

RUBBER GUIDE TO PROPERTIES

Material	Abbreviation	Properties/Applications
Natural	NR	Natural rubber offers a good balance of properties, particularly for mechanical applications and can be compounded to produce high resilience, good tensile strength, low compression set and high tear properties over a wide range of hardness. The abrasion of natural rubber is good. It has better resilience and maintains flexibility at lower temperatures better than most synthetics. However natural rubber is less resistance to ozone, petroleum oils and fluids than some synthetics.
Styrene Butadiene Rubber	SBR	Similar properties to those of natural rubber.
Neoprene	CR	Chloroprene, generally known as Neoprene, has more resistance than natural rubber to sunlight, ozone and oxidation. It has good resistance to heat and does not soften as much as natural rubber does under severe exposure. It has moderate oil resistance but it is not suitable for use with petrol. It can be compounded to possess flame retardant properties.
Nitrile	NBR	Acrylonitrile, generally known as Nitrile has excellent resistance to water, oil, fuel and other petroleum products. It is superior to most elastomers in compression set, cold flow and abrasion resistance. It does not, however, possess good resistance to ozone, sunlight or weather.
Butyl	IIR	Has a very low gas and moisture permeability and has excellent resistance to heat, ageing, weathering, ozone and chemical attack. It has good resistance to ester based hydraulic fluids and good electrical insulation properties. Butyl is not suitable for use with petroleum oils and fluids.
Hypalon®	CSM	Has excellent resistance to water, ozone, abrasion, flex cracking, acids and weather and also has good flame resistant properties.
Silicone	VMQ	Excellent resistance to extremes of temperature. Temperatures as high as 200°C have little effect on the physical properties of this elastomer. However, it has poor tensile strength, tear, abrasion and steam resistance. It has very good resistance to sunlight, ozone, gases and possesses good electrical insulation properties, water repellency and non adhesives.
Ethylene Propylene Rubber	EPDM	Ethylene Propylene rubber has outstanding resistance to ageing, weathering, ozone, oxygen and many chemicals. It has low temperature stability as well as steam and water resistance. It has good resistance to glycol-ether hydraulic fluids but is not suitable for petroleum liquids.
Polyurethane	PU	Polyurethane elastomers have outstanding abrasion resistance, very high tensile strength, tear strength and load bearing capabilities at moderate temperatures. They are resistant to oils, certain solvents, greases, ozone, sunlight and weather although resistance to acids and alkalis is poor.
Viton®	FPM	Very good resistance to most chemicals and commercial fluids. It has the ability to retain strength at elevated temperatures and to withstand embrittlement during long term heat exposure.

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