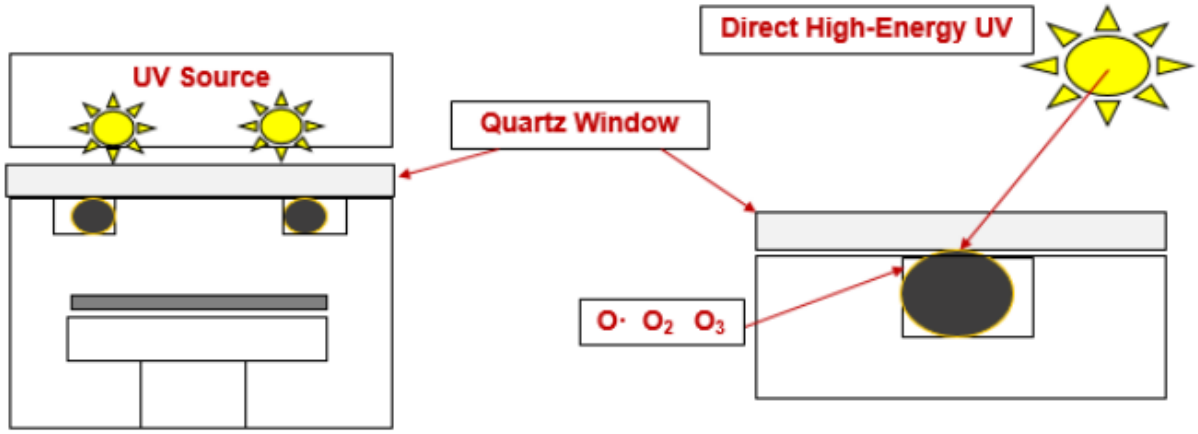
DuPont™ Kalrez® 8705

For Semiconductor Applications Involving High Intensity UV Radiation

Technical Information – August, 2017

Product Description

DuPont™ Kalrez® 8705 perfluoroelastomer parts are primarily designed for seal locations in the direct path of high energy ultraviolet (UV) radiation emitted from a conventional light source or from plasma. They also provide excellent resistance to high concentrations of damaging oxygen free radicals, and outstanding sealing functionality in high temperature vacuum applications. Their extremely low sticking force makes them ideal for sealing quartz surfaces like quartz windows in UV cure chambers and quartz tubes in photoresist strip equipment, without leaving undesirable residues. A maximum application temperature of 310°C is suggested. Ultrapure cleaning and packaging is standard for all Kalrez® 8705 parts.



Performance Features and Benefits

- Very durable against destructive UV rays
- Excellent resistance to damaging oxygen radicals
- Excellent (low) compression set properties
- Outstanding thermal stability
- Excellent seal force retention properties
- Ultra-low sticking on quartz surfaces
- Very low metals content

Suggested Applications

- Quartz Window Seal for UV Cure Chambers
- Quartz Tube Seal for Strip Chambers

Typical Physical Properties[1]

Color	Black
Hardness, Shore A (Plied Slab)[2]	77
100% Modulus[3], MPa (psi)	6.55 (950)
Tensile Strength at Break[3], MPa (psi)	17.2 (2500)
Elongation at Break[3], %	180
Compression Set[4], %	
70 hr. at 204°C (400°F)	17
70 hr. at 250°C (482°F)	24
Maximum Application Temperature[5], °C (°F)	310 (590)

[1] Not to be used for specifications
[2] ASTM D2240 (plied slab test specimens)
[3] ASTM D412 (dumbbell test specimens)
[4] ASTM D395B and ASTM D1414 (AS568 K214 O-ring test specimens)
[5] DuPont proprietary test method

Major 300mm Fab Chooses Kalrez® 8705 for its Great Value

A DuPont™ Kalrez® 8705 custom shape seal exhibited an outstanding balance of cost and performance in a Quartz Window Seal location of a LAM® Sola® xT ultraviolet thermal processing system. After 9 months of repeated, long (6-8 minutes) exposures to high intensity UV rays emitted while curing ultra-low k dielectric films, the seal was able to withstand the destructive UV radiation at very high temperatures (350-400°C on the pedestal) without experiencing any significant degradation or compression set. At the same time, the seal performed exceptionally well during the high temperature (150-200°C), long duration (8-10 minutes) ozone cleaning cycles of the UV cure chamber without showing signs of sticking or weight loss.

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

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
+81-3-5521-8484

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