Material properties of Elastomers (rubber)

International symbol	NR	NBR	CR	FPM, FKM	TPE	PUR
Trade name		Perbunan®	Neoprene®	Viton®	Santoprene®	Bayflex®
Chemical name	Natural rubber	Acrylonitrile-butadiene rubber	Chloroprene rubber	Fluorine rubber Fluorine caoutchouc	Thermoplastic rubber	Polyurethane
Hardness (Shore-A)	30 … 90	25 … 95	30 … 90	65 … 90	55 … 87	65 … 90
Temperature resistance • short-term • long-term	 −60° … +130 °C −40° … + 80 °C	 −40° … +150 °C −30° … +120 °C	 −30° … +150 °C −20° … +120 °C	 −30° … +280 °C −20° … +230 °C	 −40° … +150 °C −30° … +125 °C	 −40° … +130 °C −25° … +100 °C
Tensile strength in N/mm²	–	25	25	20	8,5	20
Wear-/ abrasion resistance	good	good	good	good	good	excellent
Resistance to: • Oil, greases • Solvents • Acids • Alkalines • Fuel	 not suitable low low low not suitable	 outstanding partly good restricted good good	 good partly good good very good slight	 good very good very good very good outstanding	 good outstanding outstanding outstanding good	 very good satisfactory not suitable not suitable good
General	NR is a material with very good physical properties and excellent mechanical strength. Use e.g. for spring elements. Please note: natural rubber has a characteristic smell.	NBR is a synthetic special rubber for rubber parts with high requirements for resistance to swelling when in contact with oils and fuels. Standard material for o-rings.	CR is one of the most frequently used synthetic rubbers with a wide range of applications for parts which require exceptional resistance to ageing, atmospheric and environmental influences.	FPM is unmatched for applications with contact to fuels, oils, solvents, as well as many acids and caustic solutions; resistant to atmospheric and environmental influences. Due to its high price its use is restricted to high quality rubber parts which are exposed to extremely heavy wear. Viton® is a registered trademark of DuPont performance rubbers.	TPE is a thermoplastic rubber, the performance characteristics of which are comparable to those of many customary vulcanised special rubbers. TPE is a multi-purpose material with outstanding dynamic fatigue strength and excellent resistance to ozone and atmospheric influences (environmental influences).	PUR is known for exceptionally good mechanical characteristics with very good resistance to atmospheric and environmental influences. In addition, the extreme resistance to tearing and to wear, should also be mentioned.