

RUBBER TYPES AND PROPERTIES

NITRILE

It is an oil and grease resistant material which is suggested mostly in felt applications. Various mixtures exist for fuels and industrial fluids. It has low resistance to glycol-based brake oils and EP additives. Nitrile rubber is typically used between the temperatures of 40°C and 105°C, for intermittent operations it is durable up to 120°C. It is preferred in terms of price/function balance.

In gasket production, cork-filled nitrile mixtures are used. The resistance properties of these materials are as standard nitrile. Presence of cork brings compressibility (volumetric shrinkage) feature to the material. This type of nitrile is generally used in static applications.

POLYACRYLIC RUBBER (ACM)

It is more resistant in high temperatures and in oil with EP additives than nitrile. It is generally used at the temperatures up to 150°C. It has good ozone resistance. Fuel resistance and low temperature resistance is poor. (-30°C min) It is used especially for gearbox seals.

SILICONE RUBBER (MQ, VMQ, PVMQ)

It is used between the temperatures of -60°C and 120°C. It is durable up to 250°C for intermittent operations. Main application area is crankshaft seals. Flexibility property, air resistance and ozone durability is at high level. In fuels, EP additives and applications which requires high mechanical properties, it is not recommended.

FLUOROCARBON RUBBER (FKM)

It is used between the temperatures of -30°C and 220°C. It is resistant to the most of the chemicals and grease, oil, fuel. It is used in high temperatures, high cycling environments and crankshaft seals however it is expensive material.

ETHYLENE PROPYLENE RUBBER (EPM, EPDM)

It is used between the temperatures of -40°C and 150°C. Resistance is good against phosphate ester fluids, glycol based brake oils, water vapor, ozone and weather conditions. It is not suitable for fuels and petroleum based oils.

STYRENE BUTADIENE RUBBER (SBR)

It is resistant to glycol based brake oils, acids, bases and alcohols. It is used between the temperatures of -50°C and 100°C. It is not resistant to fuels and petroleum based oils.

NATURAL RUBBER (NR)

It is used between the temperatures of -60°C and 90°C. In terms of ambient strength, it shows similar features with SBR. It is used where high flexibility and mechanical properties are required.

POLYTETRAFLUOROETHYLENE (PTFE)

It is a plastic material which is resistant almost all the chemicals in the industry. It is used between the temperatures of -260°C and 260°C. It is the solid material with the lowest friction coefficient. It is non-lubricating bearing material and does not show adhesion. Some types are very good electric insulator. Pure or PTFE with glass fiber, carbon, graphite, bronze, molybdenum sulphide types are used according to the application area.

POLYAMIDE (PA)

It is commonly known as "nylon". It is used between the temperatures of -20°C and 90°C. On special types usage limit can reach up to 140°C. Friction and wear properties is very good. It is resistant to oils, fuels, esters, ketones.

HYDROGENATED NITRILE RUBBER (HNBR)

Hydrogenated nitrile rubber is derived from NBR polymers. The properties of materials prepared by this way have higher mechanical forces and more abrasion resistance. The media durability is similar to NBR. Its usage limit is 150°C.

THERMOPLASTIC POLYURETANE (TPU)

TPU has good mechanical properties which allows it to be processed effectively by injection molding. TPU's main advantages are anti-wear high resistance, flexibility in a wide temperature range and resistance to lubricants, greases and many solvents.