



Kalrez® perfluoroelastomer parts

From DuPont Performance Elastomers

Kalrez® Sahara™ 8085

Compound Description

Kalrez® Sahara™ 8085 has been specifically developed for plasma and gas deposition applications, i.e., etching, ashing, HDPCVD, PECVD, SACVD, etc. It has been formulated for minimal particle generation in NF₃ plasma. Kalrez® Sahara™ 8085 exhibits very low particle generation and low weight loss in oxygen and fluorine-based plasmas, has excellent mechanical properties and is well-suited for both static and dynamic sealing applications (e.g., bonded slit valve doors, bonded gate valves, bonded pendulum valves, gas orifice seals, gas feedthrough seals, chamber lid seals, etc.) A maximum continuous service temperature of 240°C is suggested. Kalrez® Sahara™ 8085 can also withstand short-term excursions up to 275°C. Ultrapure post-cleaning and packaging is standard for parts made from Kalrez® Sahara™ 8085.

Performance Features/Benefits

- Very low particle generation in NF₃ plasma
- Longer seal life
- Reduced PM time and increased equipment uptime
- Lower cost of ownership

Suggested Applications

- Bonded slit valve door seals
- Bonded gate valves
- Chamber lid seals
- Gas inlet seals
- Gas orifice seals
- Gas feedthrough seals

Typical Physical Properties¹

Color	Beige
Hardness, Shore A (pellet) ²	80
Hardness, Shore M (O-ring) ³	86
100% Modulus ⁴ , MPa	7.5
Tensile Strength at Break ⁴ , MPa	16.3
Elongation at Break ⁴ , %	159
Compression Set ⁵ , %	
70 hr at 150°C	28
70 hr at 175°C	35
70 hr at 204°C	42
Max. Continuous Service Temperature ⁶ , °C	240
Max. Excursion Temperature ⁶ , °C	275

¹ Not to be used for specification purposes

² ASTM D2240 (pellet test specimens)

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

⁴ ASTM D412 (dumbbell test specimens)

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

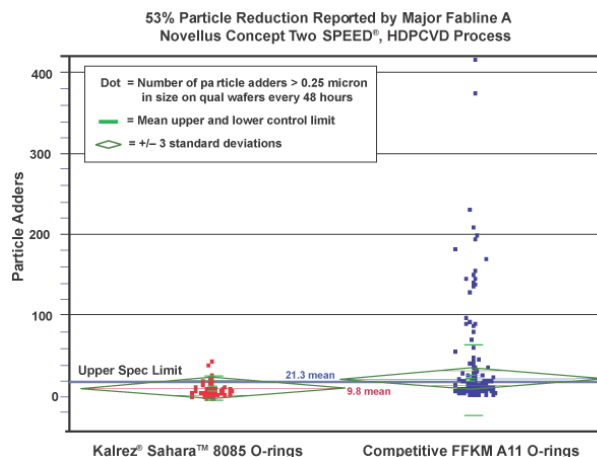
⁶ DuPont Performance Elastomers proprietary test methods

Fabs Choose Kalrez® Sahara™ 8085 For Improved Performance

Kalrez® Sahara™ 8085 has been reported to significantly improve wafer production in a variety of semiconductor HDPCVD and PECVD applications where NF₃ plasma is used during the cleaning cycle. In a number of evaluations at fabline customers, Kalrez® Sahara™ 8085 exhibited improved mechanical strength, lower particle generation and longer seal life compared to competitive perfluoroelastomers in both static and dynamic sealing applications.

Case Report 1—Kalrez® Sahara™ 8085 Reported to Reduce Particle Adders by 53% Over Competitive Perfluoroelastomer (FFKM A11)

- HDPCVD O-ring
- Process chemistry: Silane
- Cleaning chemistry: NF_3 , O_2 and O_3
- Competitive FFKM generated significantly more particle adders



Case Report 2— Kalrez® Sahara™ 8085 Improved Wafer Production over 25% versus Competitive Perfluoroelastomer (FFKM A2)

- PECVD gas box, shower head and plate seal
- Process chemistry: TEOS, O_2 at 400°C
- Cleaning chemistry: NF_3 plasma at 3500 watts
- Competitive perfluoroelastomer failed due to cracking and excessive leakage

Case Report 3— Kalrez® Sahara™ 8085 Extended Seal Life 100% versus Competitive Perfluoroelastomer (FFKM A2)

- HDPCVD turbo gate O-ring
- Process chemistry: SiH_4 , O_2 at 150°C
- Cleaning chemistry: NF_3 plasma
- Competitive perfluoroelastomer replaced due to high particle generation

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