

DuPont™ Kalrez® 8900

For Semiconductor Applications

Technical Information—Rev. 1, July 2010

Product Description

DuPont™ Kalrez® 8900 perfluoroelastomer parts are a black product specifically developed for semiconductor thermal processes, e.g., oxidation, diffusion furnace, metal CVD, ALD and LPCVD. It offers outstanding thermal stability, very low outgassing and excellent (low) compression set properties. Kalrez® 8900 parts exhibit excellent retention of physical properties at elevated temperatures, have excellent mechanical strength and are well-suited for both static and dynamic sealing applications. A maximum continuous service temperature of 325 °C is suggested. Short excursions to higher temperatures may also be possible. Ultrapure post-cleaning and packaging is standard for all Kalrez® 8900 parts.



Features/Benefits

- Outstanding thermal stability
- Excellent (low) compression set properties
- Very low outgassing properties
- Very low moisture content
- Excellent retention of physical properties at elevated temperatures
- Excellent resistance to fluorine gas

Suggested Applications

- Quartz Tube Seals
- Plenum Seals
- Chamber Seals
- Fittings
- Center Ring Seals

Low Outgassing of Kalrez® 8900 parts

The crosslinking structure of elastomeric seals can become damaged as a result of exposure to high heat and temperature spikes. As a result, elastomeric seals can degrade causing outgassing to occur. Outgassing from sealing materials can be absorbed by the exposed substrate and affect the properties of the grown film. Figure 1 shows the outgassing properties of Kalrez® 8900 versus a competitive perfluoroelastomer.

Typical Physical Properties¹

Color	Black
Hardness ² , Shore A (pellet)	73
Hardness ³ , Shore M (O-ring)	80
100% Modulus ⁴ , MPa	11.72
Tensile Strength at Break ⁴ , MPa	16.20
Elongation at Break ⁴ , %	121
Compression Set ⁵ , %	
70 hr at 204 °C	14
70 hr at 300 °C	32
70 hr at 325 °C	59
Maximum Continuous Service, Temperature ⁶ , °C	325

¹ Not to be used for specification purposes

² ASTM D2240 (pellet test specimens)

³ ASTM D2240 and D1414 (AS568 K214 O-ring test specimens)

⁴ ASTM D412 and D1414 (AS568 K214 O-ring test specimens)

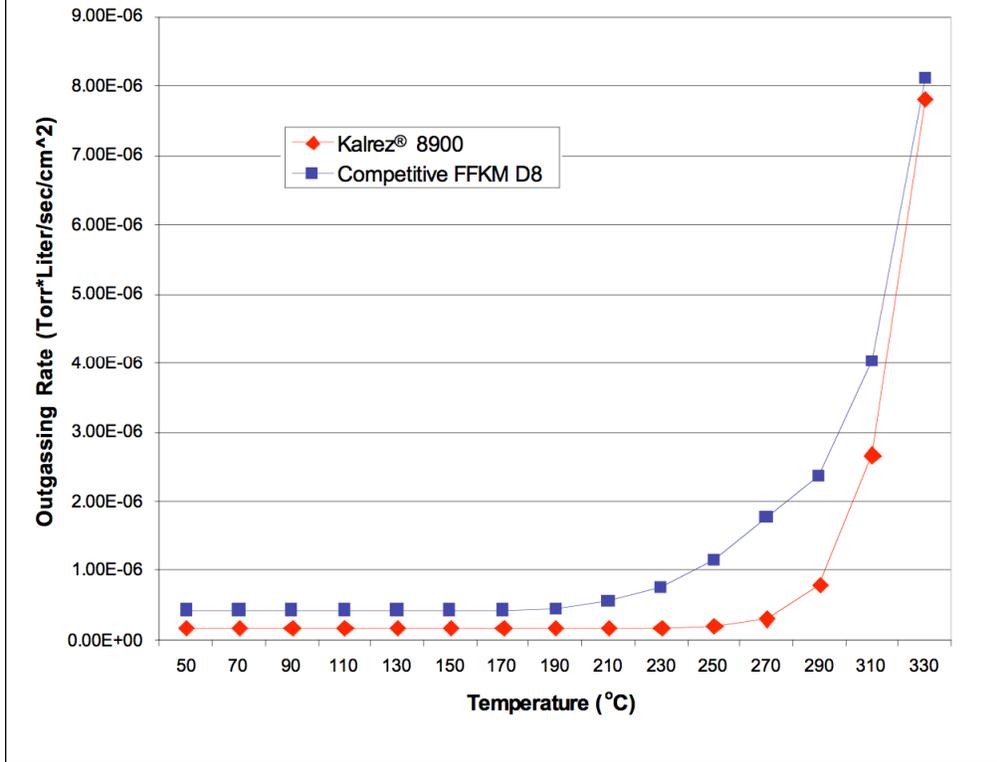
⁵ ASTM D395B and D1414 (AS568 K214 O-ring test specimens)

⁶ DuPont proprietary test method



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Figure 1. Total Outgassing (50–330 °C)



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