

MATERIAL SELECTION GUIDE

BASE POLYMER -		NATURAL RUBBER	SBR	EPDM	NEOPRENE	NITRILE	URETHANE	SILICONE
CHEMICAL NAME		Polyisoprene	Styrene Butadiene	Ethylene Propylene	Chloropene	Butadiene Acrylonitrile	Polyester/Polyether Urethane	Polysiloxane
SAE J200. ASTM D-2000 CLASSIFICATION		AA	AA.BA	CA	BC, BE	BF, BG, BK	BG	FC, FE, GE
ASTM D-735, SAE J-14: MIL-R-3065 (MIL-STD-417)		R(N)	R(S)	R(S)	SC	SB, SA	SB	TA
ASTM DESIGNATION (D 1418)		NR	SBR	EPDM, EPR	CR	NBR	AU, EU	PSi, PVSi, Si, Vsi
WEIGHT	LB/CU IN.	0.033	0.034	0.031	0.044	0.036	0.039	0.036
BASE ELASTOMER	SPEC. GR.	0.93	0.94	0.86	1.23	1	1.05	0.95
PHYSICAL PROPERTIES								
DUROMETER, RANGE		30-100	40-100	30-90	40-95	20-90	55-100	25-90
RESILIENCE		EXCELLENT	GOOD	GOOD	EXCELLENT	GOOD	GOOD TO EXC.	POOR TO EXC.
TENSILE STRENGTH		4000 +	2000 +	2000-3000	3000 +	1000-3500	4000-8000	600-1500
ELONGATION		500	450	500	650-850	400-600	250-800	90-900
DRIFT, ROOM TEMPERATURE		EXCELLENT	EXCELLENT	FAIR	FAIR TO GOOD	GOOD	GOOD TO EXC.	FAIR TO EXC.
COMPRESSION SET		GOOD	GOOD	FAIR	FAIR TO GOOD	GOOD	EXCELLENT	GOOD TO EXC.
ELECTRICAL RESISTIVITY		EXCELLENT	EXCELLENT	EXCELLENT	FAIR	POOR	GOOD	EXCELLENT
IMPERMEABILITY, GAS		GOOD	FAIR	GOOD	GOOD	GOOD	GOOD	FAIR
MECHANICAL RESISTENCE PROPERTIES								
	IMPACT	EXCELLENT	EXCELLENT	GOOD	GOOD	FAIR	EXCELLENT	POOR TO GOOD
	ABRASION	EXCELLENT	EXCELLENT	GOOD	GOOD TO EXC.	EXCELLENT	EXCELLENT	POOR TO EXC.
	TEAR	EXCELLENT	FAIR	POOR	GOOD	GOOD	EXCELLENT	POOR TO GOOD
	CUT GROWTH	EXCELLENT	GOOD	GOOD	GOOD	GOOD	FAIR TO EXC.	POOR TO GOOD
TEMPERATURE RESISTENCE PROPERTIES								
TENSIL STRENGTH:	250 F	180	1200	2000	1500	700	1800	550
PSI, AT	400 F	125	170	400	180	130	200	450
ELONGATION,	250 F	500	250	300-500	350	120	300	200
% AT	400 F	80	60	0-120	1-100	20	140	100
DRIFT @ 212 F		GOOD	GOOD	FAIR	FAIR TO GOOD	EXCELLENT	EXCELLENT	EXCELLENT
HEAT AGING @ 212 F		GOOD	GOOD	EXCELLENT	GOOD	GOOD	FAIR TO GOOD	EXCELLENT
FLAME RESISTANCE		POOR	P	POOR	GOOD	POOR TO FAIR	POOR TO FAIR	FAIR TO GOOD
	STIFFENING, F	-20 TO -50	0 TO -50	-20 TO -50	+10 TO -20	+30 TO -20	-10 TO -30	-65 TO -180
LOW TEMPERATURE	BRITTLE POINT, F	-80	-80	-90	-45	-65	-60	-90 TO -180
ENVIROMENTAL RESISTENCE PROPERTIES								
WEATHER		FAIR	FAIR	EXCELLENT	EXCELLENT	GOOD	EXCELLENT	EXCELLENT
OXIDATION		GOOD	GOOD	GOOD	GOOD	FAIR TO GOOD	EXCELLENT	EXCELLENT
OZONE		POOR	POOR	EXCELLENT	EXCELLENT	POOR	EXCELLENT	EXCELLENT
RADIATION		FAIR TO GOOD	GOOD	POOR	FAIR TO GOOD	FAIR TO GOOD	GOOD	FAIR TO EXC.
WATER		EXCELLENT	EXCELLENT	GOOD TO EXC.	GOOD	EXCELLENT	GOOD	EXCELLENT
ACID		FAIR TO GOOD	FAIR TO GOOD	GOOD TO EXC.	GOOD	GOOD	POOR TO FAIR	POOR TO GOOD
ALKALI		FAIR TO GOOD	FAIR TO GOOD	GOOD TO EXC.	GOOD	FAIR TO GOOD	POOR TO FAIR	POOR TO FAIR
GASOLINE, OIL, ETC.		POOR	POOR	POOR	GOOD	EXCELLENT	EXCELLENT	POOR TO FAIR
BENZOL, TOLUOL, ETC.		POOR	POOR	FAIR	POOR	GOOD	POOR TO FAIR	POOR TO FAIR
DEGREASER SOLVENTS		POOR	POOR	POOR	POOR	POOR	FAIR TO GOOD	POOR TO GOOD
ALCOHOL		GOOD	FAIR	POOR	FAIR	EXCELLENT	GOOD	GOOD
HYDRAULIC	SILICATES	POOR	FAIR TO POOR	FAIR TO GOOD	GOOD	FAIR	-	POOR
FLUIDS	PHOSPHATES	POOR TO FAIR	POOR	GOOD TO EXC.	POOR	POOR	POOR	GOOD
SUBJECTIVE PROPERTIES								
TASTE		FAIR TO GOOD	FAIR TO GOOD	GOOD	FAIR TO GOOD	FAIR TO GOOD	GOOD	GOOD TO EXC.
ODOR		FAIR TO GOOD	GOOD	GOOD	FAIR TO GOOD	GOOD	GOOD	GOOD TO EXC.
NONSTAINING		POOR TO GOOD	POOR TO GOOD	GOOD	GOOD TO EXC.	POOR TO GOOD	GOOD	OUTSTANDING
BONDING TO RIGID MATERIALS		EXCELLENT	EXCELLENT	POOR	GOOD TO EXC.	GOOD TO EXC.	FAIR TO GOOD	FAIR TO EXC.

The properties of elastomers as listed are to be used as a general guide for typical applications only. The final selection should be made only after all operating requirements are taken into consideration