



Kalrez[®] perfluoroelastomer
parts

From DuPont Performance Elastomers

Kalrez[®] 1045

Product Description

Kalrez[®] 1045 is a specialty white product that is reinforced with a mineral filler that is highly resistant to oxidizing environments (carbon black-filled products may be affected by black degradation in oxidizing media). Typical applications include sealing rocket propellants, hot oxidizing acids, wet halogens and halogenated gases. A maximum continuous service temperature of 260°C (500°F) is suggested.

Typical Physical Properties ¹

Color	White
Hardness, Shore A ²	77
100% Modulus ³ , MPa (psi)	8.27 (1200)
Tensile Strength at Break ³ , MPa (psi)	15.16 (2200)
Elongation at Break ³ , %	150
Compression Set ⁴ , 70 hr @ 204°C, %	30
Maximum Continuous Service Temperature ⁵ , °C (°F)	260 (500)

¹ Not to be used for specification purposes

² ASTM D2240 (pellet test specimens)

³ ASTM D412 (dumbbell test specimens)

⁴ ASTM D395B (pellet test specimens)

⁵ DuPont Performance Elastomers proprietary test method

Performance Features/Benefits

- Excellent resistance to highly oxidizing media, i.e., nitrogen tetroxide (N₂O₄), etc.
- Excellent resistance to hot oxidizing acids, i.e., red fuming nitric, etc., wet halogens and halogenated gases
- Good mechanical strength properties
- Good thermal stability
- Good compression set resistance

Resistance to Highly Oxidizing Media

Kalrez[®] 1045 exhibits excellent resistance to highly oxidizing media, i.e., nitrogen tetroxide (N₂O₄), etc. In a 1992 research study¹ performed by The Aerospace Corporation, El Segundo, California, Kalrez[®] 1045 offered "superior resistance to nitrogen tetroxide (N₂O₄) versus butyl rubber". Test results showed that Kalrez[®] 1045 retained a "significant fraction of its hardness even after 80 days exposure to N₂O₄". "In addition, the material shows no blistering or deformation after exposure". "The only change in appearance is a slight yellowing".

¹ Aerospace Report No. TOR-92(2530)-6, "Effects of N₂O₄ Exposure On DuPont (Performance Elastomers) Kalrez[®] 1045", The Aerospace Corporation, El Segundo, California, 30 April 1992

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