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SBR (styrene-butadiene rubber)

SBR is a general-purpose synthetic rubber, which is frequently substituted for natural rubber. Its resilience is not as good as natural rubber but it has better heat aging characteristics. SBR vulcanizates show poor ozone resistance, which can be improved by blending with EPDM or by incorporating antiozonants and protective waxes. They are not resistant to petroleum based oils and greases or hydrocarbon fuels but they are resistant to non-petroleum based automotive brake fluids, silicone oils and greases, alcohols, water and non-oxidizing solutions of acids, alkalis and salts.

EPDM (EPR – ethylene-propylene diene monomer rubber)

EPDM is widely used as a gasket material due to its important sealing properties, being a close contender to Buna-N, except that it does not have the same petroleum oil and fuel resistance. EPDM has excellent resistance to weathering and good heat stability. EPDM can be compounded to exhibit excellent heat aging and resistance to compression set up to 150°C. EPDM vulcanizates are resistant to hot water and steam, alcohol, glycol and ketones as well as silicone oils and greases. They exhibit moderate resistance to animal and vegetable oils and these substances can be tolerated in static applications. EPDM is not resistant to mineral oil based fluids and greases, hydrocarbon fuels or synthetic hydrocarbon lubricants.

FKM (fluorocarbon rubber -- Viton™, Fluorel™, Kel-F™)

Fluorocarbon elastomers have been compounded to meet a range of chemical and physical requirements. They are used where other materials cannot survive severe chemical conditions. They are most suited to function between –29° and 204°C. FKM vulcanizates usually need a post oven-curing period of up to 24 hours in order to develop optimum physical properties, particularly compression set and tear resistance. They also show excellent resistance to a wide range of oils, fuels, solvents and chemicals. There are, however, a number of chemicals that severely attack FKM such as ketones, hot water and steam (unless compounded with lead oxide), amines and methanol.

NBR (nitrile rubber – Buna-N)

As used in the Rieber gasket, nitrile is especially resistant to mineral oils, aromatic and aliphatic hydrocarbons and alcohols, depending upon the actual nitrile content of the elastomer. High and low temperature performance is good and oil resistance can be improved by compounding at the expense of low temperature flexibility. It is not inherently ozone resistant but this property can also be improved through compounding or the use of NBR/PVC blends. NBR compounds generally have low compression set and continuous operational temperature range from –40° to 100° C.

CR (chloroprene rubber)

Superior to both NR and SBR in its ozone, weather resistance and chemical attack, and with good resistance to silicate ester lubricants, silicone oils and greases and aliphatic hydrocarbons, chloroprene rubber has only moderate low temperature flexibility and tends to suffer from poor compression set, which can be corrected by effecting very tight cures. Properly formulated compounds permit service temperatures between –40° and 100°C.