

# DuPont™ Kalrez® 8002

For Semiconductor Ash/Strip Applications

Technical Information - March, 2017

## Product Description

DuPont™ Kalrez® 8002 perfluoroelastomer parts are a clear product for ash/strip applications. This unfilled product offers excellent plasma-cracking resistance and ultra-low particle generation in oxygen and fluorine-based plasmas versus mineral-filled products. Kalrez® 8002 exhibits excellent resistance to dry process chemistry, has good mechanical strength and is well suited for static, low stress/low sealing force and “select” bonded door seal applications. A maximum application temperature of 275°C (527°F) is suggested. Ultrapure post cleaning and packaging is standard for all Kalrez® 8002 parts.

## Performance Features/Benefits

- Ultra-low particle generation in oxygen and fluorine-based plasmas
- Excellent (low) compression set properties
- Excellent plasma-cracking resistance
- Excellent resistance to dry process chemistry

## Suggested Applications

- Gas inlet seals
- Gas orifice seals
- Gas feedthrough seals
- “Select” bonded door seals
- Other static and low stress/low sealing force applications

## Fabs Choose DuPont™ Kalrez® 8002 for Improved Performance

Kalrez® 8002 has been reported to significantly improve wafer production in a variety of semiconductor ash process applications where oxygen and fluorinated plasmas are used.

*Case Report #7737 – Kalrez 8002 Improved Wafer Production Over 5x versus Incumbent Perfluoroelastomer*

- Process Type: Ash
- Process chemistry: O<sub>2</sub>, CF<sub>4</sub>
- Process Temperature: ~80C
- Cleaning chemistry: N/A
- Incumbent Performance: Perfluoroelastomer failed after 270 RF hours due to cracking and vacuum leakage.

## Typical Physical Properties<sup>1</sup>

Color	Clear
Hardness, Shore A (plied slabs) <sup>2</sup>	69
Hardness, Shore M (O-ring) <sup>3</sup>	76
100% Modulus <sup>4</sup> , MPa (psi)	2.30 (334)
Tensile Strength at Break <sup>4</sup> , MPa (psi)	23.10 (3350)
Elongation at Break <sup>4</sup> , %	256
Comp. Set <sup>5</sup> , %, 70 hr. at 204 °C (400 °F)	12
Max. Application Temperature <sup>6</sup> , °C (°F)	275 (527)

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

<sup>2</sup>JIS 6253 test method (plied slab test specimens)

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

<sup>4</sup>JIS 6251 test method (dumbbell test specimens)

<sup>5</sup>ASTM D395B and ASTM D1414 (AS568 K214 O-ring test specimens)

<sup>6</sup>DuPont proprietary test method



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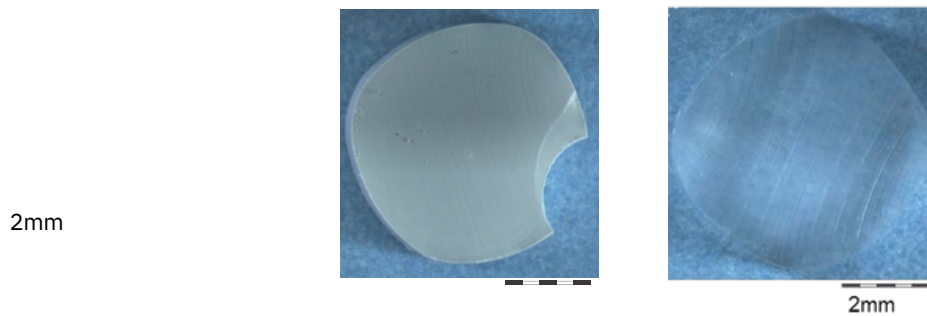
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*Case Report #4536 – Kalrez® 8002 Improved Wafer Production Over 50% versus Incumbent Perfluoroelastomer*

- Process Type: Ash top/bottom plasma tube seals
- Process chemistry: O2, CF4
- Process Temperature: 80-150C
- Cleaning chemistry: N/A
- Incumbent Performance: Perfluoroelastomer failed due to erosion and excessive particle generation after 6 months

Competitive FFKM A11 and Kalrez® 8002 after comparable life cycles in the same process

Competitive FFKM A11 Kalrez® 8002



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Contact DuPont at the following regional locations:

North America 800-222-8377	Latin America +0800 17 17 15	Europe, Middle East, Africa +41 22 717 51 11
Greater China +86-400-8851-888	ASEAN +65-6586-3688	Japan +81-2-5521-8484

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