DuPont™ Kalrez® 8085

For Semiconductor Processes

Technical Information—Rev. 9, June 2011

Product Description

DuPont™ Kalrez® 8085 perfluoroelastomer parts are a beige, general purpose product for “select” etch, ash/strip and deposition processes. It has been formulated for minimal particle generation in NF_3 plasma. Kalrez® 8085 exhibits very low particle generation and low weight loss in oxygen and fluorine-based plasmas, has excellent mechanical strength 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® 8085 can also withstand short-term excursions to 275 °C. Ultrapure post-cleaning and packaging is standard for all Kalrez® 8085 parts.

Performance Features/Benefits

- Very low particle generation in NF_3 plasma
- Excellent mechanical strength properties
- 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 Properties[1]	
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 proprietary test methods

Fabs Choose Kalrez® 8085 for Improved Performance

Kalrez® 8085 has been reported to significantly improve wafer production in a variety of semiconductor plasma process applications where oxygen and fluorinated plasmas are used during the cleaning cycle.

In a number of evaluations at fabline customers, Kalrez® 8085 exhibited improved mechanical strength, lower particle generation and longer seal life compared to competitive perfluoroelastomer parts in both static and dynamic sealing applications.

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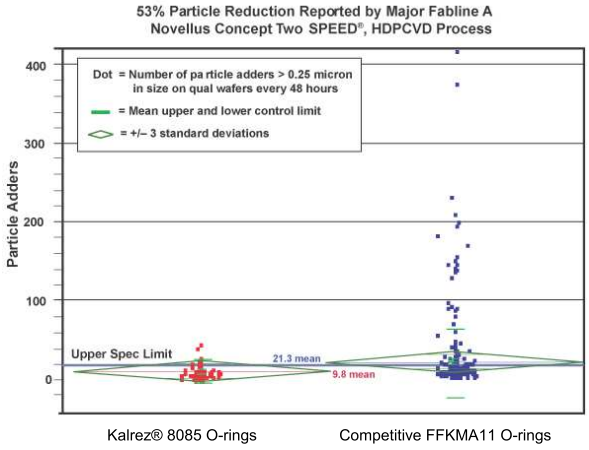
Case Report #3137 — DuPont™ Kalrez® 8085 Reported to Reduce Particle Adders by 53% Over Competitive Perfluoroelastomer (FFKM A11)

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



Case Report #4115 — Kalrez® 8085 Extended Seal Life 100% versus Competitive Perfluoroelastomer (FFKM A18)

- PECVD RPS cleaning module O-ring seals
- Process chemistry: SiH_4, O_2
- Cleaning chemistry: NF_3
- Competitive perfluoroelastomer failed due to severe plasma attack, i.e., erosion, cracking, etc.

Case Report #6553 — Kalrez® 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 #2883 — Kalrez® 8085 Extended Seal Life 100% versus Competitive Perfluoroelastomer (FFKM A2)

- Ash isolation valve poppet seal
- Process chemistry: O_2, CF_4
- Cleaning chemistry: N/A
- Competitive perfluoroelastomer failed due to cracking and excessive leakage

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Visit us at **kalrez.dupont.com** or **vespel.dupont.com**

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