The General Chemical Resistance of Various Elastomers

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

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

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

General Purpose - Non Oil Resistant

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

General Purpose - Oil Resistant

(5)	(1)	(2)	(3)	(4)
Nitrile	Epychlorohydrin	Neoprene	Hypalon	Urethane
NBR	CO ECO	CR	CSM	AU EU
Butadiene Acrylonitrile Copolymer	Epichlorohydrin Polymer and Copolymer	Chloroprene Polymer	Chlorosulfonated Polyethylene	Urethane Polymer
Many Hydrocarbons, Fats, Oils, Greases, Hydraulic Fluids, Chemicals	Similar to Nitrile with Ozone Resistance	Moderate Chemicals and Acids, Ozone, Oils, Fats, Greases, Many Oils and Solvents	Similar to Neoprene with Improved Acid Resistance	ozone, hydrocarbons, moderate chemicals, fats,
Ozone * Ketones, Esters, Aldehydes, Chlorinated and Nitro Hydrocarbons, *except PVC Blends	Ketones, Esters, Aldehydes, Chlorinated and Hydrocarbons	Strong Oxidizing Acids, Esters, Ketones, Chlorinated, Aromatic, and Hydrocarbons	Concentrated Oxidizing Acids, Esters, Ketones, Chlorinated, Aromatic, and Hydrocarbons	Ozone, Hydrocarbons, Moderate Chemicals, Fats,

Specialty Elastomers

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