A
Trichlorobenzene	D	D	D	D	D	D	D	D	B	B	D	B
Trichloroethane	D	D	D	D	D	D	D	D	A	A	C	A
Trichloroethylene	D	D	D	C	D	D	D	C	A	B	C	D
Trichloropropane	D	D	D	D	D	D	D	D	A	A	C	A
Tricresyl Phosphate (TCP)	D	D	A	D	D	D	B	D	B	A	A	A
Triethanolamine (TEA)	B	B	A	B	A	A	B	B	D	A	A	A
Triethylamine	B	B	B	B	A	A	B	B	B	A	A	A
Triethylene Glycol	A	A	A	A	A	A	A	A	A	A	A	A
Trinitrotoluene (TNT)	D	D	D	D	B	B	D	D	B	D		D
Triphenyl Phosphate	D	D	A	D	C	C	B	D	C	A		A
Trisodium Phosphate	A	A	A	A	A	A	A	A	A	A	A	A
Tung Oil	D	D	C	A	B	B	D	A	A	A	A	A
Turbine Oil	D	D	D	B	B	B	D	A	A	A		A
Turpentine	D	D	D	B	B	D	D	A	A	A	B	A
2, 4D With 10% Fuel Oil	D	D	D	A	A	D	D	A	A	A		A
Ucon Hydrolube Oils	D	D	A	A	B	D	A	A	A	A		A
Undecanol	A	A	A	A	A	A	A	A	B	A	A	A
Unsymmetrical Dimethyl-Hydrazine (UDMH)	D	D	A	D	D	A	A	D	D	C		C

	NATURAL RUBBER	SBR	BUTYL	NITRILE	NEOPRENE	HYPALON	EPDM	EPICHLOROHYDRIN	VITON	CROSSLINKED POLYETHYLENE	CPE	UHMW
Uran	B	C	B	B	B	A	B	B	C	A		A
Urea	A	C	A	C	A	C	A	C	C	A	A	A
Varnish	D	D	D	B	B	C	D	B	A	A		A
Vegetable Oils	D	D	A	A	B	B	A	A	A	A	A	A
Versilube	C	C	A	A	C	A	A	A	A	A	A	A
Vinegar	A	C	A	C	A	A	B	C	B	A	A	A
Vinyl Acetate	D	D	A	D	D	C	C	D	D	B	A	D
Vinyl Benzene	D	D	D	D	D	D	D	D	A	B	C	B
Vinyl Chloride (Monomer)	C	D	D	D	D	D	D	D	A	A		A
Vinyl Ether	D	D	D	D	D	C	C	D	D	A		A
Vinyl Toluene	D	D	D	D	D	D	D	D	A	B	C	B
Vinyl Trichloride	D	D	D	D	D	D	D	D	A	A	C	A
V.M.&P. Naptha	D	D	D	A	A	D	D	A	A	A	A	A
Water, Fresh (Non F.D.A.)	A	A	A	A	A	A	A	A	A	A	A	A
Water, Salt	A	A	A	B	A	A	A	C	A	A	A	A
Whiskey, Wines	(F.D.A Tube Required)											2
White Liquor	A	A	B	A	A	A	C	A	A	A		A
White Oil	D	D	D	A	B	D	D	A	A	A	A	A
Wood Alcohol (Methanol)	A	A	A	A	A	A	A	A	D	A	A	A
Xylene (Xylol)	D	D	D	D	D	D	D	D	A	C	D	C
Xylidine	D	D	D	D	D	D	D	D	C	B	C	B
Zeolites	B	A	C	C	A	A	A	A	A	A	A	A
Zinc Acetate	C	D	A	C	C	C	B	C	D	A		A
Zinc Carbonate	A	A	A	A	A	A	A	A	A	A	A	A
Zinc Chloride	A	A	A	A	A	A	B	B	A	A	D	A
Zinc Chromate	A	C	A	A	A	C	A	A	A	B		B
Zinc Sulfate	A	A	A	A	A	A	A	A	A	A	D	A

These ratings are to be used only as a guide.

WARNING

HBD/Thermoid,® Inc. recommends a hose product for its normalservice as outlined in the price pages and our catalogs. Other applications should be referred to your respective marketing representative.

In any application there may be an inherent risk of bodily injury or property damage and user is responsible for proper use and implementation of adequate safety precautions. It is the responsibility of the buyer to advise user of proper instructions for safe use and/or precautions, proper coupling procedure and to warn user of consequences of failure to heed such instruction. Should a hose assembly fail during use with pressure, injurious and/or damaging chemicals, elevated temperature materials, explosives, or flammable materials, then serious bodily injury or destruction of property could result from impelled couplings, whipping hose, high pressure or high velocity discharge, chemical contact, high temperature materials, explosion, or fire.

In known high risk areas, it is recommended that hose inspections be performed at frequent intervals related to risk factor. Hose with obvious damage should be scrapped or tested before placing in use. These inspections should include tube condition, cover condition, leaking or slipped couplings, and proof test.

We have attempted to list some of the standard references below. This is a limited list, for specific details see standard itself.

1. **Federal Coast Guard Regulation on Dock Hose—Federal Register 12-21-72, Vol. 37, No. 346, Part II, Section 154.500, 155.800, 156.170.**
2. **NFPA 196 Standard for Fire Hose.**
3. **NFPA 198 Care and Maintenance of Fire Hose.**
4. **NFPA 407 Care and Maintenance of Aircraft Refueling.**
5. **RMA—Storage, Care, Maintenance.**
   - a. **General**
   - b. **OS&D**
   - c. **LPG**
   - d. **Aircraft Ground Refueling**
   - e. **Motor Vehicle**
   - f. **Anhydrous Ammonia**
   - g. **Welding Hose**
   - h. **Steam**
6. **RMA—Industry Hose Specs.**
   - a. **Hydraulic Hose**
   - b. **RMA-CGA Welding**
   - c. **RMA-ANI Anhydrous Ammonia**
   - d. **RMA-LPG**
   - e. **OS&D**
   - f. **300, 400, 600# Fire Hose**
7. **ASTM-296 Fire Hose Spec.**

WARNING

Listing of hose products for conveying materials as mentioned in these charts is provided as a guide only. Materials not described or those outside of described conditions should be referred to your respective marketing or technical representative.

Blank spaces indicate unsatisfactory use.

Many materials listed here should be recognized by the buyer as hazardous due to their acidic, caustic, flammable or explosive characteristics, and proper precautions must be employed to assure safe use. It is the user's exclusive responsibility to develop appropriate techniques for the safe use of the hose product. Failure to take proper precautions could lead to serious bodily injury or property damage.

CAUTION

Product descriptions and specifications for products become dated. All product literature and information is subject to change, including the specifications outlined in this publication. For questions concerning any technical and/or product application information on the hose products contained in this catalog, please contact HBD/Thermoid, Inc. Customer Service Department at 800/543-8070 or log onto **www.hbdthermoid.com.**