



# 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.,  $\text{ClF}_3$ )
- 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<sup>1</sup>

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

<sup>1</sup> Not to be used for specification purposes

<sup>2</sup> ASTM D2240 (pellet test specimens)

<sup>3</sup> ASTM D2240 and ASTM D1414 (AS568 K214 O-ring test specimens)

<sup>4</sup> ASTM D412 test method (dumbbell test specimens)

<sup>5</sup> ASTM D395B (pellet test specimens)

<sup>6</sup> 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.



The miracles of science™

## 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 <sub>2</sub> , SF <sub>6</sub> , NF <sub>3</sub>
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



**Seal & Design**  
**Corporate Headquarters**  
Ph: (716)-759-3344  
Info@SealAndDesign.com  
[www.SealAndDesign.com](http://www.SealAndDesign.com)