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<b>Material</b>	<b>Hardness (Shore A)</b>	<b>Temperature Range</b>	<b>Comments</b>
<b>Nitrile (Buna N) (NBR)</b>	40 to 90	- 40 °F to 250 °F	Excellent general purpose, low cost compound, with good physical strength and good compression set. Good resistance to oil, fuel, water, and air.
<b>Chloroprene (Neoprene) (CR)</b>	30 to 90	- 40 °F to 250 °F	Good general purpose, low cost compound, with good resistance to flex cracking, ozone impermeability, abrasion, and compression set. Good in oil, fuel, refrigerants and fair in water. Poor in aromatics.
<b>Butyl (IIR)</b>	50 to 80	- 75 °F to 225 °F	Excellent impermeability for vacuum service, non flammable phosphate ester fluid resistance, and good weathering, water swell, ozone, and chemical resistance, except with petroleum base derivitaves. Poor compression set.
<b>Natural Rubber (Polyisoprene) (NR)</b>	40 to 90	- 75 °F to 180 °F	Excellent resilience, cold temperature, and good abrasion resistance, compression set, tensile and low water swell. Good for steam if no oil present. Poor in heat, oil, fuel, ozone, and solvent resistance.
<b>Styrene-Butadiene (Buna S) (GR-S) (SBR)</b>	40 to 90	- 70 °F to 225 °F	Similar to natural rubber. (See above for details)
<b>Hydrin (CO) (ECO)</b>	60 to 90	- 65 °F to 300 °F	Excellent impermeability, oil and fuel resistance, and low temperature flexibility. Good solvent, and refrigerant resistance, compression set, and ozone resistance. Poor abrasion resistance.
<b>Hypalon Chlorinated Polyethylene (CSM)</b>	50 to 85	- 65 °F to 250 °F	Excellent ozone, weather, chemical (except for fuels and solvents), and good abrasion resistance, impermeability for vacuum service, but poor compression set.
<b>Fluoro-Carbon Elastomers (Viton) (Kel-F) (Fluorel) (FPM) (CPM)</b>	60 to 90	- 20 °F to 400 °F	Standard high cost material for excellent high temperature and chemical resistance. Poor only in caustics and ketones. Good mechanical properties and good in Di ester and Silicate ester fluids.

<b>Silicones (Si) (PSi) (VSi) (PVSi)</b>	30 to 80	- 80 °F to 450 °F	Standard high cost compounds, excellent water and dry heat resistance. Poor tensile, and abrasion, and poor oil, fuel and solvent resistance.
<b>Fluoro-Silicones (LS 53) (FSi)</b>	40 to 70	- 80 °F to 350 °F	Same as Silicones except good oil, fuel, and solvent resistance.
<b>Ethylene Propylene (EP) (EPM) (EPT) (EPDM)</b>	40 to 80	- 65 °F to 300 °F	Excellent resistance to steam, aging, abrasion, and phosphate ester fluids. Good compression set, ozone, ketone and weather resistance. Poor petroleum base resistance.
<b>Polyurethane Cast Millable Injection (AU) (EU)</b>	60 SHORE A TO 80 SHORE D	- 40 °F to 200 °F	Excellent elasticity, abrasion and flex cracking resistance. Good compression set, elongation and solvent resistance (except ketones). Extremely high tensile strength, but poor temperature range and hot water resistance, and poor with acids, and alkali.
<b>Polyacrylates (ACM) (ANM)</b>	40 to 90	- 20 °F to 300 °F	Excellent aging and high temperature resistance. Good with oils and solvents and phosphate ester fluids. Poor abrasion and water resistance.
<b>Thiokol Polysulfide</b>	40 to 80	- 65 °F to 225 °F	Excellent solvent and petroleum based fuel and oil resistance. Good resilience, weather, ozone resistance, vacuum service and poor tensile, abrasion and compression set properties.
<b>Teflon</b>	Not an Elastomer	- 300 °F to 500 °F	Excellent lubricity, chemical and temperature resistance. Because of cold flow and high mechanical strength, Teflon does not seal well unless very carefully designed. Can be used as static seal readily, but as dynamic seal needs mechanical loading.

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The recommendations shown in this table are based on data obtained in our laboratory, data supplied by polymer manufacturers, and comparison made with similar materials. These are general guidelines only and users must conduct their own functional tests to determine the suitability of any compound for their particular application. To aid in your selection, materials are ranked in order of increasing cost with Nitriles costing the least and Fluoroelastomers costing the most.

**R** = Recommended **M** = Marginal **U** = Unsatisfactory **X** = Insufficient Data

Increasing cost ----->

Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Acetaldehyde	U	U	R	U	U	U	R	U
Acetamide	R	U	R	R	U	U	M	U
Acetic Acid	M	M	R	R	U	U	R	U
Acetone	U	M	R	M	U	U	M	U
Acetophenone	U	U	R	U	U	U	U	U
Acetylene	R	R	R	R	X	X	R	R
Ammonia	R	R	R	R	U	X	R	U
Ammonium Hydroxide	R	R	R	R	U	U	R	R
Amyl Acetate	U	U	M	U	U	U	U	U
Anderol L-774	M	U	U	U	R	U	U	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Antifreeze	R	R	R	R	U	U	R	R
Aniline	U	U	R	U	U	U	U	M
Ansul Ether	M	U	M	U	U	R	U	U
Aroclors	M	U	R	U	U	X	M	R
Askarel	R	U	U	U	U	U	U	R
ASTM # 1	R	U	U	R	R	R	R	R
ASTM # 3	R	U	U	U	R	R	U	R
ASTM Fuel A	R	U	U	R	R	R	U	R
ASTM Fuel B	R	U	U	U	U	R	U	R
ASTM Fuel C	R	U	U	U	U	R	U	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
ASTM Fuel D	M	U	U	U	U	R	U	R
Auto. Transmission Fluid	R	U	U	M	R	R	M	R
Beer	R	R	R	R	U	U	R	R
Benzaldehyde	U	U	R	U	U	U	U	U
Benzene	U	U	U	U	U	U	U	R

PSE Fluid Compatibility Chart

Benzene	R	U	U	R	R	R	U	R
Benzoic Acid	U	U	U	U	U	U	U	R
Benzophenone	U	U	R	X	U	U	U	R
Benzyl Alcohol	U	U	R	R	U	U	X	R
Bleach	R	R	R	R	U	U	U	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Borax	R	R	R	U	R	R	R	R
Boric Acid	R	R	R	R	U	R	R	R
Brake Fluid (non-petroleum)	U	R	R	R	U	U	R	U
Bromine	U	U	U	U	U	U	U	R
Bromobenzene	U	U	U	U	U	U	U	R
Bunker Oil	R	U	U	U	R	R	U	R
Butane	R	M	U	R	R	U	U	R
Butter	R	U	M	R	R	R	R	R
Butyl Acetate	U	U	U	U	U	U	U	U
Butyl Alcohol	R	R	R	R	U	U	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Butyl Amine	M	U	U	U	U	U	R	U
Butyl Carbitol	U	U	R	M	U	X	U	M
Butyl Cellosolve	M	U	R	M	U	U	X	U
Butyraldehyde	U	U	R	U	U	U	U	U
Carbitol	R	R	R	R	U	U	R	R
Carbitol Acetate	U	U	U	U	U	U	U	R
Carbon Disulfide	U	U	U	U	U	X	U	R
Carbon Tetrachloride	R	U	U	U	U	U	U	R
Carbonic Acid	R	R	R	R	R	R	R	R
Castor Oil	R	R	R	R	R	R	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Cellosolve	U	R	U	U	U	U	U	U
Chassis Grease	R	U	U	M	R	X	U	R
Chloracetic Acid	U	U	R	U	U	U	X	U
Chloracetone	U	U	R	M	X	X	U	R
Chlordane	R	U	U	M	X	X	U	R
Chlorine	U	U	R	U	U	U	X	R
Chlorbenzol	U	U	U	U	U	U	U	R
Chloroform	U	U	U	U	U	U	U	R
Chlorosulfonic Acid	U	U	U	U	U	U	U	U
Chrome Plating Solution	U	U	R	U	U	U	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Chromic Acid	U	U	X	U	X	X	M	R
Citric Acid	R	R	R	R	X	X	R	R
Cod Liver Oil	R	U	U	R	R	U	R	R
Coffee	R	R	R	R	U	U	R	R

PSE Fluid Compatibility Chart

Corn Oil	R	U	U	U	R	U	R	R
Creosote	R	U	U	R	R	M	U	R
Creosote Oil	R	U	U	M	X	X	M	R
Creosylic Acid	U	U	U	U	U	U	U	R
Crude Oil	R	U	U	M	R	R	U	R
Cyclohexane	R	U	U	M	R	R	U	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Cyclohexanol	R	U	U	R	X	X	U	R
Decalin	U	U	U	U	U	U	U	R
Denatured Alcohol	R	R	R	R	U	U	R	R
Diacetone	U	U	R	U	U	U	U	U
Dibutyl Amine	U	U	U	M	U	U	U	U
Dibutyl Phthalate	U	U	R	U	U	X	X	M
Dichloro Aniline	U	U	U	U	U	U	U	M
Dichloro Butane	R	U	U	U	U	U	U	R
Diesel Oil	R	U	U	M	U	U	U	R
Diethylamine	R	R	R	R	U	M	R	U
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Diethyl Benzene	M	U	U	U	X	X	X	R
Diethylene Glycol	R	R	R	R	U	U	R	R
Dimethyl Ether	U	U	U	M	M	R	U	U
Dimethyl Foramide	U	X	R	X	X	X	R	U
Dimethyl Phthalate	U	U	R	U	U	X	X	R
Dimethyl Terephthalate	U	U	U	U	U	U	U	R
Diocetyl Phthalate	U	U	R	U	U	U	M	R
Dioxane	U	U	R	U	U	U	U	U
Diphenyl	U	U	U	U	U	U	U	R
Dow Corning 550	R	R	R	R	R	R	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Dow Gard	R	R	R	R	M	M	R	R
Dowtherm A & E	U	U	U	U	U	U	U	R
Elco 28	R	U	U	M	R	R	R	R
Epoxy Resins	X	X	R	R	X	X	X	U
Ethane	R	U	U	R	R	M	U	R
Ethanol	R	R	R	R	U	R	R	R
Ethanolamine	R	R	R	R	U	M	R	U
Ethyl Acetate	U	U	R	U	U	U	R	U
Ethyl Benzene	U	U	U	U	U	U	U	R
Ethyl Cellulose	R	R	R	R	U	R	R	U
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Ethyl Chloride	R	R	R	R	M	R	U	R
Ethyl Ether	M	U	M	U	U	R	U	U

PSE Fluid Compatibility Chart

Ethyl Formate	U	U	R	R	X	X	X	R
Ethyl Hexanol	R	R	R	R	X	X	X	R
Ethyl Merlaptan	U	U	X	M	X	X	M	R
Ethylene Chloride	U	U	U	U	U	U	U	R
Ethylene Oxide	U	U	R	U	U	U	U	U
Formaldehyde	M	M	R	M	U	U	R	U
Formic Acid	M	R	R	R	X	X	M	U
Freon 12	R	R	R	R	X	R	U	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Fuel Oil	R	U	U	R	R	U	U	R
Furan	U	U	X	U	U	X	X	X
Frufural	U	U	R	U	U	X	U	U
Fufuryl Alcohol	U	U	R	U	U	U	U	X
Fyrquel	U	U	R	U	U	U	R	R
Gallic Acid	R	R	R	R	U	U	X	R
Gasoline	R	U	U	U	U	R	U	R
Gelatin	R	R	R	R	U	U	R	R
Glucose	R	R	R	R	X	U	R	R
Glycerine	R	R	R	R	U	U	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Heptane	R	U	U	R	R	R	U	R
Hexaldehyde	U	U	R	R	X	X	R	U
Hexane	R	U	U	R	R	R	U	R
Hexanol	R	R	M	R	U	U	R	R
Home Heating Oil	R	U	U	M	R	R	R	R
Hydrazine	R	R	R	R	X	X	R	X
Hydrochloric Acid	R	M	R	R	M	U	U	R
Hydrocyanic Acid	R	R	R	R	U	X	M	R
Hydrogen Peroxide	R	R	R	R	U	X	R	R
Hydrogen Sulfide	U	U	R	R	U	X	M	U
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Hydroquinone	M	U	U	U	U	X	X	R
Hypoid Gear Lube	R	U	U	M	R	R	M	R
Iodine	R	R	R	U	X	X	X	R
Isocyanate	X	X	X	X	X	X	X	R
Iso Octane	R	U	U	R	R	R	U	R
Iso Phorone	U	U	R	U	U	U	U	U
Isopar	R	X	U	R	R	R	U	R
Isopropanol	R	R	R	R	U	U	R	R
Isopropyl Acetate	U	U	R	U	U	U	U	U
JP-4(MIL-J-5624)	R	U	U	U	R	R	U	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer

JP-5(MIL-J-5624)	R	U	U	U	R	R	U	R
Kerosine	R	U	U	R	R	R	U	R
Lactic Acid	R	R	R	R	U	X	X	R
Lacquers	U	U	U	U	U	U	U	U
Lard	R	U	R	R	R	R	R	R
Linoleic Acid	R	U	U	R	X	X	R	R
Linseed Oil	R	U	M	M	R	X	R	R
Lye Solutions	R	R	R	R	U	U	R	R
Malathion	R	U	U	X	X	X	U	R
Maleic Acid	U	U	U	U	U	X	X	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Mercury	R	R	R	R	X	X	X	R
Meter-Cresol	U	U	U	R	U	U	U	R
Methane	R	U	U	R	R	M	U	R
Methanol	R	R	R	R	U	U	R	U
Methyl Acetate	U	U	R	R	U	U	U	U
Methacrylic Acid	U	U	R	R	U	U	U	M
Methyl Cellosolve	M	U	R	M	U	U	U	U
Methylene Chloride	U	U	U	U	U	U	U	R
Methyl Ethyl Ketone	U	U	R	U	U	U	U	U
Methyl Mercaptan	X	X	R	X	X	X	X	X
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Milk	R	R	R	R	U	U	R	R
Mineral Oil	R	U	M	R	R	R	R	R
Mineral Spirits	R	U	U	U	R	R	U	R
Monovinyl Acetylene	R	R	R	R	X	X	R	R
Mustard	X	R	R	X	X	X	R	R
Naphtha	R	U	U	U	R	R	U	R
Naphthalene	U	U	U	U	X	X	U	R
Naphthenic Acid	R	U	U	U	X	X	U	R
Natural Gas	R	R	U	R	R	R	R	R
Neatsfoot Oil	R	U	R	U	R	R	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Nitric Acid	U	M	R	U	U	U	U	M
Nitrobenzene	U	U	U	U	U	U	U	R
Nitropropane	U	U	R	U	U	U	U	U
Octane	R	U	U	U	U	U	U	R
Octanol	R	R	R	R	U	U	R	R
Oleic Acid	M	U	U	M	X	X	U	R
Oleum	R	U	U	M	X	X	U	R
Oronite 8200	R	U	U	R	X	R	U	R
Oxalic Acid	R	R	R	R	X	X	R	R
Peanut Oil	R	U	M	M	R	X	R	R

Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Pentane	R	M	U	R	R	U	U	R
Perchlorethylene	R	U	U	U	U	U	U	R
Petroleum Ether	U	U	U	U	U	U	U	R
Phenol	U	U	U	U	U	U	U	R
Phenylhydrazine	U	M	U	U	U	X	X	R
Phosphoric Acid	R	R	R	R	M	U	R	R
Pine Oil	R	U	U	U	X	X	U	R
Potassium Hydroxide	R	R	R	R	U	U	M	U
Propane	R	U	U	R	R	M	U	R
Propanol	R	R	R	R	U	U	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Propyl Acetate	U	U	R	U	U	U	U	U
Pydraul	U	U	R	U	U	U	U	R
Pyranol	R	U	U	R	R	R	U	R
Pyridine	U	R	U	U	U	X	U	U
Rapeseed Oil	R	U	R	R	R	R	U	R
Resurcinol	X	R	R	X	X	X	X	X
SAE10W30	R	U	U	M	R	R	R	R
Seawater	R	R	R	R	U	U	R	X
Silicone Grease	R	R	R	R	R	R	R	R
Silver Nitrate	R	R	R	R	R	R	R	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Skelly Solvent	R	U	U	U	X	X	X	R
Skydrol	U	U	R	U	U	U	U	R
Skydrol 500	U	U	R	U	U	U	U	U
Sodium Hydroxide	R	R	R	R	U	R	R	R
Sovasol	R	U	U	R	R	R	U	R
Soy Bean Oil	R	U	M	M	R	X	R	R
Stearic Acid	R	R	R	R	X	X	R	X
Stoddard Solvent	R	U	U	R	R	R	U	R
Sucrose	R	R	R	R	U	U	R	R
Sulfuric Acid	R	R	R	R	R	U	U	R
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Tall Oil	R	U	U	M	R	U	X	R
Tannic Acid	R	R	R	R	U	X	R	R
Tar	R	U	U	M	U	X	R	R
Tartaric Acid	R	R	R	R	X	X	R	R
Tetrachloro Ethane	U	U	U	U	U	U	U	R
Tetralin	U	U	U	U	U	U	U	R
Tidewater Oil	R	U	U	R	R	R	R	R
Toluene	U	U	U	U	U	U	U	R



Trichloro Ethylene	M	U	U	U	U	U	U	R
Triethanol	M	R	R	R	U	U	X	U
Fluid	Nitrile	SBR	EPMD	Neoprene	Polyacrylate	Urethane	Silicone	Flouro-elastomer
Turbine Oil	R	U	U	U	R	R	U	R
Turpentine	R	U	U	U	R	U	U	R
UCDN 50HB280X	R	R	R	R	X	X	R	R
Univis J-43	R	U	U	R	R	R	U	R
Varnish	R	U	U	U	U	M	U	R
Vinegar	R	R	R	R	U	U	R	R
Water	R	R	R	R	U	U	R	R
Wheat Germ Oil	R	U	U	M	R	R	R	R
Whiskey & Wine	R	R	R	R	U	U	R	R
Wood Oil	R	U	U	R	X	M	U	R

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 Chicago, IL 60641

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