Largo Gummi und Silikontechnik

Our Materials

Natural - Rubber, SBR (Buna®), NBR (Perbunan®), HNBR, CR (Neoprene®), EPDM, ACM, AEM, Silikon, Fluorsilikon,

Chemical Name	Natural - Rubber	Styrene Butadiene Rubber	Nitrile Bbutadiene Rubber	Hydrogenated Nitrile Butadiene Rubber	Chloroprene Rubber	Ethylene Propylene Diene Monomer	Akyl Acrylate Copolymer	Silicon - Rubber	Fluorovinylmethyl Silicone Rubber	Fuorinated Propylene Monomer
DIN ISO 1629	NR	SBR	NBR	HNBR	CR	EPDM	ACM/AEM	VMQ	FMVQ	FPM
ASTM D 1480	NR	SBR	NBR	NEM	CR	EPDM	ACM/AEM	VMQ HTV/LSR	FMVQ	FKM
Tradename	SMR, Latex, Crepe	Buna®, Plioflex®, Cariflex®, Intex®, Europrene® S-SBR	Perbunan®, Krynac®, Hycar®, Europrene® N	Therban®, Zetpol®	Baypren®, Neoprene®, Butaclor®	Buna® AP, Dutral®, Nordel®, Keltan®, Vistalon	Vamac®, Nipol AR®	Elastosil®, Silastic®, Silopren	Elastosil®, Silastic®	Viton®, Tecnoflon®, Fluorel®, DAI-EL®
	Natural rubber's extra-ordinary qualities are high tensile strength and elasticity. When subjected to low temperatures, natural rubber remains extremely flexible under dynamic load .This polymer is not intended to be used with oil, fuel, solvent, grease, or under the influence of ozone. Natural rubber is frequently used in the production of tires, shock-absorbers, and components and profiles subjected to high dynamic load.	SBR is a synthetic rubber derived from butadiene and styrol, and is similar to natural rubber (NBR). SBR is highly resistant to wear and tear and various fluids - acids, emulsions, water and glycol-based brake fluid. It has numerous applications in all branches of industry, such as production of hoses, profiles, gaskets, shock-absorbers, belts, heals and conveyor belts, to name but a few.	NBR is a synthetic rubber copolymer of acrylonitrile (ACN) and butadiene. Depending on the acrylonitrile concentration (18-50%), the NBR's properties can be custom-made to conform to requirements. Essentially, the NBR is medium resistant to ozone and flexible at low temperatures. NBR is used in the production of gaskets, o-rings, valves, membranes, cushions, bellows, and oil and fuel tubes.	HNBR is derived through hydration of NBR. The hydration process increases stability of NBR when it is exposed to heat, ozone and oxidation. Some of HNBR's features are high mechanical hardness and improved resistance to wear-and-tear. In comparison to NBR, chemical properties of HNBR under high temperatures have been significantly improved. Resistance to atmospheric conditions is on the same level as EPDM. This polymer has a wide application in modern technology, for instance in the production of biodiesel. HNBR is also used in the car industry for the production of water pump gaskets and seals, engines, transmissions, bellows, membranes, etc.	CR was one of the first oil resistant synthetic rubbers. However, it has only moderate resistance to petroleum based oils and fuels. It can be considered as a good general purpose rubber with an excellent balance of physical and chemical properties. It has better chemical, oil, ozone and heat resistance than natural rubber but a rather lower level of physical properties. Chloroprene tends to slowly absorb water and its electrical properties are poor. Its gas permeability is fairly low and flame resistance is excellent, chloroprene being one of the few rubbers that are self-extinguishing. Neoprene gives excellent rubber-metal bonds and good resilience. Certain grades of Neoprene may crystallise and harden during storage although they will thaw on heating. Chloroprene is widely used because of its wide range of useful properties and reasonable price. Typical applications include belting, coated fabrics, cable jackets, seals and gaiters.	EPDM is a type of synthetic rubber consisting of ethylene, propylene and, in small part, diene. It shows excellent properties when in contact with acid, emulsion, polarized mediums and ketones. What distinguishes this material from others is its resistance to atmospheric conditions, ozone and ageing, making it ideal for external applications, such as gaskets and profiles. Exposure to grease, oil and fuel is not recommended.	ACM is an acrylic rubber; and AEM is an ethylene acrylic rubber specially designed to withstand high temperatures and additive-enriched oils. AEM is usually applied in conditions when using NBR is no longer adequate, but using fluorine or fluorosilicone would be considered too rash. AEM is most frequently used in the production of seals and gaskets for the car industry, such as axle seals, as well as for production of o-rings, tubes, plugs, etc.	Silicone is an organosiloxane high polymer. It can withstand very high temperatures, while remaining flexible at low temperatures. Silicone also has a high dielectric strength and resistance to oxygen and ozone. It is an incredibly versatile material that can be easily adjusted to various needs, and is available in a wide range of coloures. Silicone is most frequently used in food and medical industry, as well as for the production of mechanical sealants in household appliances, tubes for car industry, insulation, and production of spring supports for the electronics industry, contact plates for keyboards in electronic equipment, and various other products.	FMVQ is produced by substituting methyl-silicone with fluorine groups. The fluorine groups make fluorosilicone very resistant to various synthetic oils and fuels, as well as swelling, and the silicone makes it quite flexible. However, the tensile strength of fluorosilicone is lower than the tensile strength of FPM (fluorinated propylene monomer) and VMQ. FMVQ is usually used for production of special seals and gaskets, o-rings, and membranes in chemical and car industry.	FPM rubbers are based on highly fluorinated carbon-hydrogen polymer. It is designed to withstand high temperatures as well as strongly resist chemical oxidation. FPM retains its characteristics and does not swell when exposed to mineral oil, fuel and aromatic carbohydrates. FPM also has low gas permeability and is highly resistant to ozone and atmospheric conditions.
Hardness on the Shore durometer scale (SH-A)	30 - 90	35 - 90	20 - 95	50 - 90	30 - 90	25 - 90	50 - 90	25 - 85	35 - 80	45 - 85
Temperature resistance (°C)	-60/+80	-50/+100	-25/+120	-30/+150	-40/+100	-50/+150	-40/+150	-60/+280	-50/+200	-30/+230
Tensile strength (N/mm2)	12 - 25	6 - 20	6 - 17	6 - 18	5- 16	6- 14	6- 15	5- 10	5- 10	5- 10
Elasticity (%)	450 - 700	300 - 700	200 - 600	200 - 450	200 - 500	200 - 650	200 - 400	300 - 600	150 - 400	150 - 300
Rolling friction	2	2	1-2	1-2	1-2	1-2	2	3	3-x	2
Dynamic mechanical elasticity (at 23°C)	1	2	2	2	2	2	3	1	2-3	3
Resistance to wear and tear	1	1-2	2	2	2-3	3	2	2	2	3
Gas permeability	3-x	2-3	1-2	1-2	1-2	2	1-2	x	x	1-2
Resistance to ozone	3-x	3-x	3	2	1-2	1	1-2	1	1	1
Compatibility with metal	1	1	2	2	2	3	3	3	3	3
Compatibility with textiles	1	1	2	2	2	3	3	3	3	1
Resistance to flames	x	x	x	x	1-2	3-x	x	2-x	1-2	1-2
Electrical resistivity	1	1-2	2	3-x	2	1	3	1	1	2
Resistance to 25% natron solution at 50°C	2	1-2	x	1	2	1-2	3	x	x	3-x
Resistance to 25% sulphuric acid at 50°C	2	1-2	2	1-2	1-2	1	2	x	2-3	1
Resistance to fuel	x	x	1-2	1-2	2	3-x	1	x	1-2	1
Resistance to organic carbon-hydrogen	x	x	1	1	2	3-x	1	x	2	1
Resistance to aromatic carbon-hydrogen	x	x	2-x	2-x	x	x	3	x	2-3	1
Resistance to chlorinated carbon-hydrogen	x	x	x	3-x	x	x	x	x	1-2	2
Resistance to oil and grease	x	3-x	1	1	2-3	x	1	2-x	1	1
Resistance to water	1	1-2	1	1	2	1	1-2	1	1	1

Rating Key: 1 = Excellent resistance / 2 = Good resistance / 3 = Medium resistance / x = not resistant / There is no experience