

DuPont™ Kalrez® 8475

For Semiconductor Oxidation and Diffusion Applications

Technical Information - March, 2017

Product Description

DuPont™ Kalrez® 8475 perfluoroelastomer parts are a white product that have been specifically developed to meet the challenging requirements associated with oxidation and diffusion applications. It exhibits excellent thermal stability and long-term sealing performance and significantly reduced outgassing properties at elevated temperatures. Kalrez® 8475 has good mechanical properties and is well-suited for static and low stress/low sealing force applications (e.g., quartz tube seals, ball joint seals, bell jar seals, plenum seals). A maximum application temperature of 300°C (572°F) is suggested. Ultrapure post-cleaning and packaging is standard for all 8475 parts.

Product Features Contribute to Extended Seal Life

- Very low outgassing
- Excellent resistance to “dry” gas process environments
- Improved (lower) compression set
- Excellent long-term seal force retention

Suggested Applications

- Quartz tube seals
- Ball joint seals
- Gas feedthrough seals
- Bell jar seals
- Plenum seals
- Other thermal applications

Typical Physical Properties¹

Color	White
Hardness, Shore A (pellet) ²	62
Hardness, Shore M (O-ring) ³	74
100% Modulus ⁴ , MPa (psi)	2.49 (361)
Tensile Strength at Break ⁴ , MPa (psi)	14.61 (2119)
Elongation at Break ⁴ , %	222
Comp. Set ⁵ , %, 70 hr. at 204 °C (400°F)	20
Max. Application Temperature ⁶ , °C (°F)	300 (572)

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 specimen)

⁴ ASTM D412 (dumbbell test specimens)

⁵ ASTM D395B and ASTM D1414 (AS568 K214 O-ring test specimens)

⁶ DuPont proprietary test method

Typical O-Ring Compression Set Properties¹

Material Tested	% C/S at		
	204°C	250°C	300°C
Kalrez® 8475	20	30	45
Kalrez® 4079	37	41	45
Competitive FFKM A2	43	100	Sample Failed

¹ASTM D 395B and D1414 (AS568 K214 O-ring test specimens)



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Kalrez® 8475—Minimal Outgassing at Elevated Service Temperatures
TG-MS Outgassing Analysis* (Room Temperature to 400°C at 10°C/min)

Gas Evolved	R.T. to 100°C, ppm	R.T. to 200°C, ppm	R.T. to 300°C, ppm	R.T. to 400°C, ppm
H ₂ O	2	255	324	345
HF+	0	0	0	1
CF+	0	0	0	12
CO ₂	0	0	2	103
CF ₂	0	0	0	19
CHF+	0	0	0	20
CF ₃ +	0	0	0	119
C ₂ F ₃ +	0	0	0	23
CF ₃ O+	0	0	0	0
C ₂ F ₄ +	0	0	0	9
C ₂ F ₅ +	0	0	0	1
C ₃ F ₅ +	0	0	0	31
Total Outgas, %	0.00	0.03	0.03	0.07
Weight Loss, %	0.00	0.00	0.01	0.07

* Data provided by independent testing laboratory.

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