

MATERIAL SELECTION GUIDE

COMMERCIAL MATERIALS

Material	General Properties	Common Applications
Buna-N (Nitrile/NBR) 70 Durometer Black	Good resistance to petroleum hydrocarbons and fuels. Widely used with most oils, hydraulic fluids, alcohol. Many compound variations for specific applications. Basic temperature range: -40 F to +250 F*	Petroleum oil seals Hydraulic fluid seals Water / Greases Transmission fluid seals
Viton® (Fluorocarbon) 75 Durometer	Excellent high temperature and chemical resistance. Excellent mechanical and physical properties. Low compression set and low gas permeability. Basic temperature range: -20 F to +400 F* Trade Names: Fluorel (3M) • Viton® (DuPont Dow Elastomers)	Vacuum seals Acids / Fuels High heat Chemicals / Solvents
Silicone 70 Durometer	Broad temperature range. Odorless / non-toxic. Resistance to sun and ozone. Fungus resistant. Poor tear and abrasion strength. Poor resistance to oils. Basic temperature range: -80 F to +400 F*	Dry heat Alcohol / Oxygen Electrical / Medical Low temperature
EPDM/EPR (Ethylene Propylene) 70 Durometer Black	Resistance to sunlight, weathering and ozone. Poor resistance to petroleum oils and fuel. Good heat and compression set resistance. Basic temperature range: -65 F to +250 F*	Steam / Hot water Hydraulic / Skydrol Auto brake systems Alcohol / Greases
Neoprene® (Chloroprene) 70 Durometer Black	Good resistance to petroleum oils. Low compression set and good tear and abrasion strength. Good resistance to weathering, sunlight and ozone. Basic temperature range: -40 F to +225 F*	Refrigeration seals Freon / Air conditioning Motor mounts Engine coolants
Fluorosilicone	Wide range of fluid and chemical resistance.	Aircraft fuel systems

	<p>Large temperature range. A mix of Fluorocarbon (Viton) and Silicone. Basic temperature range: -80 F to +350 F*</p>	<p>Jet fuel / Gasoline Petroleum oils Synthetic jet oil</p>
Kalrez®	<p>High temperature and chemical resistance. Low compression set. Various compounds for specific applications. Basic temperature range: compounds up to +600 F*</p>	<p>CDP# 4079 Chemicals +600 F CPD# 1050LF Steam +550 F Water</p>
PTFE	<p>Excellent temperature range. Various chemical and fuel resistance. Low coefficient of friction. Non-elastic. Basic temperature range: -250 F to +450 F*</p>	<p>High / Low temperatures Chemicals / Fuels PTFE Encapsulation PTFE coating</p>
Aflas®	<p>Excellent resistance to petroleum products, steam, phosphate esters, amines and brake fluids. Broad range media resistance similar to EPDM and Viton®. Elastomeric form makes it low in gas permeability Basic temperature range: -20 F to +400 F*</p>	<p>O-rings for various fluids seals. Not readily available in other seal forms. Petroleum fluids and steam, amines, brake fluids or phosphate esters.</p>
Polyurethane (Urethane)	<p>Highly resistant to oil swell, ozone, oxidation and abrasion. Highly resilient and having a high tensile strength and elongation properties. An excellent choice for hydraulic seals using petroleum based oils. Basic temperature range: -65 F to +200 F*</p>	<p>Hydraulic seals in oil, such as u-cups, o-rings, wipers. *Some Polyurethanes are now available for water and water based fluids at temperatures to 220 F*. Petroleum based oils.</p>

**Highly
Saturated
Nitrile**
(HSN/HNBR)

Excellent abrasion resistance, compression set, tensile and tear properties. A step above standard Nitriles in that it exhibits resistance to ozone, sunlight and other atmospheric conditions. Vastly improved resistant to heat aging.
Basic temperature range: -40 F to +300 F*
(Short periods up to +300 F*)

O-rings for various petroleum fluids.
Available in other forms for hydraulic seals such as u-cups, vee packings, wipers and back-up rings and special sealing rings.
Petroleum fluids. Water.
Silicone fluids.
Ethylene glycol.
Amines.