



Technical Reference Bulletin Properties of Common Elastomers

Polymer	Natural Rubber	Styrene Butadiene	Butyl	Ethylene Propylene	Neoprene	Nitrile	Silicone	Flurocarbon	Fluro Silicone	Urethane
ASTM Abbreviation	NR	SBR	IIR	EPDM	CR	NBR	VMQ/Si	FKM, FEPM	FVMQ	AU or EU
ASTM D-2000 Classification	AA	AA	AA	DA	BC	BG	GE/FE	HK	FK	BG
Polymer Trade Names	SMR® Pale Crepe® Smoked Sheet®	Ameripol Synpol® SBR® Plioflex® Stereon®		Nordel® Royalene® Vistalon® Buna EP® Keltan®	Neoprene® Baypren® Butachlor®	Nipol®, Krynac® Paracril®	Silastic® SILPLUS® Elastosil Wacker®	Viton® Dyneon® Aflas® Fluorel®	FSE® Silastic® Sylon®	Adiprene® Millathane® Vibrathane® Vulkolan®
Physical Properties										
Hardness Range (Shore A)	20-90	40-90	30-80	35-100	15-95	20-95	10-85	50-95	40-80	35-95
Specific Gravity -Base Material	0.93	0.94	0.92	0.86	1.23	.98	1.1-1.6	1.85	1.3-1.8	1.06
Shelf Life- Shielded From Lighty <90° F	5 Yrs.	5 Yrs.	10 Yrs.	10 Yrs.	10Yrs.	10 Yrs.	20 Yrs.	20 Yrs.	20 Yrs.	5 Yrs.
RMA Color Code	*	*	*	Purple	Red	Black	Rust	*	Blue	*
Colorability	P	G	G	G-E	F	E	E	E	G-E	G-E
Tensile Strength (Mpa)	3.4-34.5	3.4-24.1	13.8-20.7	2.1-24.1	3.4-27.6	6.9-27.6	1.4-10.3	3.4-20.7	3.4-9.7	6.9-69.0
Tensile Modulus @100% (Mpa)	0.5-0.8	2.1-10.3	0.3-3.4	0.7-20.7	0.7-20.7	2.0-15	6.2	1.4-13.8	3.1-3.4	0.2-34.5
Elongation %	300-900	450-600	300-850	100-700	100-800	350-650	100-900	100-500	100-480	250-900
Low Temp Range °F	-70 to -40	-75 to -55	-70 to -40	-75 to -40	-70 to -30	-70 to 0	-178 to -90	-50 to 0	-112 to -90	-65 to -40
Low Temp Range °C	-57 to -40	-59 to -48	-56 to -18	-46 to -18	-57 to -34	-57 to 18	-117 to -68	-46 to -18	-80 to -68	-54 to -40
High Temp Range °F	180 to 220	210 to 250	250 to 300	220 to 300	200 to 250	210 to 250	400 to 500	400-500	400 to 450	180 to 220
High Temp Range °C	82 to 104	99 to 121	121 to 149	104 to 149	93 to 121	99 to 121	204 to 260	200-260	204 to 232	82 to 104
Continuous & Intermittent Max (F°)	175/210	175/225	200/250	250/325	200/300	200/300	400/500	450/600	350/450	210/250
Brittle Point °F	-80	-80	-50	-90	-45	-50	-90 to -180	10 to -60	10 to -60	-60
Stiffening Point °F	-20 to -50	0 to -50	-10 to -40	-20 to -50	30 to -20	0	-60 to -160	20 to -30	20 to -30	-10 to -30
Heat Aging @ 212° F (100°C)	F-G	G	E	G-E	G	G	E	E	E	F-G
Compression Set Rating	E	E	F	G-E	P	G	G	G-E	F-G	F
Adhesion to Metals	E	E	G	G-E	E	E	E	G-E	G-E	E
Rebound										
Cold	E	E	P	G	VG	G	E	G	E	P
Hot	E	G	VG	E	VG	G	E	E	G	G
Vibraton Dampening	G-E	F-G	E	F-G	G-E	F-G	F-G	F-G	G	F-G
Dialectric Strength	E	G	E	E	VG	P	G	G	G	E
Electrical Insulation	G-E	E	E	E	F-G	P	E	F	VG	F
Flame	F-G	F	Very Low	F-P	Low	F	F	Very Low	Low	F
Resistance (Solvents)										
Acids (Concentrated)	P-G	P-F	F-E	E	P-F	P-F	P-F	G-E	G	P
Acids (Dilute)	F-E	F-G	G-E	E	G-E	G	F-G	G-E	E	F-G
Ketones	P	P	G	P	P	P	P	G-E	P	P

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Resistance (Solvents)- Con't										
Hydraulic Fluids - Phosphates	P-F	P	G	G-E	P	P	G	P	P	P
Swelling in Lubricating Oils	P	P	P	P	G	VG	F	E	G	E
Hydraulic Fluids - Silicates	P	P-F	F	F-G	G	G	P	G	G	
Brake Fluid DOT 3,4,5	G	P-G	G	G-E	F-G	F-G	G	P-F	P	P
Lacquer Solvents	P	P	P	G	P	F	P	P	P	P
LP Gas & Fuel Oils	F-G	P	P	P	G	E	F	E	E	F-G
Alkalies (Diluted)	F-E	F-G	G-E	E	G	G	P-F	F-G	E	P-E
Alkalies (Concentrated)	F-G	F-G	G-E	E	P	P-G	P-E	P	G	P
Synthetic Lubricants (Diester)	P-F	P	F	P-F	P	F-G	P-F	F-G	F-G	P
Oils & Gasoline	P	P	P	P	G	G-E	F	E	G	E
Alcohol (C1through C4)	G-E	G	G-E	G-E	E	F-G	F-G	F-E	F-E	G
Compound Resistance To										
Weather	P-F	F-G	E	E	F-G	F-G	E	E	E	E
Sunlight	P	P	E	E	P-G	P-G	E	G-E	E	G-E
Ozone	P	P	E	G-E	G-E	F-G	E	E	E	E
Radiation	F-G	P-G	P	G-E	F-G	F-G	P-G	F-G	F-E	G-E
Oxidation	G	F-E	E	E	G-E	G	E	E	E	G-E
Water	E	G-E	E	E	F-G	G-E	E	E	E	P-G
Flex Cracking	E	G-E	G-E	G	G	F-G	P-G	G	P-G	G-E
Tears	G_E	F-E	G	F-G	G-E	G-E	P-G	F-G	P-E	E
Abrasion	G-E	G-E	G	G	G-E	G-E	P-G	G	P	E
Impact	E	E	G	G	G	F-G	P-F	P-G	P-G	E
Animal/Vegetable Oils	P-G	P-G	G-E	G	G-E	G-E	P-F	E	E	F-E
Refrigerant Ammonia	P	G	G	G	G	G	E	P	E	P
Silicone Oils	E	P	P	E	G	G	P-F	E	E	E
Benzol, Toluol (Aromatic Hydrocarb)	P	P	F-G	F	G	P	P	E	E	P-F
Ethers	P	P	P-F	F	P	P	P	P	F	F
300° F Steam	P	P	G-E	E	F-G	P	G	P-G	G	P
Flame	P	P	P	P	G-E	P	F-E	G-E	E	P-G
Cut Growth	E	G	E	G	G	G-E	P-G	P-G	P-G	F-E
Subjective Properties										
Taste Retention	F-G	F-G	F-G	F-G	F-G	F-G	G-E	F-G	G	F-G
Odor	G-E	G	F-G	G	F-G	G	G	G	G	E

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