FKM Rubber Material O-Ring Seals

FKM is a copolymer composed of highly fluorinated hydrocarbons, developed in the 1950s. This sealing material exhibits excellent resistance to media, ozone, and aging. It also remains stable in fuels, petroleum-based oils and greases, as well as aliphatic and aromatic hydrocarbons.

However, the material is unstable in the presence of polar solvents (such as acetone, methyl ethyl ketone, and ethyl acetate), low molecular weight organic acids (formic and acetic acid), glycol-based brake fluids, ammonia gas, amines, alkalis, and superheated steam. FKM is available in various forms including copolymers, terpolymers, and tetrapolymers, with fluorine content ranging from 65% to 71%. By adjusting its composition, FKM can be precisely tailored to meet specific requirements for media resistance and low-temperature flexibility. This advantage makes it particularly suitable for reliable protection in chemical and pharmaceutical applications involving aggressive media and process temperatures above 140°C—conditions that materials such as EPDM or HNBR cannot withstand.

Material Properties of FKM in Technical Applications

Fluororubber can be used within a temperature range of −25°C to 200°C and is primarily employed for seals in the automotive, commercial vehicle, petroleum production, chemical, and aerospace industries. Special grades of FKM remain flexible even at −40°C. In general industrial applications, FKM is used where high rotational speeds and elevated temperatures are present, such as in radial shaft seal rings for pumps and transmissions.