

Physical Properties and Relative Performance Characteristics of Elastomers

	NON-OIL RESISTANT						OIL RESISTANT						EXOTIC ELASTOMERS			
Chemical Name	Natural Rubber	Polyisoprene	Polybutadiene	Butyl	SBR Styrene-Butadiene	EPDM, EPT, EPR Ethylene-Propylene Diene	Neoprene	Nitrile	Epichlorohydrin	Urethane	Chlorosulfonated Polyethylene	Acrylic	Ethylene Acrylic	Silicone	Fluorosilicone	Fluoroelastomers VF/HEP TFE/PP
ASTM Designation	NR	IR	BR	IIR	SBR	EPDM	CR	NBR	ECO, CO	AU, EU	CSM	ACM	EA	VMQ, PVMQ	FVMQ	FKM, FCM
PHYSICAL PROPERTIES																
Durometer Range (A)	30-100	30-90	40-90	30-90	40-100	35-100	30-90	30-100	35-80	45-100	40-90	40-90	45-90	25-85	40-80	60-100
Tensile, max.psi (Mpa)	4000 (28.0)	3000 (21.0)	3000 (21.0)	2000 (14.0)	3000 (21.0)	2500 (24.5)	3000 (28.0)	3000 (28.0)	2500 (17.5)	5000 (35.0)	2500 (17.5)	2000 (14.0)	2000 (14.0)	1300 (10.5)	1200 (10.0)	1800 (12.5)
Elongation, max. %	700	700	500	800	500	500	800	600	600	700	500	650	650	800	600	350
Specific Gravity	0.91	0.91	0.92	0.91	0.92	0.86	1.23	0.98	1.27	1.20	1.20	1.10	1.10	1.10	1.38	1.82
Compression Set	Good-Excellent	Good	Good	Fair-God	Good	Good-Excellent	Good	Good	Fair-Good	Good-Excellent	Good	Good	Good	Excellent	Excellent	Fair
ENVIRONMENTAL PROPERTIES																
Electrical Resistivity	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Poor-Good	Poor-Fair	Poor-Fair	Excellent	Poor-Good	Fair	Good-Excellent	Excellent	Good-Excellent	Fair
Flame Resistance	Poor	Poor	Poor	Poor-Fair	Poor	Poor	Good-Excellent	Poor-Fair	Good	Poor	Good	Poor	Poor	Good-Excellent	Excellent	Excellent
Gas Impermeability	Good	Good	Good	Excellent	Fair	Good	Good	Good-Excellent	Good-Excellent	Good	Excellent	Good	Excellent	Poor	Poor	Good
Impact Resistance	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good	Good	Good	Excellent	Good	Poor	Fair	Good	Fair	Fair
Abrasion Resistance	Excellent	Good	Excellent	Good	Excellent	Good	Good	Excellent	Fair-Good	Excellent	Good	Fair	Poor	Poor	Poor	Fair
Tear Resistance	Excellent	Good	Excellent	Good	Fair-Good	Fair	Good	Good	Good	Excellent	Good	Fair	Poor	Fair	Fair	Poor-Fair
Continuous Temperature Max.	175°F	175°F	175°F	200°F	175°F	250°F	225°F	200°F	250°F	210°F	250°F	250°F	275°F	400°F	350°F	450°F
Intermittent Temperature Max.	210°F	210°F	210°F	250°F	225°F	325°F	300°F	300°F	350°F	250°F	300°F	350°F	350°F	500°F	450°F	600°F
Stiffening Point Temperature	-30°F	-30°F	-40°F	-20°F	-30°F	-40°F	0°F	0°F	-30°F	-20°F	-30°F	+25°F	-30°F	-75°F	-60°F	+10°F
Brittle Point Temperature	-75°F	-75°F	-100°F	-75°F	-75°F	-90°F	-50°F	-50°F	-45°F	-50°F	-60°F	-10°F	-60°F	-120°F	-90°F	-20°F
Weatherability	Fair-Good	Fair-Good	Fair	Excellent	Fair	Excellent	Excellent	Good	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Oxidation Resistance	Good	Good	Excellent	Excellent	Fair	Good-Excellent	Fair-Good	Fair-Good	Good	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
Ozone Resistance	Poor	Poor	Poor	Excellent	Poor	Excellent	Good	Poor-Good	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent
300°F Steam Resistance	Poor	Poor	Poor	Good	Poor	Excellent	Poor	Poor	Poor	Poor	Poor	Poor	Good	Good	Good	Fair-Good
IMMERSION PROPERTIES																
Aliphatics (Isooctane)	Poor	Poor	Poor	Poor	Poor	Poor	Fair-Good	Good-Excellent	Excellent	Excellent	Fair	Excellent	Fair	Poor	Excellent	Excellent
Aromatics (Toluene)	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Good-Excellent	Excellent	Poor-Fair	Poor	Poor	Poor	Poor	Good-Excellent	Excellent
Halogenated Solvents	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Fair	Fair	Poor	Poor	Poor	Poor	Good-Excellent	Good
Gasoline (Unleaded)	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Good-Excellent	Good-Excellent	Fair	Poor	Fair	Poor	Poor	Good	Excellent
Gasohol (Ethyl)	Poor	Poor	Poor	Poor	Poor	Poor	Poor	Good-Excellent	Fair	Fair	Poor	Fair	Poor	Poor	Good	Excellent
Alcohols	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Excellent	Poor	Fair	Excellent	Excellent	Excellent
Wagner Brake Fluid	Good	Good	Excellent	Good	Excellent	Excellent	Excellent	Fair	Fair	Fair	Good	Fair	Poor	Fair	Good	Poor
Transmission Fluid	Poor	Poor	Poor	Poor	Poor	Poor	Good	Excellent	Excellent	Excellent	Good	Excellent	Good	Excellent	Excellent	Excellent
Silicate Hydraulic Fluid	Poor	Poor	Poor	Poor	Poor	Poor	Excellent	Good	Excellent	Excellent	Excellent	Good	Good	Poor	Excellent	Excellent
Phosphate Hydraulic Fluid	Poor	Poor	Poor	Good	Poor	Excellent	Poor	Poor	Poor	Fair	Poor	Poor	Poor	Fair	Fair	Poor
Water	Excellent	Excellent	Excellent	Excellent	Excellent	Excellent	Good	Good-Excellent	Good	Poor	Excellent	Poor	Excellent	Excellent	Excellent	Excellent
Acids (cold 20%)	Fair	Fair	Fair	Good-Excellent	Good	Excellent	Fair	Fair	Poor	Poor	Good	Poor	Good	Good	Good	Excellent
Bases (cold 20%)	Good	Good	Good	Good-Excellent	Good	Excellent	Good	Good	Good	Poor	Excellent	Excellent	Good	Good	Good	Good