Chemical and Physical Tables

Polymer	Tensile Strength (MPa)	Tensile Modulus at 100% (MPa)	Hardness Durometer (shoreA)	Enlongation (%)	Compression Set Rating	Low Temp Range °F	Low TempRange °C	High Temp Range °F	High Temp Range °C	Heat Aging at 212°F (100°C)	Steam Resistance	Flame Resistance	Weather Resistance	Sunlight Resistance	Ozone Resistance
NBR	6.9-27.6	2.0-15	20-100	100-650	Good-Exc.	-70 to 0	-57 to -18	210 to 250	99 to 121	Good	Fair-Good	Poor	Fair-Good	Poor-Good	Fair-Good
HNBR	31.0-10.0	1.7-20.7	30-95	90-450	Good-Exc.	-50 to 0	-46 to -18	250 to 300	121 to 149	Exc.	Fair-Good	Poor	Good-Exc.	Good-Exc.	Good-Exc.
FKM	3.4-20.7	1.4-13.8	50-95	100-500	Good-Exc.	-50 to 0	-46 to -18	400 to 500	200 to 260	Exc.	Poor-Good	Good-Exc.	Exc.	Good-Exc.	Exc.
EP	2.1-24.1	0.7-20.7	30-90	100-700	Poor-Exc.	-75 to -40	-59 to -40	220 to 300	104 to 149	Good-Exc.	Exc.	Poor	Exc.	Exc.	Good-Exc.
SBR	3.4-24.1	2.1-10.3	30-100	450-600	Good-Exc.	-75 to -55	-59 to -48	210 to 250	99 to 121	Good	Fair-Good	Poor	Fair-Good	Poor	Poor
CR	3.4-27.6	0.7-20.7	15-95	100-800	Poor-Good	-70 to -30	-57 to -34	200 to 250	93 to 121	Good-Exc.	Fair-Good	Good-Exc.	Fair-Good	Good-Exc.	Good-Exc.
IIR	13.8-20.7	0.3-3.4	30-80	300-850	Poor-Good	-70 to -40	-57 to -40	250 to 300	121 to 149	Good-Exc.	Good-Exc.	Poor	Exc.	Exc.	Exc.
VMQ, Si, PMQ, PVMQ	1.4-10.3	6.2	20-90	100-900	Good-Exc.	-178 to -90	-117 to -68	400 to 500	204 to 260	Exc.	Fair-Good	Fair-Exc.	Exc.	Exc.	Exc.
FVMQ	3.4-9.7	3.1-3.4	35-80	100-480	Fair-Good	-112 to -90	-80 to -68	400 to 450	204 to 232	Exc.	Fair	Exc.	Exc.	Exc.	Exc.
ACM	8.6 17.2	0.7-10.3	40-90	100-450	Poor-Good	-30 to 0	-34 to -18	250 to 350	121 to 177	Exc.	Poor	Poor	Exc.	Good-Exc.	Good-Exc.
EA	6.9-20.7	0.7-10.3	35-95	200-650	Poor-Good	-55 to -30	-48 to -34	250 to 350	121 to 177	Exc.	Poor-Fair	Poor	Exc.	Exc.	Exc.
CSM	3-15	0.2-10	40-100	100-700	Poor-Fair	-60 to -40	-51 to -40	225 to 270	107 to 132	Good-Exc.	Poor-Good	Good-Exc.	Exc.	Exc.	Exc.
ECO	10-15	1-10	30-95	200-800	Good-Exc.	-60 to -15	-51 to -26	225 to 275	107 to 135	Good-Exc.	Fair-Good	Poor-Good	Good	Good	Good-Exc.
NR, IR	3.4-34.5	0.5-0.8	20-100	300-900	Exc.	-70 to -40	-57 to -40	180 to 220	82 to 104	Fair-Good	Fair-Good	Poor	Poor-Fair	Poor	Poor
AU, EU	6.9-69.0	0.2-34.5	10-100	250-900	Poor-Good	-65 to -40	-54 to -40	180 to 220	82 to 104	Fair-Good	Poor	Poor-Good	Exc.	Good-Exc.	Exc.

Radiation Resistance	Oxidization Resistance (AIR)	Water Resistance	Gas Permeability Rating	Odor	Taste Retention	Adhesion to Metals	Colorability	RMA Color Code	Resilience or Rebound Rating	Vibration Dampening	Flex Cracking Resistance	Tear Resistance	Abrasion Resistance	Vacuum Weight Loss
Fair-Good	Good	Good-Exc.	Fair-Exc.	Good	Fair-Good	Exc.	Exc.	Black	Good	Fair-Good	Good	Good-Exc.	Good-Exc.	Good
Fair-Good	Exc.	Exc.	Fair-Exc.	Good	Fair-Good	Exc.	Exc.	—	Good	Good-Exc.	Good	Good-Exc.	Good-Exc.	Good
Fair-Good	Exc.	Exc.	Good-Exc.	Good	Fair-Good	Good-Exc.	Good-Exc.	Brown	Fair-Exc.	Fair-Good	Good	Fair-Good	Good	Exc.
Good-Exc.	Exc.	Exc.	Fair-Good	Good	Good-Exc.	Good-Exc.	Good-Exc.	Purple	Fair-Good	Fair-Good	Good	Fair-Good	Good	Exc.
Poor-Good	Fair-Exc.	Good-Exc.	Fair	Good	Fair-Good	Exc.	Good	—	Fair-Exc.	Fair-Good	Good-Exc.	Fair-Exc.	Good-Exc.	Poor
Fair-Good	Good-Exc.	Fair-Good	Fair-Good	Fair-Good	Fair-Good	Exc.	Fair	Red	Fair-Good	Good-Exc.	Good	Good-Exc.	Good-Exc.	Fair
Poor-Good	Exc.	Good-Exc.	Good	Good	Fair-Good	Good	Good	—	Poor-Good	Exc.	Good-Exc.	Good	Fair-Good	Exc.
Poor-Good	Exc.	Exc.	Poor-Fair	Good	Good-Exc.	Good-Exc.	Exc.	Rust	Good-Exc.	Fair-Good	Poor-Good	Poor-Good	Poor-Good	Exc.
Fair-Exc.	Exc.	Exc.	Poor-Good	Good	Good	Good-Exc.	Good-Exc.	Blue	Exc.	Good	Poor-Good	Poor-Exc.	Poor	Exc.
Poor-Good	Exc.	Poor-Fair	Good-Exc.	Fair-Good	Fair-Good	Good	Good	—	Fair-Good	Good-Exc.	Fair-Good	Poor-Good	Fair-Good	Good
Good	Exc.	Good-Exc.	Exc.	Good	Fair-Good	Good	Good	—	Poor-Fair	Good	Good	Good-Exc.	Good-Exc.	Fair-Good
Poor-Good	Exc.	Good	Good-Exc.	Good	Fair-Good	Exc.	Exc.	—	Fair-Good	Fair-Good	Fair-Good	Fair-Good	Good-Exc.	Fair
Poor	Good-Exc.	Good	Exc.	Good	Good	Fair-Good	Good	—	Good	Good	Good	Fair-Exc.	Fair-Good	Good
Fair-Good	Good	Exc.	Fair-Good	Good-Exc.	Fair-Good	Exc.	Poor	—	Exc.	Good-Exc.	Exc.	Good-Exc.	Good-Exc.	Poor
Good-Exc.	Good-Exc.	Poor-Good	Good-Exc.	Exc.	Fair-Good	Exc.	Good-Exc.	—	Poor-Good	Fair-Good	Good-Exc.	Exc.	Exc.	Good

Chemical and Physical Tables-continued

Polymer	Acids (dilute)	Acids (concentrated)	Acid, Organic (dilute)	Acid, Organic (concentrated)	Alcohols (C1 thru C4)	Aldehydes (C1 thru C6)	Alkalies (dilute)	Alkalies (concentrated)	Amines	Animal & Vegetable Oils	Brake Fluid; Dot 3,4&5	Diester Oils	Esters, Alkyl Phosphate
NBR	Good	Poor-Fair	Good	Poor	Fair-Good	Poor-Fair	Good	Poor-Good	Poor	Good-Exc.	Poor	Fair-Good	Poor
HNBR	Good	Fair-Good	Good	Fair-Good	Good Exc.	Fair-Good	Good	Poor-Good	Good	Good-Exc.	Fair	Good	Poor
FKM	Good-Exc.	Good-Exc.	Fair-Good	Poor-Good-	Fair-Exc.	Poor	Fair-Good	Poor	Poor	Exc.	Poor-Fair	Good-Exc.	Poor
EP	Exc.	Exc.	Exc.	Fair-Good	Good-Exc.	Good-Exc.	Exc.	Exc.	Fair-Good	Good	Good-Exc.	Poor	Exc.
SBR	Fair-Good	Poor-Fair	Good	Poor-Good	Good	Poor-Fair	Fair-Good	Fair-Good	Poor-Good	Poor-Good	Poor-Good	Poor	Poor
CR	Exc.	Poor	Good-Exc.	Poor-Good	Exc.	Poor-Fair	Good	Poor	Poor-Good	Good	Fair	Poor	Poor
IIR	Good-Exc.	Fair-Exc.	Good	Fair-Good	Good-Exc.	Good	Good-Exc.	Good-Exc.	Good	Good-Exc.	Good	Poor-Good	Good-Exc.
VMQ, Si, PMQ, PVMQ	Fair-Good	Poor-Fair	Good	Fair	Fair-Good	Good	Poor-Fair	Poor-Exc.	Good	Good-Exc.	Good.	Poor-Fair	Good
FVMQ	Exc.	Good	Good	Fair	Fair-Exc.	Poor	Exc.	Good	Poor	Exc.	Poor	Good-Exc.	Poor-Fair
ACM	Fair	Poor-Fair	Poor	Poor	Poor	Poor	Fair	Fair	Poor	Good	Poor	Good	Poor
EA	Good	Poor-Fair	Good-Exc.	Poor-Exc.	Good-Exc.	Fair-Good	Good-Exc.	Poor	Good	Good	Poor	Poor	Poor
CSM	Exc.	Good-Exc.	Exc.	Good	Exc.	Poor-Fair	Good-Exc.	Good-Exc.	Poor	Good	Fair	Poor	Poor
ECO	Good	Poor-Fair	Fair	Poor	Fair-Good	Poor	Fair-Good	Poor-Fair	Poor-Good	Exc.	Poor	Poor-Good	Poor
NR, IR	Fair-Exc.	Poor-Good	Good	Fair-Good	Good Exc.	Good	Fair-Exc.	Fair-Good	Poor-Fair	Poor-Good	Good	Poor	Poor
AU, EU	Fair-Good	Poor	Fair	Poor	Good	Poor	Poor-Exc.	Poor	Poor-Fair	Fair-Exc.	Poor	Poor-Good	Poor

Esters, Aryl Phosphate	Ethers	Fuel, Aliphatic Hydrocarbon	Fuel, Aromatic Hydrocarbon	Fuel, Extended (Oxygenated)	Halogenated Solvents	Ketones	Lacquer Solvents	L.P. Gases & Fuel Oils	Petroleum Aromatic-Low Aniline	Petroleum Aliphatic-High Aniline	Refrigerant Ammonia	Silicone Oils
Poor-Fair	Poor	Good-Exc.	Fair-Good	Fair-Good	Poor	Poor	Fair	Exc.	Good-Exc.	Exc.	Good	Good
Poor-Fair	Poor-Fair	Exc.	Fair-Good	Good-Exc.	Poor-Fair	Poor	Fair	Exc.	Good-Exc.	Exc.	Good	Good-Exc.
Exc.	Poor	Exc.	Exc.	Exc.	Good-Exc.	Poor	Poor	Exc.	Exc.	Exc.	Poor	Exc.
Exc.	Fair	Poor	Poor	Poor	Poor	Good-Exc.	Poor	Poor	Poor	Poor	Good	Exc.
Poor	Poor	Poor	Poor	Poor	Poor	Poor-Good	Poor	Poor	Poor	Poor	Good	Poor
Poor-Fair	Poor	Poor-Good	Poor-Fair	Fair	Poor	Poor-Fair	Poor	Good	Good	Good	Exc.	Fair-Exc.
Exc.	Poor-Fair	Poor	Poor	Poor	Poor	Poor-Exc.	Fair-Good	Poor	Poor	Poor	Good	Poor
Good	Poor	Poor-Fair	Poor	Poor	Poor	Poor	Poor	Fair	Poor	Good	Exc.	Poor-Fair
Good-Exc.	Fair	Exc.	Good-Exc.	Exc.	Good-Exc.	Poor	Poor	Exc.	Good	Good	Exc.	Exc.
Poor	Poor-Fair	Exc.	Poor-Good	Fair-Good	Poor-Good	Poor	Poor	Good	Fair	Poor	Fair	Exc.
Poor	Poor	Good	Poor-Fair	Fair	Poor-Good	Poor	Poor	Poor	Poor	Poor	Poor-Good	Good-Exc.
Fair	Poor	Fair-Good	Fair	Fair	Poor	Poor	Poor	Good	Poor	Fair	Good	Exc.
Poor	Good	Good-Exc.	Good-Exc.	Fair-Good	Poor	Fair	Fair	Exc.	Good-Exc.	Poor	Poor	Good-Exc.
Poor	Poor	Poor	Poor	Poor	Poor	Fair-Good	Poor	Poor	Poor	Poor	Good	Good
Poor	Fair	Good-Exc.	Poor-Fair	Fair-Good	Poor-Good	Poor	Poor	Fair-Good	Good	Good	Poor	Exc.

NOTE: The chart data herein provides general elastomer base properties. In many design applications, special compounds are required. Minnesota Rubber and Plastics strongly recommends MR Lab approval in such cases. Minnesota Rubber and Plastics, therefore, will not be responsible for the usage of this chart in any manner.