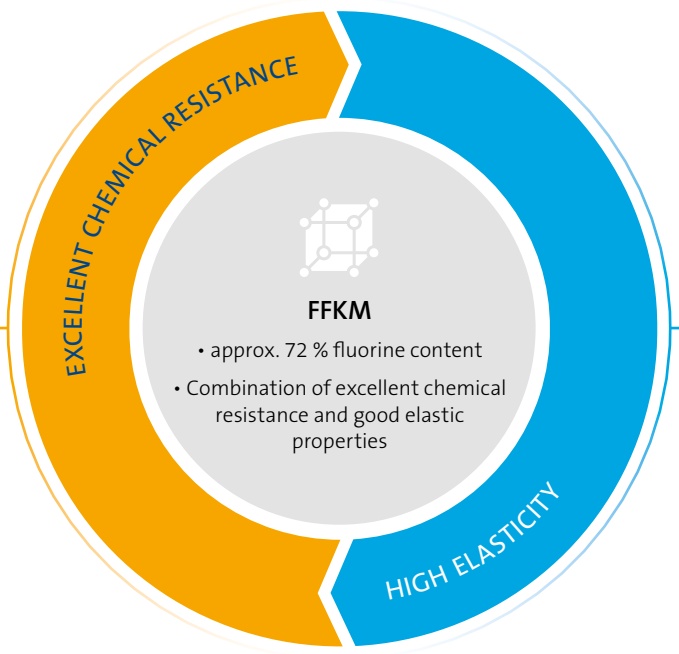
75 SIMRIZ® 495

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 (for a short period of time even up to +260 °C), is available in many O-ring sizes and represents a cost-efficient solution for customers. In addition to 75 Simriz® 495, Freudenberg Sealing Technologies' FFKM portfolio also includes even more 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.

PTFE

- approx. 76 % fluorine content
- No intrinsic elastic properties (activation is often required)



FKM

- Fluorine content < 70 %
- Limited chemical resistance

Fig. 1: Comparison between FFKM, FKM and PTFE

Material	Color	Networking	Temperature Resistance	Properties and Benefits
75 Simriz® 495	black	peroxide	-15 °C to +230 °C (for a short time up to +260 °C)	• Many O-ring sizes available • Possibility of manufacturing deviating dimensions or restricted tolerances • Very good chemical resistance (including amines) • Low compression set • Cost-efficient solution • Services such as FEM simulations and extensive durability databases

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BENCHMARK STUDY

Benchmark studies are a proven means of 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 was used 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 well in both tests with swelling of less than 10 % and showed strong resistance to both bases and acids compared to other FFKM materials evaluated in the test.

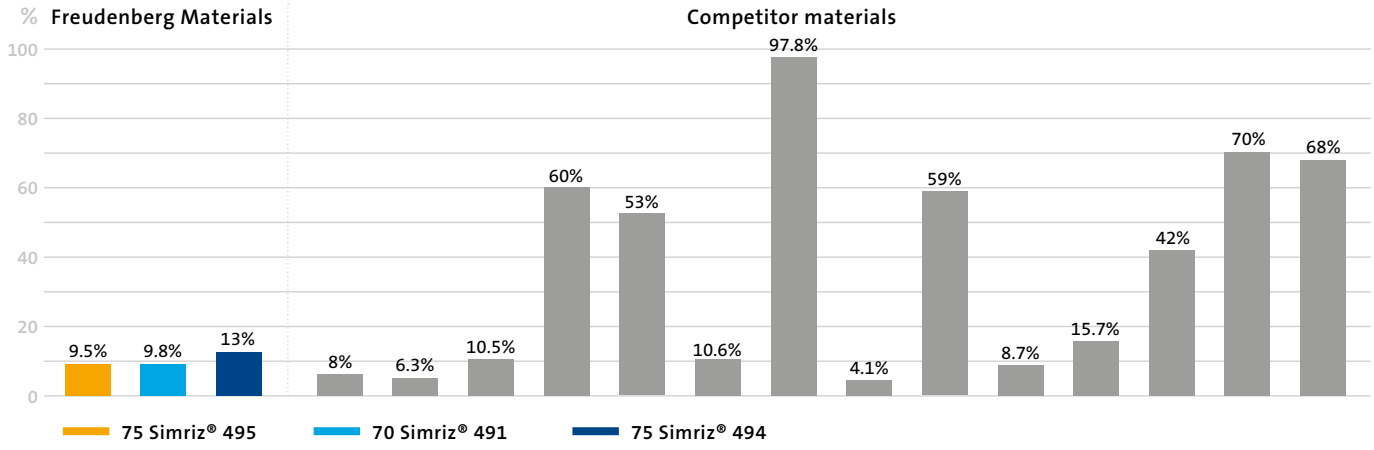

Fig. 2: Volume change in ethylenediamine at 100 °C for 72 h

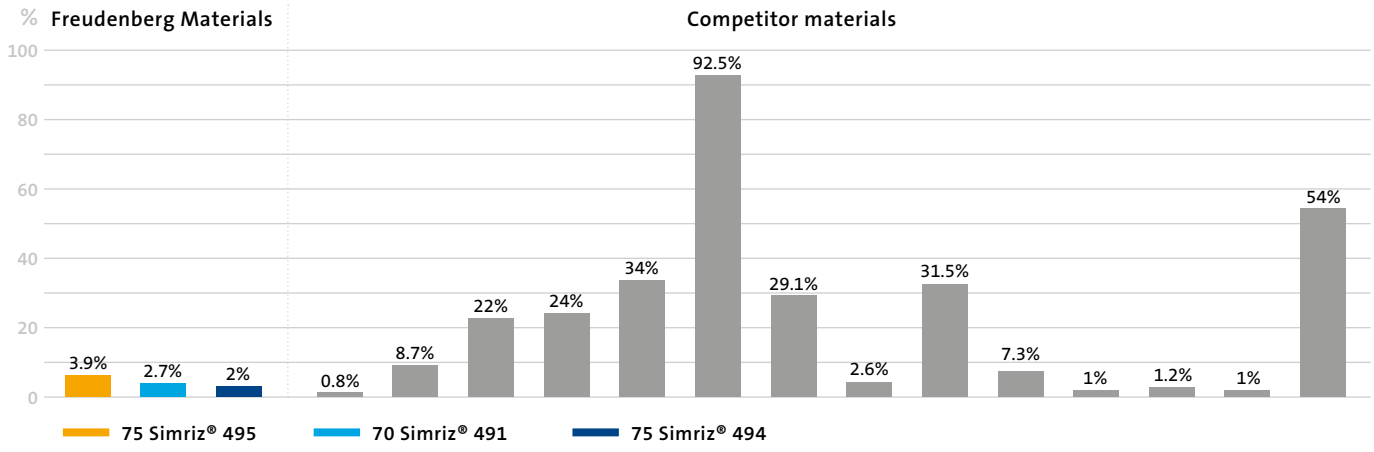

Fig. 3: Volume change in 20 % acetic acid at 98 °C for 72 h

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