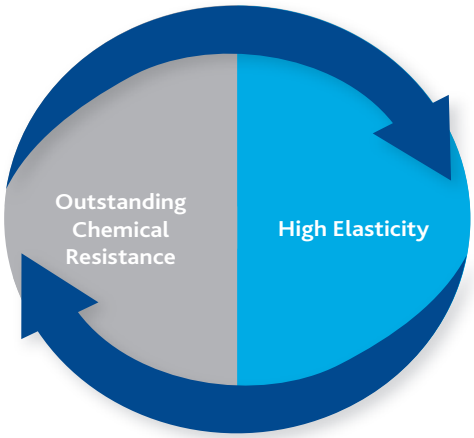
# 75 SIMRIZ® 495

Compared to PTFE and FKM, FFKM offers an optimized combination of outstanding chemical resistance and excellent elastic properties **(see Fig. 1)**. The high-performance material 75 Simriz® 495 specially developed by Freudenberg Sealing Technologies offers universal chemical resistance, even to amines, and is therefore ideally suited for applications in the chemical industry. It covers a temperature range from -15°C to +230°C (even up to +260°C for short periods), comes in many O-ring sizes and represents a cost-effective solution for customers. In addition to 75 Simriz® 495, Freudenberg Sealing Technologies' FFKM portfolio includes additional Simriz® materials for the chemical industry, such as 75 Simriz® 497 and 80 Simriz® 498 for high-temperature applications, 70 Simriz® 481 and 70 Simriz® 491 for low-temperature applications, and 90 Simriz® 134 for the petrochemical industry.

**FFKM**
- approx. 72% fluorine content
- combination of excellent chemical resistance and good elastic properties

**PTFE**
- approx. 76% fluorine content
- no intrinsic elastic properties (activation is often necessary)




**FKM**
- fluorine content < 70%
- limited chemical resistance

Fig. 1:
Comparison between FFKM, FKM and PTFE

## MATERIAL PROPERTIES

| MATERIAL | COLOR | CROSS-LINKING | TEMPERATURE RESISTANCE | PROPERTIES AND ADVANTAGES |
|---|---|---|---|---|
| 75 Simriz® 495 | black | peroxidic | -15°C to +230°C (short-term up to +260°C) | • Many O-ring sizes available<br>• Possibility to produce different dimensions or limited tolerances<br>• Very good chemical resistance (including amines)<br>• Low compression set<br>• Cost-effective solution<br>• Services such as FEM simulations and extensive resistance databases available |

## BENCHMARK STUDY

Benchmark studies are a proven method for better understanding the suitability of a material for application media. Freudenberg Sealing Technologies has carried out these for the material 75 Simriz® 495 compared to competitor materials as well as its own high-performance materials **(see Fig. 2 and Fig. 3)**. Various aggressive chemicals were used in high concentrations, representing a broad group of chemical properties. In the examples shown below, ethylenediamine was used to represent bases and 20% acetic acid to represent acids. The tests were carried out according to DIN ISO 1817 (volume swelling) in accredited laboratories. Very high temperatures were deliberately selected in order to identify potential weaknesses in the material. The result: 75 Simriz® 495 performed in both tests with swelling of less than 10% and showed convincing resistance in both bases and acids compared to other FFKM materials evaluated in the test.

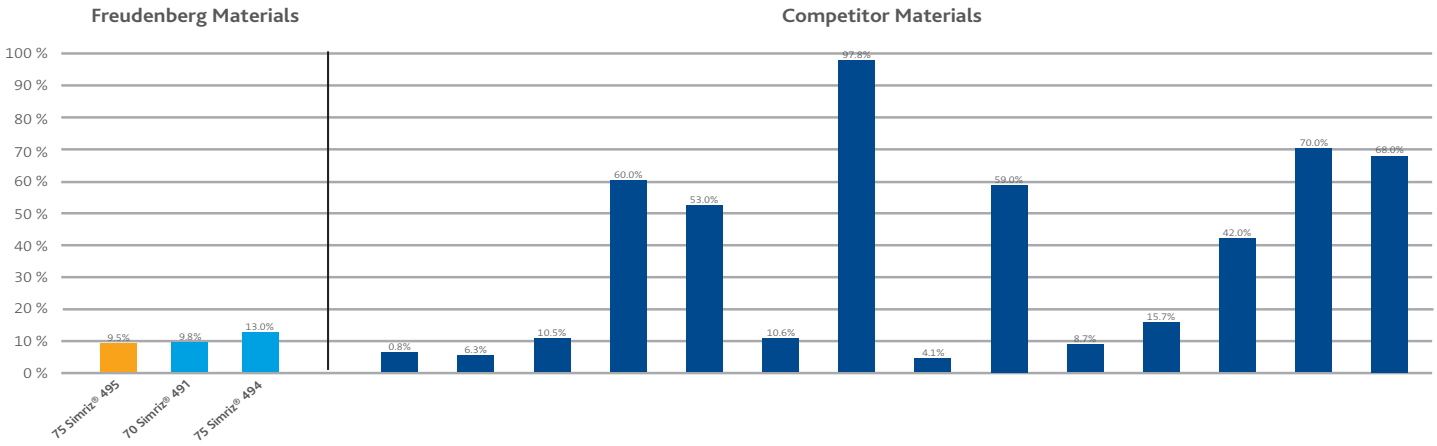



Fig. 2:
Volume change in ethylenediamine at 100°C for 72h

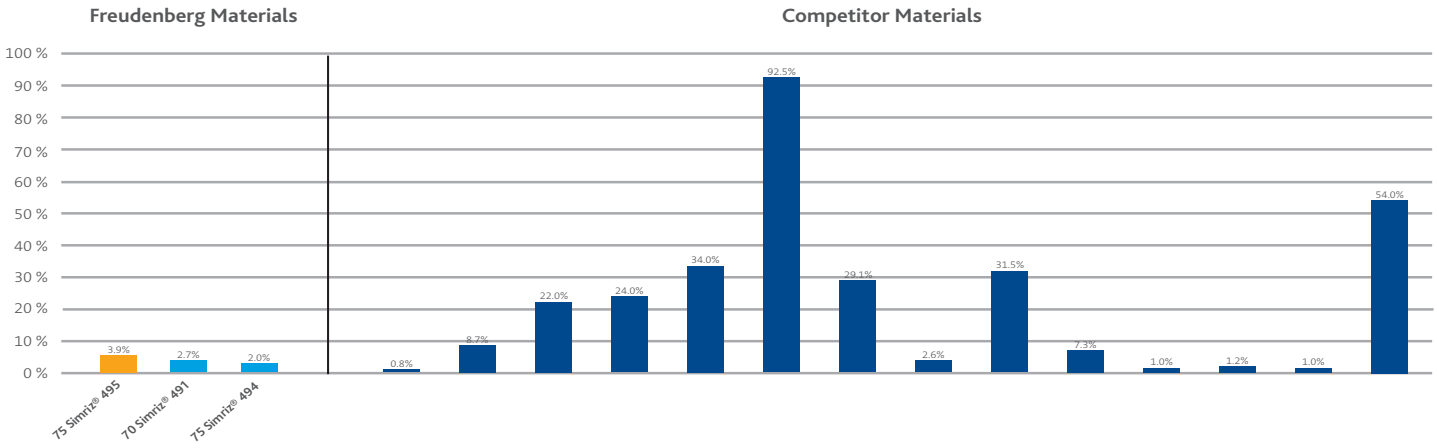



Fig. 3:
Volume change in 20% acetic acid at 98°C for 72h



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