

75 FKM 725



FKM (fluoroelastomer) is suitable for use throughout the process industry due to its broad thermal and chemical resistance range. In the food industry, this material is particularly well suited for applications in which other elastomers such as EPDM or HNBR reach their limits.

It is also recommended for use in the beverage industry for contact with pure citrus juices, flavor oils, and fatty dairy products.

As a peroxide-cured material, the newly developed 75 FKM 725 from Freudenberg Sealing Technologies (FST) is free from bisphenol A and bisphenol derivatives, making it suitable for direct food contact. In addition, this FKM is based on the latest polymer technology and is manufactured without fluorosurfactants.

Thanks to its very high purity and excellent media and temperature resistance, the material is suitable for a wide range of applications as both a static and dynamic sealing solution.

FEATURES AND BENEFITS

- Excellent resistance to media and temperature
- Latest FKM technology: manufactured without fluorosurfactants (FSF technology)
- Material that complies with the latest requirements of the food and beverage industry (EU 2024/3190)

MATERIAL PROPERTIES

Material	Temperature Range	Food Industry Approvals	Pharmaceutical Approvals
75 FKM 725	-25 °C bis +200 °C	• 3-A Sanitary Standards • NSF 51, FDA 21 CFR 177.2600 • EC Regulation 1935/2004 • BfR XXI / EC 1935 (Category 4) • Additional approvals in progress: BNIC, Decree of March 21, 1973 (Italy)	• ISO 10993-5 Cytotoxicity incl. USP Chapter 87 • ISO 10993-23 Skin Irritation Potential

BENCHMARK STUDY IN CIP/SIP MEDIA

To better understand the suitability of a material for process media, benchmark studies are a proven method. Freudenberg Sealing Technologies compared 75 FKM 725 with competitor materials in acidic and alkaline cleaning solutions as well as in steam.

The most severe permissible application conditions in terms of concentration and temperature were used.

The storage period of 168 hours was deliberately selected to be significantly longer than typical cleaning cycles in actual operation.

After storage, volume change, elongation at break, modulus, and tensile strength were measured and compared with the initial values.

75 FKM 725 – Peroxide-Cured Fluoroelastomer

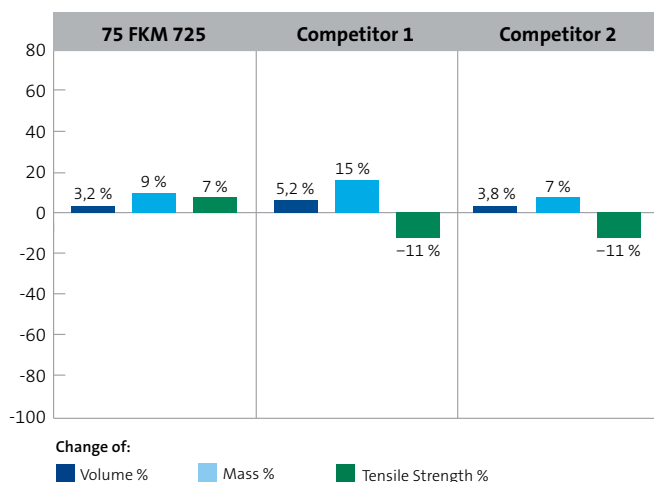


Fig. 1: Acidic CIP Cleaner (2%) at +80 °C for 168 Hours

Fig. 1 shows the results for FKM 725 compared with two fluorocarbon rubbers from other manufacturers after storage in an **acidic cleaning solution**. FKM 725 exhibits the least swelling, which makes it ideal for use in tight, hygienic installation spaces.

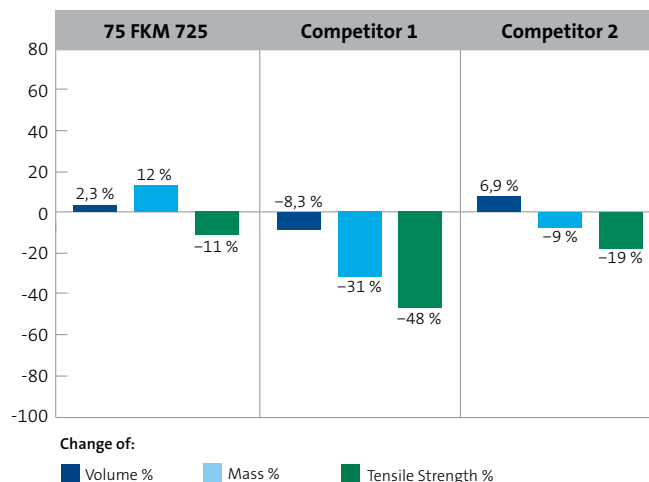


Fig. 3: Hot Steam at +180 °C for 168 Hours

FKM 725 once again demonstrates its outstanding performance in **superheated steam at +180 °C**: very low swelling and virtually no changes in tensile strength and elongation at break make the material suitable for both static and dynamic applications. Seals made of FKM 725 are an excellent choice for processes involving steam sterilization.

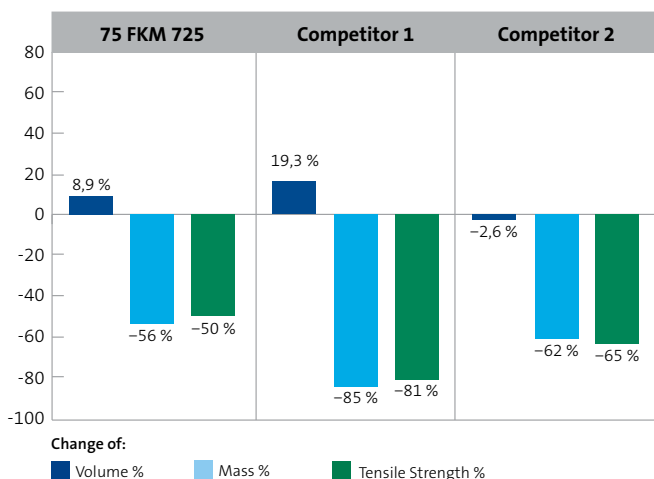


Fig. 2: Alkaline CIP Cleaner (5%) at +80 °C for 168 Hours

In alkaline cleaning solutions, the material from Competitor 1 is not recommended. Hygienically designed components have no margin to accommodate swelling exceeding 10%. In this scenario, the high stresses within the material are highly likely to cause shear failure. FKM swells very little and performs better in terms of mechanical properties than the other two fluororubbers tested.

For food and beverage applications where cleaning and sterilization are integral parts of the process, FKM 725 is a highly recommended material.

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