

Technical Data Sheet

IP SEALS

Red Fibre Washer

Red Fibre Sealing Washers are manufactured from vulcanized fibre to BS EN IEC 60667-3-1 and offer excellent ingress protection properties. The material has high mechanical strength with good resistance to wear, fatigue and impact. It is free from harmful chemicals enabling it to be used in direct contact with metals without corrosive effects. It is generally unaffected by sunlight, salt water corrosion, organic solvents, petrol, oils and greases. In order to maintain the integrity of an enclosure greater than IP54 washers are recommended to be installed at the gland entry interface.

Material	Vulcanized Fibre	
Colour	Red	
Data	Unit:	Typical Technical Data
Specific Gravity:	g/cm ³	1.2 – 1.3
Tensile Strength md:	Kp/cm ²	80
Tensile Strength cd:	Kp/cm ²	50
Elongation at Break:	%	15
Dielectric Strength:	kV/mm	5.2 – 8.0
Conductivity	μS/cm	40
pH Value		6
Thermal Conductivity:	W/(m. K)	0.31
Low Temperature Resistance	°C	-40
High Temperature Resistance	°C	95
Maximum Operating Temperature for Short Periods	°C	180

Nylon Washer

Nylon Sealing Washers are manufactured from a general grade polyamide nylon 6 material ensuring that they offer excellent ingress protection properties. The material has good mechanical strength, toughness and resilience to fatigue and impact. It has good UV resistance and is resilient to a wide range of chemicals including diesel, natural gas and oils. In order to maintain the integrity of an enclosure greater than IP54 washers are recommended to be installed at the gland entry interface.

Material	Nylon 6 – Polyamide PA6	
Colour	Red / Natural / White	
Data	Unit:	Typical Technical Data
Specific Gravity:	g/cm ³	1.14
Shore Hardness:	Shore	D
Tensile Strength:	PSI	6530
Elongation at Break:	%	100
Dielectric Strength:	kV/mm	16
Thermal Conductivity:	W/(m. K)	0.28
Water Absorption:	%	1.28
Melt Point:	°C	220
Low Temperature Resistance	°C	-40
High Temperature Resistance	°C	135
Maximum Operating Temperature for Short Periods	°C	160

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PTFE Washer

PTFE Sealing Washers are manufactured from a synthetic fluoropolymer and they offer excellent ingress protection properties. The material has good mechanical strength and is resistance to wear, fatigue and impact. It has excellent chemical resistance and is generally unaffected by most acids, petroleum, oils, organic solvents and greases. In order to maintain the integrity of an enclosure greater than IP54 washers are recommended to be installed at the gland entry interface.

Material	PTFE (Teflon®)	
Colour	Natural White	
Data	Unit:	Typical Technical Data
Specific Gravity:	g/cm ³	2.18
Shore Hardness:	Shore	60
Impact Strength:	kJ/m ²	No break
Ball Pressure Hardness:	MPA	30
Tensile Strength:	PSI	3900
Elongation at Break:	%	300
Dielectric Strength:	kV/mm	48
Thermal Conductivity:	W/(m. K)	0.25
Water Absorption:	%	<0.01
Melt Point:	°C	327
Low Temperature Resistance	°C	-200
High Temperature Resistance	°C	260

O-RING SEALS

O-Ring seals fitted on to glands as standard can be removed and be replaced by a flat washer. Note flat washers and O-Rings cannot be used in conjunction with each other.

Material	Nitrile	
Colour	Black	
Minimum Working Temperature	°C	-30
Maximum Working Temperature	°C	100

Material	Silicone	
Colour	Red	
Minimum Working Temperature	°C	-60
Maximum Working Temperature	°C	200

CHEMICAL RESISTANCE INFORMATION

The below information on O-Ring material performances against certain chemicals has been obtained from various sources and, whilst it is believed to be reliable, it is for guidance and general purpose information only. Since the vast majority of rubber compounds are of proprietary commercial formulas the only way to ensure a given material's suitability for any application is to conduct specific tests. The decision to use a specific O-ring material is the sole choice of the client / end user and no responsibility is assumed by Peppers Cable Glands Limited.

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E = Excellent – Minor Effect on Material G = Good – Moderate Effect on Material F = Fair – Static Seals Only
 P = Poor – Not Recommended na = Information Not Available

Material Name & Chemical Designation	Nitrile Rubber Buna-N	Silicone	EPDM	Neoprene, Chloroprene	Viton	Fluoro silicone
Chemical	NBR	SI / VQM	EPDM	CR	FKM / FPM	FMQ
1-Chloro-1-Nitro Ethane	P	P	P	P	P	P
51-F-23	E	F	P	G	E	E
Acetaldehyde	P	G	E	F	P	P
Acetamide	E	G	E	G	G	E
Acetic Acid, 30%	G	E	E	E	G	G
Acetic Acid, Glacial	F	G	E	P	F	P
Acetic Anhydride	F	F	G	G	P	P
Acetone	P	F	E	F	P	P
Acetophenone	P	P	E	P	P	P
Acetyl Chloride	P	F	P	P	E	E
Acetylene	E	G	E	G	E	na
Acrylonitrile	P	P	P	P	F	P
Adipic Acid	E	na	E	E	E	E
Alkazene (Dibromoethylbenzene)	P	P	P	P	G	G
Aluminium Acetate (aq)	G	P	E	G	P	P
Aluminium Chloride (aq)	E	G	E	E	E	E
Aluminium Fluoride (aq)	E	G	E	E	E	E
Aluminium Nitrate (aq)	E	G	E	E	E	na
Aluminium Phosphate (aq)	E	E	E	E	E	na
Aluminium Sulfate (aq)	E	E	E	E	E	E
Alum-NH3-Cr-K (aq)	E	E	E	E	P	P
Ammonia Anhydrous	G	F	E	E	P	P
Ammonia Gas (cold)	E	E	E	E	P	P
Ammonia Gas (hot)	P	E	G	G	P	P
Ammonium Carbonate (aq)	P	na	na	E	E	na
Ammonium Chloride (aq)	E	na	E	E	E	na
Ammonium Hydroxide (conc.)	P	E	E	E	G	G
Ammonium Nitrate (aq)	E	na	E	E	E	na
Ammonium Nitrite (aq)	E	G	E	E	E	na
Ammonium Persulfate (aq)	P	na	E	E	E	na
Ammonium Phosphate (aq)	E	E	E	E	E	na
Ammonium Sulfate (aq)	E	na	E	E	G	na
Amyl Acetate (Banana Oil)	P	P	F	P	P	P
Amyl Alcohol	G	P	E	G	G	E
Amyl Borate	E	na	P	E	E	na
Amyl Chloronaphthalene	P	P	P	P	E	G
Amyl Napthalene	P	P	P	P	E	E
Aniline	P	P	E	P	F	F
Aniline Dyes	P	F	E	G	G	G
Aniline Hydrochloride	G	P	G	P	G	G
Animal Fats	E	G	G	G	E	E
Ansul Ether (Anesthetics)	F	P	F	P	P	F
Aqua Regia	P	P	F	P	G	F
Aroclor, 1248	F	G	F	P	E	G
Aroclor, 1254	P	F	F	P	E	G
Aroclor, 1260	E	G	E	E	E	E
Arsenic Acid	E	E	E	E	E	E
Arsenic Trichloride (aq)	E	na	F	E	P	na
Askarel	G	P	P	P	E	G
Asphalt	G	P	P	G	E	G

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ASTM #1 Method D-471	E	F	P	E	E	E
ASTM #2 Method D-471	E	F	P	G	E	E
ASTM #3 Method D-471	E	F	P	G	E	E
Banana Oil (Amyl Acetate)	P	P	F	P	P	P
Barium Chloride (aq)	E	E	E	E	E	E
Barium Hydroxide (aq)	E	E	E	E	E	E
Barium Sulfate (aq)	E	E	E	E	E	E
Barium Sulfide (aq)	E	E	E	E	E	E
Beer	E	E	E	E	E	E
Beet Sugar Liquors	E	E	E	G	E	E
Benzaldehyde	P	G	E	P	P	F
Benzene	P	P	P	P	E	F
Benzene Sulfonic Acid	P	P	F	G	E	G
Benzine (Ligroin) (Nitrobenzene) (Pet Ether)	E	P	P	G	E	E
Benzoic Acid	F	F	F	P	E	G
Benzoyl Chloride	P	na	P	P	G	G
Benzyl Alcohol	P	G	E	G	E	G
Benzyl Benzoate	P	na	G	P	E	E
Benzyl Chloride	P	P	P	P	E	G
Biphenyl (Diphenyl) (Phenylbenzene)	P	P	P	P	E	G
Blast Furnace Gas	P	E	P	P	E	G
Bleach Solutions	P	G	E	P	E	G
Borax	G	G	E	E	E	G
Bordeaux Mixture	G	G	E	G	E	G
Boric Acid	E	E	E	E	E	E
Brine	E	E	E	E	E	E
Bromine Trifluoride	P	P	P	P	P	P
Bromine Water	P	P	G	P	E	G
Bromine-Anhydrous	P	P	P	P	E	G
Bromobenzene	P	P	P	P	E	E
Bunker Oil	E	G	P	P	E	E
Butadiene	P	P	F	P	E	G
Butane	E	P	P	E	E	E
Butter (Animal Fat)	E	G	E	G	E	E
Butyl Acetate	P	P	F	P	P	P
Butyl Acetyl Ricinoleate	F	na	E	G	E	G
Butyl Acrylate	P	na	P	P	P	P
Butyl Alcohol	E	G	G	E	E	G
Butyl Amine	F	P	G	P	P	P
Butyl Benzoate	P	na	G	P	E	E
Butyl Carbitol	P	P	E	F	F	P
Butyl Cellosolve	F	na	E	F	P	P
Butyl Oleate	P	na	G	P	E	G
Butyl Stearate	G	na	F	P	E	G
Butylene	G	P	P	F	E	G
Butyraldehyde	P	P	G	F	P	P
Calcium Hypochlorite (aq)	G	G	E	F	E	G
Calcium Acetate (aq)	G	P	E	G	P	P
Calcium Bisulfite (aq)	P	E	P	E	E	E
Calcium Chloride (aq)	E	E	E	E	E	E
Calcium Hydroxide (aq)	E	E	E	E	E	E
Calcium Nitrate (aq)	E	G	E	E	E	E
Calcium Sulfide (aq)	E	G	E	E	E	E
Cane Sugar Liquors	E	E	E	E	E	E
Carbamate	F	na	G	G	E	E
Carbitol	G	G	G	G	G	G

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Carbolic Acid (Phenol)	P	P	G	F	E	E
Carbon Bisulfide	F	P	P	P	E	E
Carbon Dioxide	E	G	G	G	E	E
Carbon Monoxide	E	E	E	G	E	G
Carbon Tetrachloride	F	P	P	P	E	F
Carbonic Acid	G	E	E	E	E	E
Castor Oil	E	E	G	E	E	E
Cellosolve	P	P	G	P	F	P
Cellosolve Acetate	P	P	G	P	P	P
Cellulube (Fryquel)	P	E	E	P	E	F
China Wood Oil (Tung Oil)	E	P	F	G	E	G
Chlorine (Dry)	P	P	P	F	E	E
Chlorine (Wet)	P	P	F	F	G	G
Chlorine Dioxide	P	na	F	P	E	G
Chlorine Trifluoride	P	P	P	P	P	F
Chloroacetic Acid	P	na	E	P	P	P
Chloroacetone	P	P	E	F	P	P
Chlorobenzene	P	P	P	P	E	G
Chlorobromomethane	P	P	G	P	E	G
Chlorobutadiene	P	P	P	P	E	G
Chlorododecane	P	P	P	P	E	E
Chloroform	P	P	P	P	E	P
Chlorosulfonic Acid	P	P	P	P	P	P
Chlorotoluene	P	P	P	P	E	G
Chlorox (Sodium Hypochlorite NaOC1)	G	G	G	E	E	G
Chrome Plating Solutions	P	G	G	P	E	G
Chromic Acid	P	F	F	F	E	F
Citric Acid	E	E	E	E	E	E
Coal Tar (Creosote)	E	P	P	G	E	E
Cobalt Chloride (aq)	E	G	E	E	E	E
Cocanut Oil	E	E	F	G	E	E
Cod Liver Oil	E	G	E	G	E	E
Coke Oven Gas	P	G	P	P	E	G
Copper Acetate (aq)	G	P	E	G	P	P
Copper Chloride (aq)	E	E	E	G	E	E
Copper Cyanide (aq)	E	E	E	E	E	E
Copper Sulfate (aq)	E	E	E	E	E	E
Corn Oil	E	E	F	F	E	E
Cottonseed Oil	E	E	G	G	E	E
Creosote (Coal Tar)	E	P	P	G	E	E
Cresol	P	P	P	F	E	G
Cresylic Acid	P	P	P	F	E	G
Cumene	P	P	P	P	E	G
Cyclohexane	E	P	P	F	E	G
Cyclohexanol	F	P	F	E	E	E
Cyclohexanone	P	P	G	P	P	P
Decalin	P	P	P	P	E	E
Decane	E	G	P	P	E	E
Denatured Alcohol	E	E	E	E	E	E
Detergent Solutions	E	E	E	G	E	E
Developing Fluids	E	E	G	E	E	E
Diacetone	P	P	E	P	P	P
Diacetone Alcohol	P	G	E	G	P	P
Dibenzyl Ether	P	na	G	F	P	na
Dibenzyl Sebecate	P	F	G	P	G	F
Dibromoethylbenzene (Alkazene)	P	P	P	P	G	G
Dibutyl Amine	P	F	F	P	P	P

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Dibutyl Ether	P	P	F	F	F	F
Dibutyl Phthalate	P	G	G	P	F	F
Dibutyl Sebecate	P	G	G	P	G	G
Dichloro-Isopropyl Ether	P	P	F	P	F	F
Dicyclohexylamine	F		P	P	P	P
Diesel Oil	E	P	P	F	E	E
Diethyl Benzene	P	P	P	P	E	F
Diethyl Ether	P	P	P	F	P	F
Diethyl Sebecate	G	G	G	P	G	G
Diethylamine	G	G	G	G	P	P
Diethylene Glycol	E	G	E	E	E	E
Diisobutylene	G	P	P	P	E	F
Diisopropyl Benzene	P	na	P	P	E	G
Diisopropyl Ketone	P	P	E	P	P	P
Diisopropylidene Acetone (Phorone)	P	P	F	P	P	P
Dimethyl Aniline (Xylidine)	F	P	G	F	P	P
Dimethyl Ether (Methyl Ether) (Monomethyl Ether)	E	E	P	F	P	E
Dimethyl Formamide	G	G	G	F	P	P
Dimethyl Phthalate	P	na	G	P	G	G
Dinitrotoluene	P	P	P	P	P	P
Dioctyl Phtalate	F	F	G	P	G	G
Dioctyl Sebecate	P	F	G	P	G	F
Dioxane	P	P	G	P	P	F
Dioxolane	P	P	G	P	P	P
Dipentene	G	P	P	P	E	F
Diphenyl (Biphenyl) (Phenylbenzene)	P	P	P	P	E	G
Diphenyl Oxides	P	F	P	P	E	G
Dowtherm Oil	P	F	P	P	E	G
Dry Cleaning Fluids	F	P	P	P	E	G
Epichlorohydrin	P	P	G	P	P	P
Ethane	E	P	P	G	E	G
Ethanolamine	G	G	G	G	P	P
Ethy Chloroformate	P	P	G	P	P	P
Ethyl Acetate	P	G	G	F	P	P
Ethyl Acetoacetate	P	G	G	F	P	P
Ethyl Acrylate	P	G	G	P	P	P
Ethyl Alcohol	E	E	E	E	G	E
Ethyl Benzene	P	P	P	P	E	E
Ethyl Benzoate	P	P	E	P	E	E
Ethyl Cellosolve	P	P	P	P	P	P
Ethyl Cellulose	G	F	G	G	P	P
Ethyl Chloride	E	P	F	P	E	E
Ethyl Chlorocarbonate	P	P	G	P	E	G
Ethyl Ether	F	P	F	F	P	F
Ethyl Formate	P	na	G	G	E	E
Ethyl Mercaptan	P	F	F	F	G	na
Ethyl Oxalate	P	P	E	F	E	G
Ethyl Pentachlorobenzene	P	P	P	P	E	G
Ethyl Silicate	E	na	E	E	E	E
Ethylene	E	na	G	F	E	E
Ethylene Chloride	P	P	F	P	G	F
Ethylene Chlorohydrin	P	F	G	G	E	G
Ethylene Diamine	E	E	E	E	P	P
Ethylene Dichloride	P	P	F	P	E	F
Ethylene Glycol	E	E	E	E	E	E
Ethylene Oxide	P	P	F	P	P	P

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Ethylene Trichloride	P	P	F	P	E	F
Fatty Acids	G	F	F	G	E	na
Ferric Chloride (aq)	E	G	E	E	E	E
Ferric Nitrate (aq)	E	F	E	E	E	E
Ferric Sulfate (aq)	E	G	E	E	E	E
Fish Oil	E	E	P	P	E	E
Fluorinated Cyclic Ethers	na	na	E	P	na	na
Fluorine (Liquid)	P	P	P	P	G	na
Fluorobenzene	P	P	P	P	E	G
Fluoroboric Acid	E	na	E	E	na	na
Fluorocarbon Oils	E	na	E	G	na	na
Fluorolube	E	E	E	G	G	G
Fluorosilicic Acid (Hydrofluosilicic Acid)	E	P	G	G	E	P
Formaldehyde (RT)	F	G	E	G	P	P
Formic Acid	G	G	E	E	F	F
Freon 11	G	P	P	F	E	G
Freon 112	G	P	P	F	E	na
Freon 113	E	P	F	E	G	P
Freon 114	E	P	E	E	G	G
Freon 114B2	G	P	P	F	G	na
Freon 115	E	na	E	E	G	na
Freon 12	E	P	G	E	G	F
Freon 13	E	P	E	E	E	P
Freon 13B1	E	P	E	E	E	na
Freon 142b	E	na	G	E	P	na
Freon 152a	E	na	E	E	P	na
Freon 21	P	P	P	P	P	na
Freon 218	E	na	E	E	E	na
Freon 22	P	P	E	E	P	P
Freon 31	P	na	E	G	P	na
Freon 32	E	na	E	E	P	na
Freon 502	G	na	E	E	G	na
Freon BF	G	P	P	F	E	na
Freon C316	E	na	E	E	G	na
Freon C318	E	na	E	E	G	na
Freon MF	E	P	P	F	G	na
Freon TA	E	F	G	G	P	na
Freon TC	E	P	G	E	E	na
Freon TF	E	P	P	E	G	na
Freon TMC	G	F	F	F	E	na
Freon T-P35	E	E	E	E	E	na
Freon T-WD602	G	P	G	G	E	na
Fuel Oil	E	P	P	G	E	E
Fumaric Acid	E	G	G	G	E	E
Furan, Furfuran	P	na	F	P	P	na
Furfural	P	P	G	F	P	na
Fyrquel (Cellulube)	P	E	E	P	E	F
Gallic Acid	G	na	G	G	E	E
Gasoline	G	P	P	F	E	E
Gelatin	E	E	E	E	E	E
Glauber's Salt (aq)	P	na	G	G	E	E
Glucose	E	E	E	E	E	E
Glue	E	E	E	E	E	E
Glycerin	E	E	E	E	E	E
Glycols	E	E	E	E	E	E
Green Sulfate Liquor	G	E	E	G	E	G
Halowax Oil	P	P	P	P	E	E

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Hexane	E	P	P	G	E	E
Hexyl Alcohol	E	G	F	G	E	G
Hydraulic Oil (Petroleum)	E	F	P	G	E	E
Hydrazine	G	F	E	G	P	P
Hydrobromic Acid	P	P	E	P	E	F
Hydrobromic Acid 40%	P	P	E	G	E	F
Hydrochloric Acid (Cold) 37%	F	F	E	G	E	G
Hydrochloric Acid (Hot) 37%	P	P	F	P	G	F
Hydrocyanic Acid	G	F	E	G	E	G
Hydrofluoric Acid (Conc.) Cold	P	P	F	P	E	P
Hydrofluoric Acid (Conc.) Hot	P	P	P	P	P	P
Hydrofluoric Acid-Anhydrous	P	P	F	P	P	P
Hydrofluosilicic Acid (Fluosilicic Acid)	E	P	G	G	E	P
Hydrogen Gas	E	F	E	E	E	F
Hydrogen Peroxide (90%)	P	G	G	P	G	G
Hydrogen Sulfide (Wet) Cold	P	F	E	G	P	F
Hydrogen Sulfide (Wet) Hot	P	F	E	F	P	F
Hydroquinone	F	na	G	P	G	G
Hypochlorous Acid	P	na	G	P	E	na
Iodine Pentafluoride	P	P	P	P	P	P
Iodoform	na	na	P	P	F	na
i-Propyl Acetate	P	P	G	P	P	P
Isobutyl Alcohol	G	E	E	E	E	G
Isooctane	E	P	P	G	E	E
Isophorone	P	P	F	P	P	P
Isopropyl Acetate	P	P	G	P	P	P
Isopropyl Alcohol	G	E	E	G	E	G
Isopropyl Chloride	P	P	P	P	E	G
Isopropyl Ether	G	P	P	F	P	F
Kerosene	E	P	P	G	E	E
Lacquer Solvents	P	P	P	P	P	P
Lacquers	P	P	P	P	P	P
Lactic Acid (Cold)	E	E	E	E	E	E
Lactic Acid (Hot)	P	G	P	P	E	G
Lard	E	G	G	G	E	E
Lavender Oil	G	P	P	P	E	G
Lead Acetate (aq)	G	P	E	G	P	P
Lead Nitrate (aq)	E	G	E	E	E	E
Lead Sulfamate (aq)	G	G	E	E	E	E
Ligroin (Benzene) (Nitrobenzene) (Pet Ether)	E	P	P	G	E	E
Lime Bleach	E	G	E	G	E	E
Lime Sulfur	P	E	E	E	E	E
Lindol (Hydraulic Fluid)	P	F	E	P	G	F
Linoleic Acid	G	G	P	P	G	na
Linseed Oil	E	E	F	G	E	E
Liquefied Petroleum Gas	E	F	P	G	E	F
Lubricating Oils (Petroleum)	E	P	P	G	E	E
Lye	G	G	E	G	G	E
Magnesium Chloride (aq)	E	E	E	E	E	E
Magnesium Hydroxide (aq)	G	na	E	E	E	na
Magnesium Sulfate (aq)	E	E	E	E	E	E
Maleic Acid	P	na	G	F	E	na
Maleic Anhydride	P	na	G	F	P	na
Malic Acid	E	G	G	F	E	E
Mercury	E	na	E	E	E	na
Mercury Chloride (aq)	E	na	E	E	E	na

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Mesityl Oxide	P	P	G	P	P	P
Methane	E	P	P	G	E	G
Methyl Acetate	P	P	E	G	P	P
Methyl Acrylate	P	P	G	G	P	P
Methyl Alcohol	E	E	E	E	P	E
Methyl Bromide	G	na	P	P	E	E
Methyl Butyl Ketone (Propyl Acetone)	P	F	E	P	P	P
Methyl Cellosolve	F	P	G	F	P	P
Methyl Chloride	P	P	F	P	G	G
Methyl Cyclopentane	P	P	P	P	E	G
Methyl Ether (Dimethyl Ether) (Monomethyl Ether)	E	E	P	F	P	E
Methyl Ethyl Ketone	P	P	E	F	P	P
Methyl Formate	P	na	G	G	P	na
Methyl Isobutyl Ketone	P	P	G	P	P	P
Methyl Methacrylate	P	P	F	P	P	P
Methyl Oleate	P	na	G	P	G	G
Methyl Salicylate	P	na	G	P	G	na
Methylacrylic Acid	P	P	G	G	P	P
Methylene Chloride	P	P	F	P	G	G
MIL-1-8660 B	E	P	E	E	E	E
MIL-A-8243 B	E	G	E	G	G	G
MIL-C-4339 C	E	F	P	E	E	E
MIL-C-5545 A	G	P	P	G	E	E
MIL-C-6529 C	G	P	P	G	E	E
MIL-C-8188 C	E	F	P	F	E	E
MIL-F-16929 A	E	F	P	F	E	E
MIL-F-16958 A	E	F	P	G	E	E
MIL-F-17111	E	F	P	G	E	E
MIL-F-19605	E	P	P	F	E	E
MIL-F-25172	E	P	P	F	E	E
MIL-F-25524 A	E	P	P	F	E	E
MIL-F-25558 B (RJ-1)	E	F	P	G	E	E
MIL-F-25576 C (RP-1)	E	P	P	F	E	E
MIL-F-25656 B	E	P	P	F	E	E
MIL-F-5566	E	E	E	G	E	E
MIL-F-5602	E	F	P	G	E	E
MIL-F-7024 A	E	P	P	G	E	E
MIL-G-10924 B	E	F	P	G	E	E
MIL-G-15793	E	F	P	F	E	E
MIL-G-18709 A	E	F	P	E	E	E
MIL-G-2108	E	F	P	E	E	E
MIL-G-23827 A	E	F	P	F	E	E
MIL-G-25013 D	E	P	E	G	E	G
MIL-G-25537 A	E	F	P	G	E	E
MIL-G-25760 A	E	P	P	F	E	E
MIL-G-27343	E	P	E	E	E	E
MIL-G-27617	P	P	E	na	E	E
MIL-G-4343 B	G	P	F	G	E	G
MIL-G-7118 A	E	F	P	F	E	E
MIL-G-7187	E	F	P	E	E	E
MIL-G-7421 A	E	F	P	F	E	E
MIL-G-7711 A	E	F	P	E	E	E
MIL-H-13862	E	F	P	G	E	E
MIL-H-13866 A	E	F	P	G	E	E
MIL-H-13910 B	G	P	E	G	E	G
MIL-H-13919 A	E	F	P	G	E	E

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MIL-H-19457 B	P	P	E	P	P	F
MIL-H-22072	E	G	E	G	G	G
MIL-H-25598	E	F	P	G	E	E
MIL-H-27601 A	G	P	P	G	E	E
MIL-H-46001 A	E	F	P	E	E	E
MIL-H-46004	E	F	P	G	E	E
MIL-H-5559 A	E	G	E	G	G	G
MIL-H-5606 B (Red Oil)	E	P	P	G	E	E
MIL-H-6083 C	E	F	P	G	E	E
MIL-H-7083 A	E	G	E	G	G	G
MIL-H-7644	G	P	E	G	E	G
MIL-H-81019 B	E	F	P	G	E	E
MIL-H-8446 B (MLO-8515)	G	P	P	G	E	E
MIL-I-27686 D	E	G	E	G	G	G
MIL-J-5161 F	E	P	P	F	E	E
MIL-J-5624 G JP-3, JP-4, JP-5	E	P	P	F	E	E
Milk	E	E	E	E	E	E
MIL-L-10295 A	E	F	P	G	E	E
MIL-L-10324 A	E	F	P	G	E	E
MIL-L-11734 B	E	F	P	F	E	E
MIL-L-14107 B	F	P	P	E	E	E
MIL-L-15017	E	F	P	E	E	E
MIL-L-15018 B	E	F	P	E	E	E
MIL-L-15019 C	E	F	P	E	E	E
MIL-L-15719 A	G	P	G	G	E	G
MIL-L-17331 D	E	F	P	E	E	E
MIL-L-17353 A	E	F	P	F	E	E
MIL-L-17672 B	E	F	P	E	E	E
MIL-L-18486 A	E	F	P	E	E	E
MIL-L-19701	E	F	P	F	E	E
MIL-L-2104 B	E	F	P	E	E	E
MIL-L-2105 B	E	F	P	E	E	E
MIL-L-21260	E	F	P	E	E	E
MIL-L-21568 A	E	P	E	E	E	G
MIL-L-22396	E	F	P	E	E	E
MIL-L-23699 A	E	F	P	F	E	E
MIL-L-25336 B	E	F	P	F	E	E
MIL-L-25681 C	E	P	E	G	E	G
MIL-L-25968	E	F	P	F	E	E
MIL-L-26087 A	E	F	P	E	E	E
MIL-L-27694 A	E	P	E	E	E	E
MIL-L-3150 A	E	F	P	E	E	E
MIL-L-3503	E	F	P	G	E	E
MIL-L-3545-B	G	P	P	G	E	E
MIL-L-46000 A	E	F	P	F	E	E
MIL-L-46002	E	F	P	E	E	E
MIL-L-5020 A	E	P	P	E	E	E
MIL-L-6082 C	E	F	P	E	E	E
MIL-L-6085 A	E	F	P	F	E	E
MIL-L-6086 B	E	F	P	E	E	E
MIL-L-6387 A	E	F	P	F	E	E
MIL-L-644 B	E	F	F	F	na	na
MIL-L-7645	G	P	P	G	E	E
MIL-L-7808 F	E	F	P	F	E	E
MIL-L-7870 A	E	F	P	G	E	E
MIL-L-8383 B	E	F	P	E	E	E
MIL-L-9000 F	E	P	P	G	E	E

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MIL-L-9236 B	E	P	F	F	E	E
MIL-O-11773	E	F	P	F	E	E
MIL-O-6081 C	E	F	P	G	E	E
MIL-P-12098	G	P	E	G	E	G
MIL-P-46046 A	G	P	E	G	E	G
MIL-S-3136 B Type I	E	P	P	G	E	E
MIL-S-3136 B Type II	E	P	P	F	E	E
MIL-S-3136 B Type III	E	P	P	F	E	E
MIL-S-3136 B Type IV	E	F	P	E	E	E
MIL-S-3136 B Type V	E	F	P	G	E	E
MIL-S-3136 B Type VI	E	F	P	G	E	E
MIL-S-3136 B Type VII	E	P	P	F	E	E
MIL-S-81087	E	P	E	E	E	G
MIL-T-9188 B	P	P	E	P	P	F
Mineral Oil	E	G	F	G	E	E
Monochlorobenzene	P	P	P	P	E	G
Monoethanol Amine	P	G	E	P	P	P
Monomethyl Aniline	P	na	G	P	G	na
Monomethyl Ether (Methyl Ether) (Dimethyl Ether)	E	E	P	F	P	E
Monovinyl Acetylene	E	G	G	G	E	na
Mustard Gas	na	E	E	E	E	na
Naphtha	G	P	P	F	E	G
Naphthalene	P	P	P	P	E	E
Naphthalenic Acid	G	P	P	P	E	E
Natural Gas	E	E	P	E	E	F
Neats Foot Oil	E	G	G	P	E	E
Neville Acid	P	P	G	P	E	G
N-Hexaldehyde	P	G	E	E	P	P
N-Hexene-1	G	P	P	G	E	E
Nickel Acetate (aq)	G	P	E	G	P	P
Nickel Chloride (aq)	E	E	E	E	E	E
Nickel Sulfate (aq)	E	E	E	E	E	E
Niter Cake	E	E	E	E	E	E
Nitric Acid (Conc.)	P	P	P	P	G	F
Nitric Acid (Dilute)	P	G	G	G	E	G
Nitric Acid-Red Fuming	P	P	P	P	F	P
Nitrobenzene	P	P	E	P	G	P
Nitrobenzene (Petroleum Ether)	E	P	P	G	E	E
Nitroethane	P	P	G	F	P	P
Nitrogen	E	E	E	E	E	E
Nitrogen Tetroxide	P	P	F	P	P	P
Nitromethane	P	P	G	G	P	P
N-Octane	G	P	P	G	E	G
n-Propyl Acetate	P	P	G	P	P	P
O-A-548 b	E	G	E	G	G	G
O-Chloronaphthalene	P	P	P	P	E	G
Octachlorotoluene	P	P	P	P	E	G
Octadecane	E	P	P	G	E	E
Octyl Alcohol	G	G	F	E	E	G
O-Dichlorobenzene	P	P	P	P	E	G
O-Dichlorobenzene	P	P	P	P	E	G
Oleic Acid	F	P	P	F	G	na
Oleum Spirits	G	P	P	F	E	G
Olive Oil	E	F	G	G	E	E
O-T-634 b	F	P	P	P	E	G
Oxalic Acid	G	G	E	G	E	E

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Oxygen-(200-400°F)	P	G	F	P	G	P
Oxygen-Cold	G	E	E	E	E	E
Ozone	P	E	E	F	E	G
Paint Thinner, Duco	P	P	P	P	G	G
Palmitic Acid	E	P	G	G	E	E
P-Cymene	P	P	P	P	E	G
P-D-680	E	P	P	F	E	E
Peanut Oil	E	E	F	F	E	E
Perchloric Acid	P	P	G	G	E	E
Perchloroethylene	G	P	P	P	E	G
Petroleum-Above 250°F	P	P	P	G	G	P
Petroleum-Below 250°F	E	G	P	G	E	G
Phenol (Carbolic Acid)	P	P	G	F	E	E
Phenyl Ethyl Ether	P	P	P	P	P	P
Phenyl Hydrazine	P	na	G	P	G	na
Phenylbenzene (Biphenyl) (Diphenyl)	P	P	P	P	E	G
Phorone (Diisopropylidene Acetone)	P	P	F	P	P	P
Phosphoric Acid-20%	G	G	E	G	E	G
Phosphoric Acid-45%	P	F	E	G	E	G
Phosphorus Trichloride	P	na	E	P	E	E
Pickling Solution	P	P	F	P	G	P
Picric Acid	G	P	G	E	E	G
Pine Oil	P	P	P	P	E	E
Pinene	G	P	P	F	E	G
Piperidine	P	P	P	P	P	P
Plating Solution-Chrome	na	P	E	P	E	na
Plating Solution-Others	E	P	E	P	E	na
Polyvinyl Acetate Emulsion	na	na	E	G	na	na
Potassium Acetate (aq)	G	P	E	G	P	P
Potassium Chloride (aq)	E	E	E	E	E	E
Potassium Cupro Cyanide (aq)	E	E	E	E	E	E
Potassium Cyanide (aq)	E	E	E	E	E	E
Potassium Hydroxide (aq)	G	F	E	G	P	F
Potassium Nitrate (aq)	E	E	E	E	E	E
Potassium Sulfate (aq)	E	E	E	E	E	E
Potassium Dichromate (aq)	E	E	E	E	E	E
Producer Gas	E	G	P	G	E	G
Propane	E	P	P	G	E	G
Propyl Acetone (Methyl Butyl Ketone)	P	F	E	P	P	P
Propyl Alcohol	E	E	E	E	E	E
Propyl Nitrate	P	P	G	P	P	P
Propylene	P	P	P	P	E	G
Propylene Oxide	P	P	G	P	P	P
P-S-661 b	E	P	P	F	E	E
Pydraul, 10E, 29 ELT	P	P	E	P	E	P
Pydraul, 115E	P	P	E	P	E	F
Pydraul, 230E, 312C, 540C	P	P	P	P	E	P
Pydraul, 30E, 50E, 65E, 90E	P	E	E	P	E	E
Pyranol, Transformer Oil	E	P	P	G	E	E
Pyridine	P	P	G	P	P	P
Pyroligneous Acid	P	na	G	G	P	P
Pyrrrole	P	G	F	P	P	F
Radiation	F	F	G	G	F	P
Rapeseed Oil	G	P	E	G	E	E
Red Oil (MIL-H-5606)	E	P	P	G	E	E
RJ-1 (MIL-F-25558 B)	E	P	P	G	E	E
RP-1 (MIL-F-25576 C)	E	P	P	G	E	E

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Sal Ammoniac	E	G	E	E	E	E
Salicylic Acid	G	na	E	E	E	E
Salt Water	E	E	E	G	E	E
Sewage	E	G	G	G	E	E
Silicate Esters	G	P	P	E	E	E
Silicone Greases	E	F	E	E	E	E
Silicone Oils	E	F	E	E	E	E
Silver Nitrate	G	E	E	E	E	E
Skydrol 500	P	F	E	P	P	F
Skydrol 7000	P	F	E	P	G	F
Soap Solutions	E	E	E	G	E	E
Soda Ash	E	E	E	E	E	E
Sodium Acetate (aq)	G	P	E	G	P	P
Sodium Bicarbonate (aq) (Baking Soda)	E	E	E	E	E	E
Sodium Bisulfite (aq)	E	E	E	E	E	E
Sodium Borate (aq)	E	E	E	E	E	E
Sodium Chloride (aq)	E	E	E	E	E	E
Sodium Cyanide (aq)	E	E	E	E	E	E
Sodium Hydroxide (aq)	G	G	E	E	G	G
Sodium Hypochlorite (aq) (Chlorox)	G	G	G	E	E	G
Sodium Metaphosphate (aq)	E	na	E	G	E	E
Sodium Nitrate (aq)	G	P	E	G	E	na
Sodium Perborate (aq)	G	G	E	G	E	E
Sodium Peroxide (aq)	G	P	E	G	G	E
Sodium Phosphate (aq)	E	P	E	G	E	na
Sodium Silicate (aq)	E	na	E	E	E	na
Sodium Sulfate (aq)	E	E	E	E	E	E
Sodium Thiosulfate (aq)	G	E	E	E	E	E
Soybean Oil	E	E	F	G	E	E
Stannic Chloride (aq)	E	G	E	G	E	E
Stannous Chloride (aq)	E	G	E	E	E	E
Steam Over 300°F	P	P	F	P	P	P
Steam Under 300°F	P	F	E	F	P	P
Stearic Acid	G	G	G	G	E	na
Stoddard Solvent	E	P	P	G	E	E
Styrene	P	P	P	P	G	F
Sucrose Solution	E	E	E	G	E	E
Sulfite Liquors	G	P	G	G	E	G
Sulfur	P	F	E	E	E	E
Sulfur Chloride (aq)	F	F	P	F	E	E
Sulfur Dioxide (Liquified Under Pressure)	P	G	E	P	G	G
Sulfur Dioxide (Dry)	P	G	E	P	G	G
Sulfur Dioxide (Wet)	P	G	E	G	G	G
Sulfur Hexafluoride	G	G	E	E	E	G
Sulfur Trioxide	P	G	G	P	E	G
Sulfuric Acid (20% Oleum)	P	P	P	P	E	P
Sulfuric Acid (Conc.)	P	P	F	P	E	P
Sulfuric Acid (Dilute)	F	P	G	G	E	F
Sulfurous Acid	G	P	G	G	F	na
Tannic Acid	E	G	E	E	E	na
Tar, Bituminous	G	G	F	F	E	E
Tartaric Acid	E	E	G	G	E	E
Terpineol	G	na	F	P	E	E
Tertiary Butyl Alcohol	G	G	G	G	E	G
Tertiary Butyl Catechol	P	na	G	G	E	E
Tertiary Butyl Mercaptan	P	P	P	P	E	na

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Tetrabromoethane	P	P	P	P	E	G
Tetrabromomethane	P	P	P	P	E	G
Tetrabutyl Titanate	G	na	E	G	E	E
Tetrachloroethylene	P	P	P	P	E	G
Tetraethyl Lead	G	na	P	G	E	G
Tetrahydrofuran	P	P	F	P	P	P
Tetralin	P	P	P	P	G	E
Thionyl Chloride	P	na	F	P	G	na
Titanium Tetrachloride	G	P	P	P	E	G
Toluene	P	P	P	P	G	G
Toluene Diisocyanate	P	P	G	P	P	P
Transformer Oil	E	G	P	G	E	E
Transmission Fluid Type A	E	G	P	G	E	E
Triacetin	G	na	E	G	P	P
Triaryl Phosphate	P	F	E	P	E	G
Tributoxy Ethyl Phosphate	P	na	E	P	E	G
Tributyl Mercaptan	P	P	P	P	E	F
Tributyl Phosphate	P	P	G	P	P	P
Trichloroacetic Acid	G	na	G	P	P	P
Trichloroethane	P	P	P	P	E	G
Trichloroethylene	P	P	P	P	E	G
Tricresyl Phosphate	P	F	P	F	E	G
Triethanol Amine	G	na	E	E	P	P
Triethyl Aluminum	P	na	F	P	G	na
Triethyl Borane	P	na	F	P	E	na
Trinitrotoluene	P	na	P	G	G	G
Trioctyl Phosphate	P	F	E	P	G	G
TT-I-735 b	E	E	E	G	E	E
TT-N-95 a	E	P	P	F	E	E
TT-N-97 B	E	P	P	F	E	G
TT-S-735 Type I	E	P	P	G	E	E
TT-S-735 Type II	E	P	P	F	E	E
TT-S-735 Type III	E	P	P	F	E	E
TT-S-735 Type IV	E	F	P	E	E	E
TT-S-735 Type V	E	F	P	G	E	E
TT-S-735 Type VI	E	F	P	G	E	E
TT-S-735 Type VII	E	P	P	F	E	E
TT-T-656b	P	P	E	P	P	F
Tung Oil (China Wood Oil)	E	P	F	G	E	G
Turbine Oil	G	P	P	P	E	G
Turpentine	E	P	P	P	E	G
Unsymmetrical Dimethyl Hydrazine (UDMH)	G	P	E	G	P	P
Varnish	G	P	P	P	E	G
Vegetable Oils	E	G	F	F	E	E
Versilube F-50	E	F	E	E	E	E
Vinegar	G	E	E	G	E	F
Vinyl Chloride	P	na	P	P	E	na
VV-B-680	G	P	E	G	E	G
VV-G-632	E	F	P	E	E	E
VV-G-671c	E	F	P	E	E	E
VV-H-910	G	P	E	G	E	G
VV-I-530a\	E	F	P	G	E	E
VV-K-211d	E	P	P	F	E	E
VV-K-220a	E	P	P	G	E	E
VV-L-751b	G	P	P	G	E	E
VV-L-800	E	F	P	G	E	E

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VV-L-820b	E	F	P	G	E	E
VV-L-825a Type I	E	F	P	E	E	E
VV-L-825a Type II	E	F	P	E	E	E
VV-L-825a Type III	G	P	P	G	E	E
VV-O-526	E	F	P	E	E	E
VV-P-216a	E	F	P	G	E	E
VV-P-236	G	P	P	G	E	E
Wagner 21B Brake Fluid	F	F	E	G	P	P
Water	E	E	E	E	E	E
Whiskey, Wines	E	E	E	E	E	E
White Oil	E	P	P	G	E	E
White Pine Oil	G	P	P	P	E	E
Wood Oil	E	P	P	G	E	G
Xylene	P	P	P	P	E	E
Xylidine (Di-methyl Aniline)	F	P	G	F	P	P
Zeolites	E	na	E	E	E	E
Zinc Acetate (aq)	G	P	E	G	P	P
Zinc Chloride (aq)	E	E	E	E	E	E
Zinc Sulfate (aq)	E	E	E	E	E	E

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