

CHEMICAL RESISTANCE GUIDE

INFORMATION & MEASUREMENTS
NEEDED FOR SUCCESSFUL AND
SAFE RUBBER HOSE USAGE



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The Chemical Guides in this section are offered as a general indication of the compatibility of the various materials used in rubber hose with the chemicals and fluids listed. The basis for the ratings in this guide include actual service experience, the advice of various polymer supplier, the opinion of our rubber hose suppliers. When in doubt, a sample of the compound should always be tested with the particular chemical it is to handle. Some of the variables that come into play in the resistance of a compound to chemical attack are:

1. Temperature of the Material Transmitted:

Higher temperatures increase the effect of chemicals on rubber compounds. The increase varies with the polymer and the chemical. A compound quite suitable at room temperature might fail very quickly at higher temperatures.

2. Service Conditions:

A rubber compound usually swells when exposed to a chemical. With a given percent of swell, the hose tube may function satisfactorily if the hose is in a static condition, but fail quickly if the hose is subject to flexing.

3. The Grade or Blend of the Rubber Compound:

Basic rubber polymers are sometimes mixed or blended together to enhance a particular property for a specific service. The reaction to a particular chemical blend of polymers may, therefore, be somewhat Different from the reaction to the single ones. When in doubt, a sample of the compound should always be tested with the particular chemical it is to handle.

KEY TO GENERAL CHEMICAL RESISTANCE CHART

Note: All data based on 20°C (68°F) unless otherwise noted.

Blank = No Data E = Excellent G = Good F = Fair C = Conditional I = Insufficient Data X = Unsatisfactory

Common Name	ASTM Designation	Compound	General Properties
Natural	NR	Isoprene	High abrasion resistance, high tensile strength, resists
SBR	SBR	Styrene-Butadiene	Good aging properties and physical strength.
EPDM	EPDM	Ethylene-Propylene-Diene-Terpolymer	Superior ozone, temperature, and weathering characteristics. Resists acids.
Neoprene	CR	Chloroprene	Resists oils, alkalis, acids, UV, and weathering, flame retardant.
Nitrile/Buna-N	NBR	Nitrile-Butadiene	Resists oils, acids, alkalis, and aromatic
Cross Linked P.E.	XLPE	Cross Linked Polyethylene	Excellent chemical resistance with good heat and Electrical properties.
UHMWPE	UHMWPE	Ultra High Molecular Weight	Excellent chemical resistance to a majority of chemicals. Meets FDA requirements for beverages.
Teflon®	PTFE	Polytetrafluoro-ethylne	High temperature resistance combined with good chemical properties.
Viton®	FKM	Flouorocarbon Polymer	Low compression set, resists petroleum products, and many chemicals.

Adhesion: (1) Basically, the adhering, clinging, bonding or sticking of two material surfaces to one another, such as rubber to rubber, rubber to glass, rubber to metal, rubber to wood, Rubber to fabric, rubber to cord, rubber to wire, etc. (2) Refers to the strength of bond between cured rubber surfaces or cured rubber surface and a non-rubber surface.

Aging: To undergo changes to physical properties with age or lapse of time.

Aging, Air Oven: A means of accelerating the change in physical properties of rubber compounds by exposing them to the action of air at an elevated temperature.

Ambient Temperature: The environment temperature surrounding the object under consideration.

Blemish: A mark, deformity, or injury which impairs the appearance.

Blisters: A raised spot on the surface or a separation between layers usually forming a void or air-filled space in the vulcanized article. (See bubbles, sinks and voids.)

Bloom: A coating or efflorescence creating a discoloration or change in appearance of the surface of a rubber product caused by the migration of a liquid or solid to the surface. Examples: Sulfur Bloom, Wax Bloom. Not to be confused with dust on the surface from external sources.

Calendered: Continuously sheeted or plied up rubber compound or fabric that is frictioned or coated with rubber compound on a machine equipped with three or more heavy internally heated or cooled rolls revolving in opposite direction.

Checking: Short, shallow cracks on the surface, generally due to effect of destructive action of environmental conditions.

C. I. (Cloth-inserted): An abbreviation used to indicate a sheet of rubber containing one or more plies of cloth or duck, in which the cloth is completely covered with rubber.

Cloth Impression: Same as fabric impression.

Coating: A layer of material covering a surface.

Compression Set: The deformation which remains in rubber after it has been subjected to and released from a specific compressive stress for a definite period of time at a prescribed temperature. Compression set measurements are made for the purpose of evaluating the creep and stress relaxation properties of rubber.

Cracking: A sharp break or fissure in the surface. Generally due to excessive strain.

Crazing: A surface effect on rubber articles characterized by multitudinous minute cracks.

Cure: The act of vulcanization.

Curing Temperature: The temperature at which the rubber is vulcanized.

Diaphragm Sheet: Sheet (generally fabric reinforced rubber) from which flat diaphragms may be cut.

Die Cut: Shaped articles punched from a sheet of rubber with a die.

Dielectric Strength: The measure of electric potential strength of a rubber product. Measure of its ability as an insulating compound to resist passage of a disruptive discharge produced by an electric stress. Measure as volts per mil of thickness.

Durometer: An instrument for measuring the hardness of rubber. Measures resistance to the penetration of an indenter point into the surface of the rubber.

Durometer Hardness: An arbitrary numerical value which measures the resistance to penetration of the indenter point of the durometer. Value may be taken immediately or after a very short specified time.

Elastomer: Macromolecular material that returns rapidly to approximately the initial dimensions and shape after substantial deformation by a weak stress and release of stress.

Elongation: Increase in length expressed numerically as a fraction or percentage of initial length.

Filler: (1) A material incorporated into a rubber compound to increase its bulk. (2) A compound built into a rubber product to increase its bulk and/or improve its appearance. (3) Sometimes erroneously used to mean "filling" in textiles.

Finish, Fabric: Same as impress, fabric.

Finish, Paper: Finish resulting from curing in contact with paper.

Finish Plate or Platen: Same as plate finish sheet

Foreign Material: Any extraneous matter such as wood, paper, metal, sand, dirt or pigment that should not normally be present in a particular rubber product or composition.

Gauge: (1) The measure of thickness of the individual elements making up a rubber product. (2) A device for measuring. (See thickness.)

Grain: The effect on a rubber compound due to processing it through a tubing machine, calender, or mill.

Hardness: Property or extent of being hard. Measured by extent of failure of the indenter point of any one of a number of standard hardness testing instruments to penetrate the product.

Homogeneity: Uniformity of composition throughout the material.

Homogeneous: Of uniform composition throughout.

Impression: Design formed during vulcanization in the surface of any rubber article by a method of transfer, such as fabric impression or molded impression.

Impression, Fabric: Impression formed during cure by fabric wrap.

Laminated: Built up from thinner layers.

Modulus: In the physical testing of rubber, it is the ratio of stress to strain; that is, the load in pounds per square inch or kilograms per square centimeter of initial cross sectional-area necessary to produce a stated percentage Elongation. It is a measure of stiffness

Non-blooming: It is the absence of bloom.

Oxidation: The reaction of oxygen on a rubber product, usually detected by a change in the appearance or feel of the surface, or by a change in physical properties.

Ozone Cracking: Surface cracks, checks or crazing caused by exposure to an atmosphere containing ozone. (See also ozone resistant.)

Ozone Resistant: Withstands the deteriorating effects of ozone, generally cracking.

Plate Finish (Sheet): A commercially smooth surface, the usual result of vulcanization between press plates (platens).

Ply: (1) A layer of rubberized fabric. (2) A layer consisting of multiple strands of cord or wire close spaced. (3) A single yarn in a composite yarn. (4) Used in processing as a layer of unvulcanized rubber compound.

Polymer: A very long chain of units of monomers, prepared by means of an addition and/or condensation poly-merization. The units may be the same or different. There are copolymers, di-polymers, tri or ter polymers, quadripolymers, high polymers, etc. Natural rubber is a polymer of Isoprene.

Press Length: The length of a product which can be vulcanized at one time in a press, limited to the length measurement of the press.

Random Length: A unit of material which does not fall into any current classification for standard length.

Relative Humidity: The ration of the quantity of water vapor actually present in the atmosphere to the greatest amount possible at the given temperature.

Roll: Sheet rubber and gasket material of a uniform width rolled up on itself from which gaskets and other products of lesser dimensions and various shapes may be cut.

Rubber: A material that is capable of recovering from large deformations quickly and forcibly, and can be, or already is, modified to a state in which it is essentially insoluble (but can swell) in boiling solvent, such as benzene, methyl ethyl ketone, and ethanol-toluene azeotrope.

Sinks: A collapsed blister or bubble leaving a depression in the product.

Slab: Thick sheet generally laminated.

Specific Gravity: The ratio of the weight of a given substance to the weight of an equal volume of water at a specified temperature.

Tacky (Rubber Surface): Tending to adhere.

Tensile Strength: The maximum tensile stress applied during stretching a specimen to rupture.

Viscosity: A manifestation of internal friction opposed to mobility. The property of fluids and plastic solids by which they resist an instantaneous change of shape, i.e., resistant to flow.

Volume Swell: Increase in physical size caused by the swelling action of a liquid.

Vulcanization: Act or process of treating an elastomer or compound of same to improve its useful properties, usually accomplished by application of heat.

Warp: The yarns that run lengthwise in a woven fabric.

Waft: The crosswise threads in a fabric; filling threads. The threads or yarns running at right angle to the warp.

Key to General Chemical Resistance Chart [all data based on 20°C (68°F) unless noted]:

E – Excellent; G – Good; F – Fair; C – Conditional; I – Insufficient Data; X – Not Recommended; Blank – No Data

COMPOUND										COMPOUND									
Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE	Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE
ACETALDEHYDE	E	F	C	G	X		X	E	G	AMYLAMINE	E		F			G	G		E
ACETIC ACID, GLACIAL	G	X	X	G	C	X	X	E	E	ANETHOLE	X		X			X	X	G	F
ACETIC ACID, 10%	E	F	F	E	X	F	F	E	G	ANILINE	E	X	X	C	X	X	X	E	E
ACETIC ACID, 50%	E	X	X	E	X	G	X	E	E	ANILINE DYES	G	G	G	G	X	G	G	E	G
ACETIC ANHYDRIDE	E	G	G	E	X	F	X	E	G	ANILINE OIL	G	X	X	G	X	X	X		G
ACETIC OXIDE	E		G			F	G	E	G	ANIMAL FATS	G	C	X	C	E	X	X	E	E
ACETONE	E	X	F	E	X	C	C	E	E	ANTIMONY PENTACHLORIDE	X		X			X	X	E	E
ACETONE CYANOHYDRIN	E		F			F	F	E	G	AQUA REGIA	X	X	C	C	X	X	X	G	G
ACETONITRILE										ARGON	G	X	X	E	C	X	X		
ACETOPHENONE	E	X	X	E	X	X	X			ARSENIC ACID	E	E	E	E	E	E	E	E	E
ACETYL ACETONE	G	X	X	E	X	X	X	E	G	ASPHALT	X	X	X	X	X	X	X	X	X
ACETYL CHLORIDE	X	X	X	X	X	X	X	G	G	ASTM FUEL A	X	E	G	X	E	X	X		
ACETYL OXIDE	E		G			F	G	E	G	ASTM FUEL B	X	X	X	X	E	X	X		
ACETYLENE	E	G	E	E	E	E	E	F	E	ASTM FUEL C	X	X	X	X	G	X	X		
ACETYLENE DI+TERA CHLORIDE	X		X			X	X	G	G	ASTM OIL No. 1	X	E	G	X	E	X	X	E	E
ACROLEIN	E		G			G	F	E	G	ASTM OIL No. 2	X	G	X	X	E	X	X	E	E
ACRYLENITRILE	X	X	C	X	X	X	X	C	G	ASTM OIL No. 3	X	X	X	X	E	X	X	E	E
ACRYLIC ACID									G	ASTM OIL No. 4	X	X	X	X	G	X	X		
ADIPIC ACID	E	G	E	G	G		G			AUTOMATIC TRANSMISSION FLUID	X	G	C	X	E	X	X		
AIR, +300°F		X	X	X	X	X	X			BANANA OIL	C			C	X		X		
ALK-TRI	X		X		X	X		E	I	BARIUM CHLORIDE	E	E	E	E	E	E	E	E	E
ALLYL ALCOHOL	E		E			E	E	E	E	BARIUM HYDROXIDE	E	E	E	E	E	E	E	E	E
ALLYL BROMIDE	X		X			X	X	G	G	BARIUM SULFIDE	E	E	E	E	E	E	E	E	E
ALLYL CHLORIDE	F	X	X	X		X	X	G	G	BEER	E	G	E	G	C	E	E		
ALUM	E	E	E	E	E	E	E	E	E	BEE SUGAR LIQUORS	E	G	E	E	E	E	E		
ALUMINIUM ACETATE	G	G		E	F	X	X	E	E	BENZAL CHLORIDE	G							E	E
ALUMINIUM CHLORIDE	E	E	E	E	E	E	E	E	E	BENZALDEHYDE	E	X	X	E	X	X	X	E	E
ALUMINIUM FLUORIDE	E	E	E	E	E	G	E	E		BENZENE	X	X	X	X	X	X	X	E	G
ALUMINIUM FORMATE	G	X			X	X	E	E		BENZENE CARBOXYLIC ACID									
ALUMINIUM HYDROXIDE		E	G		G	E			E	BENZINE	X	G	X	X	E	X	X	E	E
ALUMINIUM NITRATE	E	E	E	E	E	E	E	E	E	BENZOIC ACID	X	X	X	X	X	X	X	E	E
ALUMINIUM SULFATE	E	E	E	E	E	E	E	E	E	BENZOL				X	X				G
ALUMUS-NH3-CR-K	E	E	E	E	E	E	E			BENZOTRICHLORIDE								G	F
AMINES-MIXED	G	G	X	G	X	G	G			BENZYL ACETATE	G		X			X	X	E	E
AMINO BENZENE									G	BENZYL ALCOHOL	X	C	F	X	X	X	X	E	E
AMINODIMETHILBENZENE										BENZYL CHLORIDE	G	X	C	G	X	C	C	E	E
AMINOETHANO									E	BENZYL ETHER									
AMINOXYLENE										BIS (2-CLOROETHYL) ETHER									
AMMONIUM CARBONATE	E	E		E	X	E	E			BLACK SULFATE LIQUOR	E	G	G	E	G	G	G		E
AMMONIUM CHLORIDE	E	E	E	E	E	E	E	E	E	BLEACH	G	X	F	G	X	X	X	G	F
AMMONIUM HYDROXIDE	E	E	G	E	X	X	X	E	E	BORAX SOLUTION	E	E	E	E	C	G	G	E	
AMMONIUM NITRATE	E	E	E	E	E		E	E	E	BORIC ACID		E	E	E	E	E	E		
AMMONIUM PHOSPHATE, DIBASIC	E	E	E	E	E	E	E	E	E	BRAKE FLUID (Hd-557) 12 DAYS	G	G	G	E	C		E		
AMMONIUM SULPHATE	E	E	E	E	E	E	E	E	E	BRINE	E	E	E	E	F	E	E	E	E
AMMONIUM SULPHITE	E		E			E	E	E	E	BROMACIL				E					
AMMONIUM THIOSULFATE	E		E			E	E	E	E	BROMOBENZENE	X	X	X	X	X	X	X	C	G
AMYL ACETATE	E	X	X	X	X	X	X	E	E	BROMOCHLOROMETANE	G	X	X	G	X	X	X	G	F
AMYL ACETONE	G		X			X	X	E		BROMOETHANE									
AMYL ALCOHOL	E	G	E	E	X	E	E	E	E	BROMOTOLUENE	X		X			X	X	F	X
AMYL BROMIDE										BUGDIOXANE									E
AMYL CHLORIDE	X	X	X	X		X	X	G	E	BUNKER OIL	X	X	X	X	E	X	E	E	G
AMYL ETHER										BUTADIENE	X	X	C	X	X	X	X	E	

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COMPOUND										COMPOUND									
Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE	Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE
BUTANE	E	E	G	X	E	X	X	E		CHLOROBENZENE	X	X	X	X	X	X	X	G	G
BUTANOIC ACID										CHLOROBUTANE	F		X			X	X	G	F
BUTANOL (BUTYL ALCOHOL)	E	E	E	G	E	E	E	E	E	CHLORODANE				E	E				
BUTANONE					X			E	G	CHLOROTHYL BENZENE	X		X			X	X	E	E
BUTOXYETHANOL										CHLOROFORM	X	X	X	X	X	X	X	G	G
BUTYL ACETATE	G	X	X	C	X	X	X	E	E	CHLOROPENTANE	X		X			X	X	E	E
BUTYL ACRYLATE	X	X	X	X	X	X		G	G	CHLOROSULFONIC ACID	X	C	X	X	X	X	X	G	X
BUTYL ALCOHOL	E	E	E	E	E	E	E	E	E	CHLOROTOLUENE	X	X	X	X	X	X	X	G	G
BUTYL ALDEHYDE	E					F		E	E	CHLOROX	G	G	G	G	G	X	X		
BUTYL BENZYL PHTHALATE	E	X	X	E	C	X	X	E	E	CHROME PLATING SOLUTIONS	X	X	X	G	X	X	X		
BUTYL CARBITOL	E	C	C	E	X	X	X	C	E	CHROMIC ACID	F	X	G	C	X	X	X	G	G
BUTYL CELLUSOLVE	E	X	X	G	C	X	X	E	E	CHROMIUM TRIOXIDE									
BUTYL CHLORIDE	F		X			X	X	G	G	CINNAMENE									
BUTYL ETHER	C	X	X	C	C	X	X	E	E	CIS-9-OCTADECENOIC ACID	G		X			X	X	E	
BUTYL ETHER ACETALDEHYDE	E		X			X	X	E	E	CITRIC ACID	E	E	E	E	E	E	E	E	
BUTYL ETHYL ETHER	G		X			X	X	E	E	COAL OIL	X		X	X	X	X	X	E	E
BUTYL OLEATE	G	X	X	G	X	X	X			COAL TAR	X	G	X	X	E	X	X	E	E
BUTYL PHTHALATE	E		X			X	X	E	E	COAL TAR NAPHTHA	X		X			X	X	E	E
BUTYL STEARATE	X	X	X	X	G	X	X	E	E	COCONUT OIL	G	G	X	C	E	X	X	E	
BUTYLENE	X	C	X	X	G	X	X		F	COKE OVEN GAS	X	X	X	X	X	X	X	E	
BUTYRALDEHYDE	E	X	X	G	X	X	X	E	E	COOLANOL (MONSANTO)		E	G	X	E	X	X		
BUTYRIC ACID	F	X	X	G	X	F	X	E	E	COPPER CHLORIDE	E	C	E	E	C	F	E	E	E
BUTYRIC ANHYDRIDE	F		G			F	X	E	E	COPPER CYANIDE	E	E	E	E	E	E	E	E	
CADMIUM ACETATE	G		X			X	X	E	E	COPPER HYDRATE	E		G			F	G	E	E
CALCIUM ALUMINATE	E		E			E	E	E	E	COPPER HYDROXIDE	E		G			F	G	E	E
CALCIUM BICHROMATE	E		F					G	F	COPPER SULFATE	E	E	E	E	E	F	E	E	E
CALCIUM BISULFIDE		C		X	E					CORN OIL	E	C	X	C	E	X	X	E	
CALCIUM CHLORIDE	E	E	E	E	E	E	E	E	E	COTTONSEED OIL	C	C	X	C	C	X	X	C	G
CALCIUM HYDROXIDE	E	E	G	E	E	E	G	E	E	CREOSOTE	X	C	X	X	C	X	X	E	E
CALCIUM HYPOCHLORITE	G	X	F	E	X	X	X	C	G	CRESOLS	X	X	X	X	X	X	X	E	E
CALCIUM NITRATE	E	E	E	E	E	E	E	E	E	CRESYLIC ACID	X	X	X	X	X	X	X	E	E
CALCIUM SULFIDE	E	E	E	E	G	E	E	E	E	CROTONALDEHYDE	E		X			X	X	E	E
CALCIUM ACETATE	G	G	X	E	G	X	X	E	E	CRUDE OIL	X	X	X	X	G	X	X	E	E
CAPRYLIC ACID	F		G			F	X	E	E	CUMENE	X	X	X	X	X	X	X	E	E
CARBAMIDE										CUPRIC CARBONATE	E		E			F	E	E	E
CARBITOL	F	G	X	G	G	X	X	E	E	CUPRIC HYDROXIDE									
CARBOLIC ACID PHENOL	E	X	X	G	X	X	X	E	E	CUPRIC NITRATE	E		E			F	E	E	E
CARBON DIOXIDE	E	C	E	C	X	E	E	E	E	CUPRIC SULFATE	E		E			F	E	E	E
CARBON DISULFIDE	X	X	X	X	X	X	X	C	F	CUTTING OIL	X	G	G	X	E	X	X		
CARBON MONOXIDE	E	C	E	C	E	E	G	E		CYCLOHEXANE	X	X	X	X	G	X	X	G	E
CARBON TETRACHLORIDE	X	X	X	X	X	X	X	G	G	CYCLOHEXANOL	X	G	X	X	C	X	X	E	E
CARBON ACID	E	X	E	G	X	E	E	E	E	CYCLOHEXANONE	X	X	X	X	X	X	X	E	E
CASTROL OIL	E	E	E	G	E	F	G	E		CYCLOPENTANE	X		X			X	X	E	E
CAUSTIC SODA (SEE SODIUM HYDROXIDE)									E	CYCLOPENTANOL	X		X			X	X	E	E
CELLOSOLVE ACETATE	E	X	X	G	X	X	X	E	E	CYCLOPENTANONE	X		X			X	X	E	E
CELLUGUARD	E	E	E	G	E	E	E			CYCLOPENTIL ALCOHOL									
CETYLIC ACID										D-FURALDEHYDE									
CHINA WOOD OIL (TUNG OIL)	C	G	X	X	E	X	X			DDT IN KEROSENE	X	F	X	X	E	X	X	E	E
CHLORINATED SOLVENTS	X	X	X	X	X	X	X	G	G	DECAHYDRONAPHTHALENE									
CHLORO-2-PROPANONE										DECAHYDROXYNAPHTHALENE									
CHLOROACETIC ACID	F	X	X	X	X	X	X	E	E	DECALIN	X	X	X	X	X	X	X	E	X
CHLOROACETONE	G	X	X	E	X	X	X	E	E	DECYL ALCOHOL	E		E			E	E	E	E

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COMPOUND										COMPOUND									
Chemical or Material Conveyed	IR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE	Chemical or Material Conveyed	IR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE
DECYL ALDEHYDE	E		X			X	X	E	E	DIETHYLAMINE	E	C	C	G	C	G	G	C	E
DECYL BUTYL PHTHALATE	E		X			X	X	E	E	DIETHYLENE GLYCOL	E	E	E	E	E	E	E	C	E
DECIL CARBINOL										DIETHYLENE OXIDE									
DETERGENT, WATER SOLUTION	E	G	G	E	E	G	G			DIETHYLENETRIAMINE	E		F			G	G		E
DEVELOPING FLUID (PHOTO)	G	E	E	G	E	E	G			DIETHYLTRIAMINE	E		F			G	G		E
DEXTRON	X	G	X	X	E	X	X			DIHYDROXY SUCCINIC ACID									
DI (2ETHYLHEXYL) ADIPATE										DIHYDROXYDIETHYL ETHER	E		E			E	E		E
DI (2ETHYLHEXYL) PHTHALATE										DIISOBUTYL KETONE	G	X	X	G	X	X	X	E	E
DI-ISO-BUTYLENE	X	X	X	X	G	X	X	E		DIISODECYL PHTHALATE	E	X				X	X	E	E
DI-ISO-DECYL PHTHALATE										DIISOOCTYL ADIPATE	E	X				X	X	E	E
DI-ISO-PROPANOLAMINE	E									DIISOOCTYL PHTHALATE	E	X				X	X	E	E
DI-ISO-PROPYL ETHER	F		X			X	X	E		DIMETHYL CARBINOL									E
DI-ISO-PROPYL KETONE	G	X	X	E	X	X	X	E		DIMETHYL KETONE									E
DI-P-MENTHA-1,8-DIENE										DIMETHYL PHTHALATE	G	X	X	G	X	X	X	E	E
DIACETONE ALCOHOL	E	X	X	X	X	X	X	C	E	DIMETHYL SULFATE									E
DIACETYL METHANE										DIMETHYL SULFIDE									G
DIALLYL PHTHALATE										DIMETHYL-3-PENTANONE									
DIAMMONIUM PHOSPHATE										DIMETHYL-4-HEPTANONE									
DIAMYL NAPHTHALENE	E		X			X	X	E		DIMETHYLAMINE								E	E
DIAMYLAMINE	E		G			F	G	E		DIMETHYLANILINE	C	C	X	G	C		C		
DIAMYLENE	X		X			X	X	E	E	DIMETHYLBENZENE									E
DIAMYLPHENOL	X		X			X	X	E	E	DIMETHYLBUTANE									
DIBENZYL ETHER	E	X	X	X	X	X	X	E	E	DIOCTYL ADIPATE									E
DIBROMOBENZENE	X		X			X	X	E	G	DIOCTYL PHTHALATE	E	X	X	C	C	X	X	E	E
DIBROMOMETHANE										DIOXALANE	C	X	X	G	X	X	X	E	E
DIBUTYL ETHER	G	X	X	C	X	X	X	E	E	DIOXANE	G	X	X	G	X	X	X		E
DIBUTYL PHTHALATE	C	X	X	C	X	X	X	E	E	DIPENTENE	X	X	X	X	G	X	X		
DIBUTYL SEBACATE	E	X	X	G	X	X	X	E	E	DIPENTYLAMINE									
DIBUTYLAMINE	X	X	X	X	X	X	X		E	DIPROPYLAMINEOLAMINE	E		G			G	G		E
DICALCIUM PHOSPHATE	E		E			E	E	E	E	DIPROPYLENE GLYCOL	E		E			E	E		E
DICHLORO ETHYLENE									F	DISODIUM PHOSPHATE	E		E			E	E	E	E
DICHLOROACETIC ACID	F		X			G	X	E	E	DIVINYL BENZENE	X		X			X	X	E	E
DICHLOROBENZENE	X	X	X	X	X	X	X	G	G	DOWELL INHIBITOR									
DICHLOROBUTANE	X	X	X	X	G	X	X	E	E	DOWFAX 2A1 SOLVENT									
DICHLORODIFLUOROMETHANE	X		X			X	X		I	DOWFAX 2A1 TA									
DICHLOROETHANE	X	X				X	X	E	E	DOWFAX 6A1 SOLVENT									
DICHLOROETHYL ETHER	X		X			X	X	E	E	DOWFAX 6A1 TA									
DICHLOROHEXANE	X		X			X	X	E	E	DOWTHERM, A AND E	X	X	X	X	X	X	X	E	E
DICHLOROMETHANE	X		X			X	X	E	E	DRY CLEANING FLUIDS	X	X	X	X	C		X		
DICHLOROPENTANE	X		X			X	X	E	E	DUCGKIRIOBAANE	X								
DICHLOROPROPANE	X		X			X	X	E	E	DURD AW-16,31				X	E				
DICHLOROPROPENE									E	DURO FR-HD				X	E				
DICHLOROTOLUENE										ETHANOIC ACID									
DIESEL OIL	X	C	C	X	E	X	X	C	E	ETHANOL (GRAIN ALCOHOL)	E	E	E	E	C	E	E	E	E
DIETHANOL AMINE	E		F			G	G		E	ETHANOLAMINE	E	G	C	E	G	G	G	C	E
DIETHYLBENZINE	X	X	X	X	X	X	X	E	E	ETHERS	X	X	X	C	X	X	X		
DIETHYL ETHER	X	C	X	X	X	X	X	E		ETHYL ACETATE	G	X	X	C	X	X	X	E	E
DIETHYL KETONE	G		X			F	X	E	E	ETHYL ACETOACETATE	G	X	X	G	X	X	X	E	E
DIETHYL OXALATE	E		X			E	E	E	E	ETHYL ACETONE									
DIETHYL PHTHALATE	E	X	X	G		X	X	E	E	ETHYL ACRYLATE	G	X	X	G	X	X	X	G	E
DIETHYL SEBACATE	E	X	X	C	X	X	X		E	ETHYL ALCOHOL	E	E	E	E	C	E	E	E	E
DIETHYL SULFATE									E	ETHYL ALDEHYDE	E					F		E	E

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COMPOUND										COMPOUND									
Chemical or Material Conveyed	IR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE	Chemical or Material Conveyed	IR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE
ETHYL ALUMINIUM DICHLORIDE	X		X			X	X	G	F	FURFURYL ALCOHOL	F	X	X	G	X	X	X	E	E
ETHYL BENZENE	X	X	X	X	X	X	X	E	E	GALLIC ACID	G	X	C	G	C	E	C	C	E
ETHYL BROMIDE	X	X	X	X	G	X				GALLOTANNIC ACID									
ETHYL BUTYL ACETATE	G		X			X	X	E	E	GAS, COAL									
ETHYL BUTYL ALCOHOL	E		E			E	E	E	E	GAS, HIGH OCTANE		X		X	G				
ETHYL CELLULOSE	G	G	G	G	G	G	G	E		GASOLINE	X	X	X	X	E	X	X	E	G
ETHYL CHLORIDE	F	X	X	X	X	X	X	G	G	GLACIAL ACRYLIC ACID								E	
ETHYL DICHLORIDE	X		X			X	X	G	G	GLUCONIC ACID	F		G			X	X	E	E
ETHYL DIISOBUTYLTHIO-CABARMATE						E	E			GLUCOSE	E	G	E	G	G	E	E	E	G
ETHYL ETHER	C	X	X	X	C	X	X	E	E	GLYCERINE	E	E	E	E	E	E	E	C	E
ETHYL FORMATE	G	G	X	G	X	X	X	E	E	GLYCEROL	E	E	E	E	E	E	E		
ETHYL IODIDE	X		X			X	X	G	F	GLYCOGENIC ACID									
ETHYL OXALATE	X	X	X	X	X	X	X	E	E	GLYCOLS	E	E	E	E	E	E	E	E	G
ETHYL PHTHALATE									E	GLYCONIC ACID									
ETHYL SILICATE	E	E	G	E	E	F	F	E	E	GLYCLYL ALCOHOL									
ETHYL-N-BUTYL KETONE	G		X			X	X	E	E	GREASE	X	X	X	X	E	X	X	G	E
ETHYL-1-BUTANOL	E		E			E	E	E	E	GREEN SULPHATE LIQUOR	E	G	E	E	G	E	E	E	E
ETHYLAMINE	G		F			F	F		E	HALON 1211		E			E				
ETHYLENE CHLOROXYDRIN	G	C	G	C	X	G	G	E	G	HELIUM	E	E	E	E	E	E	E		
ETHYLENE DIAMINE	E	E	F	E	E	G	G	E	E	HEPTALDEHYDE									
ETHYLENE DIBROMIDE	X	X	X	C	X	X	X	G	F	HEPTANAL	E		X			X	X	E	E
ETHYLENE DICHLORIDE	X	X	X	X	X	X	X	G	G	HEPTANE	X	G	X	X	E	X	X	G	E
ETHYLENE G. MONOETHYL E ACETATE								E		HEPTANE CARBOXYLIC ACID									E
ETHYLENE G. MONOBUTYL ETHER								E		HEPTANOIC ACID									
ETHYLENE G. MONOETHYL ETHER								E		HEPTANONE									
ETHYLENE G. MONOHEXIL ETHER								E		HEXADECANOIC ACID									
ETHYLENE GLYCOL	E	E	E	E	E	E	E	C	E	HEXALDEHYDE	G	E	C	E	X	X	X	E	E
ETHYLENE OXIDE	C	X	X	C	X	X	X		E	HEXANE	X	C	X	X	C	X	X	G	G
FATTY ACIDS	X	C	X	X	C	X	X	E	G	HEXANOL	E		E			E	E	E	E
FERRIC BROMIDE	E		E			E	E	E	E	HEXENE	X	G	G	X	G	X	X	E	G
FERRIC CHLORIDE	E	G	E	E	E	E	E	E	E	HEXYL ALCOHOL	C	G	C	C	E	E	E	E	E
FERRIC NITRATE	E	E	E	E	E	E	E	E		HEXYL METHYL KETONE	G		X			X	X	E	E
FERRIC SULFATE	E	E	E	E	E	E	E	E	E	HEXYLAMINE	E		F			G	G		E
FERROUS ACETATE	G		X			X	X	E	E	HEXYLENE GLYCOL	E		E			E	E		E
FERROUS CHLORIDE	E	E	E	E	E	E	E	E	E	HISTOWAX									
FERROUS SULFATE	E	E	E	E	G	E	E	E	E	HYDRAULIC & MOTOR OIL	X	C	G	X	E	X	X	E	
FLUOBORIC ACID	E	C	E	E	C	E	G	C	G	HYDRAZINE	E	G	E	X	X	X			
FLUORINE	C	X		X	X	X	X	X	X	HYDROBROMIC ACID	E	X	E	E	X	E	X	C	G
FLUOSILICIC ACID	E	C	E	E	C	E	C	C	G	HYDROCHLORIC ACID	F	X	X	X	C	X	E	E	E
FORMALDEHYDE	E	C	C	G	X	G	C	E	E	HYDROCINIC ACID	E	E	C	C	C	X			
FORMALIN	E		E			G	G	E	E	HYDROFLUORIC ACID	E	X	E	X	X	X	X	C	E
FORMIC ACID	E	C	F	E	X	G	G	C	E	HYDROFLUOSILICIC ACID	E	C	E	E		X			G
FREON SO2		E		E						HYDROGEN CHLORIDE ANHYDROUS									
FREON 113		E	E	C	E	C	G			HYDROGEN DIOXIDE (10%)	F					X	X		G
FREON 12	X	G	X	X	G	X	X	C	E	HYDROGEN GAS	E	E	G	E	E	G	G	E	E
FREON 22	F	X	X		X	X	X	C	E	HYDROGEN PEROXIDE OVER 10%	X	X	X	X	X	X	X	C	F
FUEL A (ASTM)	X	G	X	X	E	X	X	G	G	HYDROGEN PEROXIDE 10%	F	F	F	F	X	X	X	C	G
FUEL B (ASTM)	X	F	X	X	E	X	X	G	G	HYDROGEN SULFIDE (WET)	E	C	X	E	X	X	X	E	G
FUEL OIL	X	G	C	X	E	X	X	C	E	HYDROXY BENZENE									
FURAN	X	X	X	C	X	X	X			HYDROXYISOBUTYRONIRILE									
FURFURAL	E	X	X	C	X	X	X	E	E	HYDROXYTOLUENE									
FURFURAN		X	X	C	X	X	X			HYVAR VXL				E					

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COMPOUND										COMPOUND									
Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE	Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE
IMINODI-2-PROPANOL										METHANOIC ACID									
IMINODIETHANOL										METHANOL (METHYL ALCOHOL)	E	E	E	E	E	E	E		E
IODINE	C	X	E	C	C	C	C	C	E	METHANOL (WOOD ALCOHOL)	E	E	E	E	E	E	E	E	E
IODINE PENTAFLUORIDE	X	X	X	X	X	X	X			METHOXY ETHANOL									
ODOFORM		X		X	E	X	X			METHOXYETHOXY ETHANOL									
ISO-BUTANAL									E	METHOXYPROPENYL BENZENE									
ISO-BUTYLAMINE									E	METHYL ACETATE	G	X	X	E	X	X	X	E	E
ISO-BUTYLBROMIDE									G	METHYL ACETOACETATE	G	X	X	G	X	X	X	E	E
ISO-BUTYLCARBINOL									E	METHYL ACETONE	G		X			F	X	E	E
ISOCYANATES								E	E	METHYL ACETYLENE PROPADIENE		E		G	E		G		
ISOOCTANE	X	C	X	X	E	X	X	E	G	METHYL ALLYL ALCOHOL									
ISOPHOPYL ACETATE	G	X	X	X	X	X	X	E	E	METHYL ALLYL CHLORIDE	F		X			X	X	G	E
ISOPHOPYL ALCOHOL	E	C	E	E	C	E	E	E	E	METHYL AMYL CARBINOL	E		E			E	E	E	E
ISOPROPYL ETHER	X	X	C	X	C	X	X	E	E	METHYL BENZENE	X		X			X	X	E	E
JET FUELS	X	G	X	X	E	X	X	E	E	METHYL BROMIDE	X	X	X	X	C	X	X	G	
JP-4 OIL	X	X	X	X	G	X	X			METHYL BUTANE									
KEROSENE	X	C	X	X	E	X	X	E	E	METHYL BUTYL ALCOHOL									E
KETONES	E	X	X	E	C	X	X			METHYL BUTYL KETONE	G	X	X	E	X	X	X		E
LACQUER SOLVENTS	X	X	X	X	X	X	X	G		METHYL CARBITOL	F		X			X	X	E	E
LACTIC ACID - COLD	E	E	G	X	X	G	G	C		METHYL CELLOSOLVE	E	C	X	G	C	X	X		E
LACTIC ACID - HOT		X	C	X	X	X	X			METHYL CHLORIDE	C	X	X	X	X	X	X	G	E
LARD	X	C	X	X	E	X	X	C		METHYL CYANIDE									
LAVENDER OIL	X	X	X	X	G	X	X	G		METHYL ETHYL KETONE	G	X	X	E	X	X	X	E	E
LEAD ACETATE	G	G	X	E	G	E	X	E	E	METHYL HEXANOL	E		E			E	E	E	E
LEAD NITRATE	E	E	X	E	E	E	E			METHYL METHACRYLATE	X	X	X	C	X	X	X	G	G
LEAD SULFATE		E	E	E				E	E	METHYL NORMAL AMYL KETONE	G		X			X	X	E	E
LIME		C		G	X					METHYL PROPYL ETHER	G		X			X	X	E	E
LIME BLEACH	E	G	G	E	E	E	G			METHYL SALICYLATE	G	X	X	G	X	C	C		
LIME SULFUR	E	E	E	E	X	X	X	E		METHYL STYRENE									
LIMONENE										METHYL SULFIDE									
LINOLEIC ACID	X	X	X	X	G	X	X			METHYL TERTIARY METYL ETHER	G	X			X		X		
LINSEED OIL	C	C	C	X	E	X	X	C	E	METHYL 1-2, 4-PENTANEDIOL									
LIQUID PETROLEUM GAS (LPG)	X	G	X	X	E	X	X	E	X	METHYL-ISO-AMYL-KETONE									
LUBRICATING OIL	X	C	F	X	G	X	X	E	E	METHYL-L-PROPANOL									
LYE SOLUTIONS	E	G	E	E	G	G	G		G	METHYL-2-BUTANOL	E		E			E	E	E	
MEK	G	X	X	E	X	X	X	E	G	METHYL-2-BUTANONE	G		X			X	X	E	
MAGNESIUM ACETATE	G							E	E	METHYL-2-HEXANONE	G		X			X	X	E	
MAGNESIUM CHLORIDE	E	E	E	E	E	E	E	E	E	METHYL-2-PENTANOL									
MAGNESIUM HYDRATE	E		G			E	G	E	E	METHYL-2-PENTANONE									
MAGNESIUM HYDROXIDE	E	G	G	E	G	E	G	E	E	METHYL-2-PROPEN-L-OL									
MAGNESIUM SULFATE & SULPHITE	E	E	E	E	E	E	E	E	E	METHYL-3-PENTEN-1-ONE									
MALEIC ACID	X	X	X	X	X	X	X	G	E	METHYL-4-ISOPROPYL BENZENE									
MALEIC ANHYDRIDE	X	X	X	X	X	X	X			METHYLALLYL ACETATE	G		X			X	X	E	
MALIC ACID	X	C	G	X	C	C	C	C	G	METHYLAMYL ALCOHOL	E		E			E	E	E	E
MANGANOUS SULFATE										METHYLCYCLOEXANE	X		X			X	X	G	E
MAPP		E		G	E		G			METHYLENE BROMIDE									G
MERCURY	E	E	E	E	E	E	E	E		METHYLENE CHLORIDE	X	X	X	X	X	X	X	G	G
MERCURY VAPORS	E	E	E	E	E	E	E			METHYLETHYL KETONE	G	X	X	E	X	X	X	E	
MESITYL OXIDE	G	X	X	G	X	X	X	E	E	METHYLEXYL KETONE	G		X			X	X	E	
METHALLYL ALCOHOL	E		E			E	E	E	E	METHYLISOBUTYL CARBINOL	E	G	C	E	G	G	G	C	E
METHALLYL CHLORIDE										METHYLISOBUTYL KETONE	C	X	X	C	X	X	X	E	E
METHANE CARBOXYLIC ACID		G		X						METHYLISOPROPYL KETONE	G	X	X	X	X	X	X	E	E

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METHYLLACTONITRILE										MOBILE HFA				X	E				
METHYLPHENOL										MOLTEN SULFUR	G		F			X	X	X	
METHYLPROPYL CARBINOL	E		G			G	G	E	E	MONO-CHLOROACETIC ACID	F		X			G	X	E	E
METHYLPROPYL KETONE	G		X			X	X	E	E	MONOBUTYL ETHER	F		X			X	X	E	
MIL-A-6091	E	E	E	E	G	E	E			MONOCHLOROBENZENE	X	X	X	X	X	X	X	G	G
MIL-C-4339	X	X	X	X	E	X	X			MONOCHLORODIFLUOROMETHANE	F		X			X	X	C	I
MIL-C-7024	X	X	X	X	E	X	X			MONOETHANOL AMINE	E	X	X	E	X	E	X	E	E
MIL-E-9500	E	E	E	E	E	E	E			MONOETHYL AMINE	G		F			F	F	C	E
MIL-F-16884	X	C	C	X	E	X	X			MORPHOLINE				X	X				
MIL-F-17111	X	G	X	X	E	X	X			MOTOR OIL, 40W									
MIL-F-25558 (RJ-1)		G		X	E					MTBE	G	X			X		X		F
MIL-G-10924	X	X	G	X	E	X	X			MURIATIC ACID	F	X	X	F	X	E	X	E	E
MIL-G-25013	X	G	G	X	E	X	X			N-BUTANAL									
MIL-G-25537		G		X	E					N-BUTYLAMINE	X	X	X	X	C	X	X		
MIL-G-3545	X	G	C	X	E	X	X			N-BUTYLBENZENE	X		X			X	X	E	
MIL-G-5572	X	X	X	X	E	X	X			N-BUTYLBROMIDE	X		X			X	X	G	
MIL-G-7711	X	X	X	X	E	X	X			N-BUTYLBUTYRATE	F		X			X	X	G	
MIL-H-05606 (HFA)		G		X	E					N-BUTYLCARBINOL									
MIL-H-13910	G	E	G	E	E	G	E			N-NONYL ALCOHOL									
MIL-H-19457	E	X	X	E	X	X	X			N-OCTANE	X	G	X	X	G	X	X	G	
MIL-H-22251	E	G	G	E	G		G			N-SERV (75% XYLENE)								C	
MIL-H-27601		G		X	E					NA-K				X	X				
MIL-H-5606 (J43)		G		X	E					NAPHTHA	X	X		X	C	X	X	E	E
MIL-H-6083	X	E	G	X	E	X	X			NAPHTHALENE	F	X	X	X	X	X	X	E	E
MIL-H-8446 (MLO-8515)	X	E		X	G	X	X			NAPHTHENIC ACID		X	X	X	G	X	X		
MIL-J-5161	X	X	X	X	G	X	X			NATURAL GAS	X	E	F	X	E	X	X	C	
MIL-J-5624 (JP-3,JP-4,JP-5)	X	X	X	X	E	X	X			NEOHXANE	X		X			X	X	E	E
MIL-L-15016	X	G	G	X	E	X	X			NEON GAS	E	E	E	E	E	E	E		
MIL-L-17331	X	G	G	X	E	X	X			NEU-TRI	X		X			X	X	E	E
MIL-L-2104	X	G	C	X	E	X	X			NICKEL ACETATE	E	G	X	E	G	E	X	E	
MIL-L-21260	X	G	G	X	E	X	X			NICKEL CHLORIDE	E	G	E	E	E	E	E	E	E
MIL-L-23699	X	C	C	X	G	X	X			NICKEL NITRATE	E	E	E	E		E	E	E	E
MIL-L-25681		G		E	G					NICKEL SULFATE	E	E	E	E	E	E	E	E	E
MIL-L-3150	X	G	G	X	E	X	X			NIETYLENE						E			
MIL-L-4343	C	E	G	C	E	X	X			NITRIC ACID, CONC (16N)	C	X	G	X	X	X	X	G	
MIL-L-6082	X	G	G	X	E	X	X			NITRIC ACID, RED FUMING	G	X	X	X	X	X	X	X	X
MIL-L-6085	X	X	X	X	G	X	X			NJTRIC ACID,10%	G	X	X	C	X	X	X	C	E
MIL-L-7808	X	X	X	X	G	X	X			NITRIC ACID, 13N +5%									
MIL-L-7870	X	G	X	X	E	X	X			NITRIC ACID, 13N +5%									
MIL-L-9000	X	G	C	X	E	X	X			NITRIC ACID, 20%	G	X	X	G	X	X	X	E	E
MIL-L-9236	X	X	X	X	G	X	X			NITRIC ACID, 30%	F	X	X	C	X	X	X	E	G
MIL-P-27402		G		E	G					NITRIC ACID, 30% - 70%	F	X	F	F	X	X	X	G	F
MIL-R-25567 (RP-1)			X							NITRILOTRIETHANOL									
MIL-S-3136 TYPE 1 FUEL	X	G	C	X	E	X	X			NITROBENZENE	F	X	X	X	X	X	X	E	E
MIL-S-3136 TYPE 2 FUEL	X	X	X	X	G	X	X			NITROETHANE	G	C	G	G	X	G	G	E	
MIL-S-3136 TYPE 3 FUEL	X	X	X	X	G	X	X			NITROGEN	E	E	E	E	E	E	E	E	E
MIL-S-3136 TYPE 4 OIL, LOWSWELL	X	E	E	X	E	X	X			NITROMETHANE	G	C	C	G	X	G	C	E	
MIL-S-3136 TYPE 5 OIL, MEDSWELL	X	G	G	X	E	X	X			NITROUS OXIDE GAS									E
MIL-S-3136 TYPE 6 OIL, HI SWELL	X	X	X	X	E	X	X			NONANOIC ACID									
MIL-S-81087		E		E	E					NONANOL									
MINERAL OIL	X	C	F	X	E	X	X	E		NUTO H				X	E				
MINERAL SPIRITS	X	F	X	X	E	X	X	E	E	NYVAC LIGHT				E	X				

Key to General Chemical Resistance Chart [all data based on 20°C (68°F) unless noted]:

E – Excellent; G – Good; F – Fair; C – Conditional; I – Insufficient Data; X – Not Recommended; Blank – No Data

COMPOUND										COMPOUND									
Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE	Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE
METHYLLACTONITRILE										MOBILE HFA				X	E				
METHYLPHENOL										MOLTEN SULFUR	G		F			X	X	X	
METHYLPROPYL CARBINOL	E		G			G	G	E	E	MONO-CHLOROACETIC ACID	F		X			G	X	E	E
METHYLPROPYL KETONE	G		X			X	X	E	E	MONOBUTYL ETHER	F		X			X	X	E	
MIL-A-6091	E	E	E	E	G	E	E			MONOCHLORO BENZENE	X	X	X	X	X	X	X	G	G
MIL-C-4339	X	X	X	X	E	X	X			MONOCHLORODIFLUOROMETHANE	F		X			X	X	C	I
MIL-C-7024	X	X	X	X	E	X	X			MONOETHANOL AMINE	E	X	X	E	X	E	X	E	E
MIL-E-9500	E	E	E	E	E	E	E			MONOETHYL AMINE	G		F			F	F	C	E
MIL-F-16884	X	C	C	X	E	X	X			MORPHOLINE				X	X				
MIL-F-17111	X	G	X	X	E	X	X			MOTOR OIL, 40W									
MIL-F-25558 (RJ-1)		G		X	E					MTBE	G	X			X		X		F
MIL-G-10924	X	X	G	X	E	X	X			MURIATIC ACID	F	X	X	F	X	E	X	E	E
MIL-G-25013	X	G	G	X	E	X	X			N-BUTANAL									
MIL-G-25537		G		X	E					N-BUTYLAMINE	X	X	X	X	C	X	X		
MIL-G-3545	X	G	C	X	E	X	X			N-BUTYLBENZENE	X		X			X	X	E	
MIL-G-5572	X	X	X	X	E	X	X			N-BUTYLBROMIDE	X		X			X	X	G	
MIL-G-7711	X	X	X	X	E	X	X			N-BUTYLBUTYRATE	F		X			X	X	G	
MIL-H-05606 (HFA)		G		X	E					N-BUTYLCARBINOL									
MIL-H-13910	G	E	G	E	E	G	E			N-NONYL ALCOHOL									
MIL-H-19457	E	X	X	E	X	X	X			N-OCTANE	X	G	X	X	G	X	X	G	
MIL-H-22251	E	G	G	E	G		G			N-SERV (75% XYLENE)								C	
MIL-H-27601		G		X	E					NA-K				X	X				
MIL-H-5606 (J43)		G		X	E					NAPHTHA	X	X		X	C	X	X	E	E
MIL-H-6083	X	E	G	X	E	X	X			NAPHTHALENE	F	X	X	X	X	X	X	E	E
MIL-H-8446 (MLO-8515)	X	E		X	G	X	X			NAPHTHENIC ACID		X	X	X	G	X	X		
MIL-J-5161	X	X	X	X	G	X	X			NATURAL GAS	X	E	F	X	E	X	X	C	
MIL-J-5624 (JP-3,JP-4,JP-5)	X	X	X	X	E	X	X			NEOHXANE	X		X			X	X	E	E
MIL-L-15016	X	G	G	X	E	X	X			NEON GAS	E	E	E	E	E	E	E		
MIL-L-17331	X	G	G	X	E	X	X			NEU-TRI	X		X			X	X	E	E
MIL-L-2104	X	G	C	X	E	X	X			NICKEL ACETATE	E	G	X	E	G	E	X	E	
MIL-L-21260	X	G	G	X	E	X	X			NICKEL CHLORIDE	E	G	E	E	E	E	E	E	E
MIL-L-23699	X	C	C	X	G	X	X			NICKEL NITRATE	E	E	E	E		E	E	E	E
MIL-L-25681		G		E	G					NICKEL SULFATE	E	E	E	E	E	E	E	E	E
MIL-L-3150	X	G	G	X	E	X	X			NIETYLENE						E			
MIL-L-4343	C	E	G	C	E	X	X			NITRIC ACID, CONC (16N)	C	X	G	X	X	X	X	G	
MIL-L-6082	X	G	G	X	E	X	X			NITRIC ACID, RED FUMING	G	X	X	X	X	X	X	X	X
MIL-L-6085	X	X	X	X	G	X	X			NJTRIC ACID,10%	G	X	X	C	X	X	X	C	E
MIL-L-7808	X	X	X	X	G	X	X			NITRIC ACID, 13N +5%									
MIL-L-7870	X	G	X	X	E	X	X			NITRIC ACID, 13N +5%									
MIL-L-9000	X	G	C	X	E	X	X			NITRIC ACID, 20%	G	X	X	G	X	X	X	E	E
MIL-L-9236	X	X	X	X	G	X	X			NITRIC ACID, 30%	F	X	X	C	X	X	X	E	G
MIL-P-27402		G		E	G					NITRIC ACID, 30% - 70%	F	X	F	F	X	X	X	G	F
MIL-R-25567 (RP-1)			X							NITRILOTRIETHANOL									
MIL-S-3136 TYPE 1 FUEL	X	G	C	X	E	X	X			NITROBENZENE	F	X	X	X	X	X	X	E	E
MIL-S-3136 TYPE 2 FUEL	X	X	X	X	G	X	X			NITROETHANE	G	C	G	G	X	G	G	E	
MIL-S-3136 TYPE 3 FUEL	X	X	X	X	G	X	X			NITROGEN	E	E	E	E	E	E	E	E	E
MIL-S-3136 TYPE 4 OIL, LOWSWELL	X	E	E	X	E	X	X			NITROMETHANE	G	C	C	G	X	G	C	E	
MIL-S-3136 TYPE 5 OIL, MEDSWELL	X	G	G	X	E	X	X			NITROUS OXIDE GAS									E
MIL-S-3136 TYPE 6 OIL, HI SWELL	X	X	X	X	E	X	X			NONANOIC ACID									
MIL-S-81087		E		E	E					NONANOL									
MINERAL OIL	X	C	F	X	E	X	X	E		NUTO H				X	E				
MINERAL SPIRITS	X	F	X	X	E	X	X	E	E	NYVAC LIGHT				E	X				

E – Excellent; G – Good; F – Fair; C – Conditional; I – Insufficient Data; X – Not Recommended; Blank – No Data

[illegible]

CHEMICAL RESISTANCE

Key to General Chemical Resistance Chart [all data based on 20°C (68°F) unless noted]:

E – Excellent; G – Good; F – Fair; C – Conditional; I – Insufficient Data; X – Not Recommended; Blank – No Data

COMPOUND										COMPOUND									
Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE	Chemical or Material Conveyed	IIR	CR	CSM	EPDM	NBR	NR	SBR	XLPE	UHMWPE
TOLUIDINE									F	WHITE OIL	X	E	X	X	E	X	X	X	E
TOLUOL									E	WHITE PINE OIL	X	X	X	X	G	X	X		
TRANSFORMER OIL	X	G	C	X	E	X	X		F	WINES	E	E	E	E	E	E	E	X	
TRANSMISSION 'A' OIL	X	G	X	X	E	X	X	F	G	WOOD ALCOHOL	E	E	E	E	E	E	E	E	E
Tri(2-HYDROXYETHYL) AMINE									E	WOOD OIL	X	G	C	X	E	X	X	E	
TRIBUTYL PHOSPHATE	E	X	X	G	X	X	X	E	E	XENON	E	E	E	E	E	E	E		
TRIBUTYLAMINE	E	G	F			G	G		E	XYLENE, XYLON	X	X	X	X	X	X	X	G	G
TRICHLOROACETIC ACID	G	X	X	G	G	C	G	E		XYLIDINE	X	C	X	G	C	C	C	G	G
TRICHLOROBENZENE	X		X			X	X	G	G	ZEOLITES	E	E	E	E	E	E	E		
TRICHLOROETHANE	X	X	X	X	X	X	X	G	E	ZINC ACETATE	E	E	E	E	E	E	X		
TRICHLOROETHYLENE	X	X	X	X	X	X	X	G	F	ZINC CARBONATE	E		E			E	E	E	E
TRICHLOROMETHANE										ZINC CHLORIDE	E	E	E	E	E	E	E	E	E
TRICHLOROTOLUENE										ZINC CHROMATE	E		F					G	E
TRICRESYL PHOSPHATE	E	X	X	X	X	X	X	E	E	ZINC SULFATE	E	E	E	E	E	E	E	E	E
TRIETHANOLAMINE	E	G	G	G	C	E	X	E	E	O-AMINOTOLUENE									
TRIETHYLAMINE	E		F			G	G		E	1 UNDECANOL	E		E			E	E	E	G
TRIETHYLENE GLYCOL	E		E			E	E		E	1-AMINO-2-PROPANOL									
TRIHYDROXYBENZOIC ACID										1-AMINO BUTANE									
TRIMETHYL PENTANES (MIXED)										1-AMINOPENTANE									
TRIMETHYL PENTENE										1-BROMO-2-METHYL PROPANE									
TRIMETHYLAMINE								E		1-BROMO-3-METHYL BUTANE									
TRISODIUM PHOSPHATE	E	E	E	E	E	E	E	E	E	1-BROMOBUTANE									
TRITOYL PHOSPHATE										1-CHLORO-2-METHYL PROPANE									
TUNG OIL		G								1-CHLORO-3-METHYL BUTANE									
TUNGOIL (CHINA OIL)	C	G	C	X	E	X	X	E		1-DECANOL	E		E			E	E	E	E
TURPENTINE	X	X	X	X	X	X	X	G	E	1-HENDACANOL									
UDMH		G	E	E	G	E	E			1,4-DIOXANE	G	X	X	E		X	X	E	
UNDECYL ALCOHOL										2 (2AMINOETHYLAMINO) ETHANOL									
UREA	E	E						E	E	2 (2ETHOXYETHOXY) ETHANOL									
URETHANE FORMULATIONS					E					2 (2ETHOXYETHOXY) ETHYL ACETATE									
URIC ACID										2-AMINOETHANOL	E		G			G	G		
VARNISH	X	X	X	X	G	X	X			2-CHLORO-1-HYDROXY-BENZENE									
VEGETABLE OILS	E	C	X	C	E	X	X	E		2-CHLOROPHENOL	X	X	X	X	X	X	X	G	E
VERSILUBE F44					E					2-CHLOROPROPANE		X	X	X		X	X	E	E
VERSILUBE F55				X	E					2-ETHOXYETHANOL									
VINEGAR	E	F	F	E	X	E	F	X		2-ETHOXYETHYL ACETATE									
VINEGAR ACID										2-ETHYL (BUTYRALDEHYDE)	E		X			X	X	E	E
VINYL ACETATE	G		X			X	X	E	E	2-ETHYL-1-HEXANOL	E	E	E	E	E	E	E	E	E
VINYL BENZENE	X		X			X	X	G	E	2-ETHYLHEXANOIC ACID									E
VINYL CHLORIDE	X	X	X	X	X	X	X	E	E	2-ETHYLHEXYL ACETATE									E
VINYL CYANIDE										2-OCTANONE									
VINYL ETHER	G		X			X	X	E	E	2,4-Di-Sec—PENTYLPHENOL									
VINYL STYRENE										3-BROMOPROPENE									
VINYL TOLUENE	X		X			X	X	E	E	3-CHLORO-2-METHYL PROPANE									
VINYL TRICHLORIDE	X		X			X	X	E	E	3-CHLOROPROPENE									
VITAL, 4300, 5310				X	X					3-COAL OIL								E	
VM & NAPHTHA	X	F	X	X	E	X	X	X	E	4-HYDROXY-4-METHYL-2-PENTANONE									
WATER	E	G	E	E	E	E	F	E	E										
WATER, BOILING		E		E															
WATER, SODA																			
WEMCO C	X	G	X	X	E	X	X												
WHISKEY	E	E	E	E	E	E	E	X											



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