

# 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<sub>3</sub> 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<sub>3</sub> 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<sup>1</sup>

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

<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 (dumbbell test specimens)

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

<sup>6</sup> 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.



The miracles of science™

AUTHORIZED DISTRIBUTOR

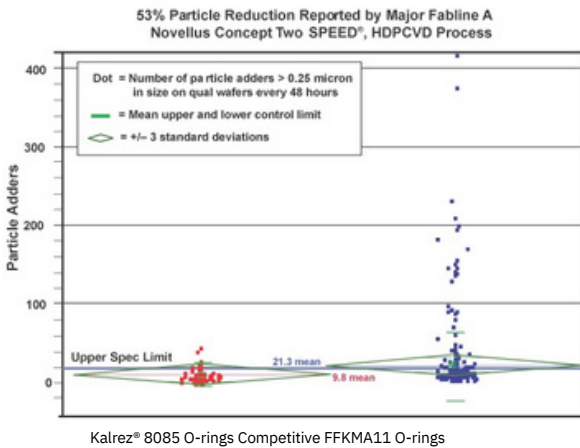
DuPont™ Kalrez® PERFLUOROELASTOMER PARTS

"Ask for the Seal You Can Trust"

VARISCO & CO

*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: NF3, O2 and O3
- 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: SiH4, O2
- Cleaning chemistry: NF3
- 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, O2 at 400 °C
- Cleaning chemistry: NF3 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: O2, CF4
- Cleaning chemistry: N/A
- Competitive perfluoroelastomer failed due to cracking and excessive leakage

Visit us at [kalrez.dupont.com](http://kalrez.dupont.com) or [vespel.dupont.com](http://vespel.dupont.com)

Contact DuPont at the following regional locations:

North America  
800-222-8377  
Greater China  
+86-400-8851-888

Latin America  
+0800 17 17 15  
ASEAN  
+65-6586-3688

Europe, Middle East, Africa  
+41 22 717 51 11  
Japan  
+81-3-5521-8484

The information set forth herein is furnished free of charge and is based on technical data that DuPont believes to be reliable and falls within the normal range of properties. It is intended for use by persons having technical skill, at their own discretion and risk. This data should not be used to establish specification limits nor used alone as the basis of design. Handling precaution information is given with the understanding that those using it will satisfy themselves that their particular conditions of use present no health or safety hazards. Since conditions of product use and disposal are outside our control, we make no warranties, express or implied, and assume no liability in connection with any use of this information. As with any product, evaluation under end-use conditions prior to specification is essential. Nothing herein is to be taken as a license to operate or a recommendation to infringe on patents.

Caution: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, discuss with your DuPont customer service representative and read Medical Caution Statement H-50103-3.

Copyright © 2010 DuPont. The DuPont Oval Logo, DuPont™, The miracles of science™, Kalrez®, and Vespel® are trademarks or registered trademarks of E.I. du Pont de Nemours and Company or its affiliates. All rights reserved.

Concept Two SPEED® is a registered trademark of Novellus.

(09/03) Reference No. KZE-A10055-00-J0611

