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DuPont™ Kalrez® 8575

For Semiconductor Processes

Technical Information—Rev. 8, June 2011

Product Description

DuPont™ Kalrez® 8575 perfluoroelastomer parts are a white product for “select” etch, ash/strip and deposition process applications. It offers very low weight loss in oxygen and fluorine-based plasmas, low outgassing, and excellent elastic recovery properties. Kalrez® 8575 has excellent vacuum and long-term sealing performance, good mechanical properties and is well-suited for both static and dynamic sealing applications (e.g., gas inlets, chamber lid seals, slit valve doors). A maximum continuous service temperature of 300 °C is suggested. Ultrapure post-cleaning and packaging is standard for all parts made of Kalrez® 8575.

Key Performance Features Contribute to Extended Seal Life

- Excellent resistance to oxygen and fluorine-based plasmas, as well as chlorinated cleaning gasses (e.g., ClF_3)
- Very low weight loss in reactive plasmas
- Very low outgassing properties
- Excellent (low) compression set properties
- Excellent elastic recovery properties

Suggested Applications

- Chamber lids
- Gas inlets
- Quartz windows
- Throttle valves
- Other plasma applications

Typical Physical Properties[1]	
Color	White
Hardness, Shore A (pellet)[2]	62
Hardness, Shore M (O-ring)[3]	72
100% Modulus[4], MPa	2.47
Tensile Strength at Break[4], MPa	12.04
Elongation at Break[4], %	230
Compression Set[5], %, 70 hr at 204 °C	29
Max. Continuous Service Temperature[6], °C	300

[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 test method (dumbbell test specimens)
[5] ASTM D395B (pellet test specimens)
[6] DuPont proprietary test method

Fabs Choose Kalrez® 8575 for Improved Performance

Kalrez® 8575 has been reported to significantly improve wafer production in semiconductor etching and ashing applications. In evaluations by a fabline customer, Kalrez® 8575 exhibited longer seal life compared to a competitive perfluoroelastomer in both dynamic and static sealing applications.

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Case Report #1

Customer	U.S. East Coast Fabline
Equipment	TEL Unity
Process Type	Deep Trench Etch
Components	End Point Window Seal (229 O-ring) (most difficult location for seal performance)
Process Gasses	HBr, O_2, SF_6, NF_3
Rf Power	1500 Watts
Process Temperature	~70 °C
Incumbent Material	Competitive FFKM A2
Incumbent Performance	After 6 months, fluoroelastomer was half eroded, competitive FFKM became brittle, developed cracks and leaked
DuPont™ Kalrez® 8575 Performance:	Evaluated in application for over 10 months without failure Based upon this success, customer evaluated complete seal set (15 sizes) and has changed all competitive FFKM to DuPont™ Kalrez® 8575

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

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