



Kalrez[®] perfluoroelastomer parts

From DuPont Performance Elastomers

Physical Properties and Product Comparisons - Aircraft/Aerospace

Kalrez[®] perfluoroelastomer parts are available in a number of different products that have been formulated to optimize properties in order to give the best possible performance. Modification of finished properties is achieved through the use of fillers and other additives. Descriptions of the key attributes of each product and its general area of application are listed below.

Typical Physical Properties¹

Property	Kalrez [®] 4079AMS	Kalrez [®] AeroSeal [™] 7777	Kalrez [®] AeroSeal [™] 7797	Kalrez [®] 1045
Color	Black	Black	Black	White
Hardness, Shore A ²	75	75	90	77
50% Modulus ³ , MPa	-	-	15.91 ³	-
100% Modulus ⁴ , MPa	7.24	7.58	-	8.27
Tensile Strength at Break ⁴ , MPa	16.88	17.91	23.84 ³	15.16
Elongation at Break ⁴ , %	150	160	77 ³	150
Compression Set ⁵ 70 hr. @204°C, %	25	12	11 ⁶	30
Temperature of Retraction, Tr10 ⁷ , °C	-2	-4	-5 ⁸	-
Maximum Continuous Service Temperature ⁸ , °C	316	325	325	260

¹ Not to be used for specification purposes.

² ASTM D2240 (pellet test specimens)

³ ASTM D1414 & ASTM D412 (AS568 K214 O-ring test specimens)

⁴ ASTM D412 (dumbbell test specimens)

⁵ ASTM D395B (pellet test specimens)

⁶ ASTM D1414 & D395B (AS568 K214 O-ring test specimens test specimens)

⁷ ASTM D1329 (dumbbell test specimens)

⁸ ASTM D1329 (dumbbell test specimens stretched 25%)

⁹ DuPont Performance Elastomers proprietary test method

Kalrez[®] 4079AMS

Kalrez[®] 4079AMS is a specialty black product that meets the requirements of Aerospace Material Specification (AMS) 7257C. It offers outstanding thermal stability, excellent compression set resistance and good seal force retention properties. It also offers excellent resistance to HTS (High Thermo-Oxidative Stability) gas turbine engine lubricating oils and has good response to temperature cycling effects. Kalrez[®] 4079AMS has good mechanical properties and is well suited for both static and dynamic sealing applications. A maximum continuous service temperature of 316°C (600°F) is suggested. Short excursions to higher temperatures may also be possible.

Kalrez® AeroSeal™ 7777

Kalrez® AeroSeal™ 7777 is a specialty black product that offers outstanding thermal stability and compression set resistance along with excellent seal force retention properties. It also offers excellent resistance to HTS (High Thermo-Oxidative Stability) gas turbine engine lubricating oils and has excellent response to temperature cycling effects. Kalrez® AeroSeal™ 7777 has good mechanical properties and is well suited for both static and dynamic sealing applications. A maximum continuous service temperature of 325°C (617°F) is suggested. Short excursions to higher temperatures may also be possible.

Kalrez® AeroSeal™ 7797

Kalrez® AeroSeal™ 7797 is a specialty black product specifically targeted for use in applications requiring higher hardness/higher modulus properties. It offers outstanding thermal stability and compression set resistance and has excellent seal force retention properties. It also offers excellent resistance to HTS (High Thermo-Oxidative Stability) gas turbine engine lubricating oils and has excellent response to temperature cycling effects. Kalrez® AeroSeal™ 7797 has excellent mechanical properties and is well suited for both static and dynamic sealing applications. A maximum continuous service temperature of 325°C (617°F) is suggested. Short excursions to higher temperatures may also be possible.

Kalrez® 1045

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.

Other Properties

Other properties, such as coefficients of friction, thermal conductivity, electrical, permeability, etc., may be of interest for specific applications. For more detailed information, please refer to the specific product in the Kalrez® Application Guide.

Product Safety

Highly toxic products can be generated when Kalrez® parts are exposed to fire or temperatures in excess of 400°C so respiratory equipment should be used if ventilation is inadequate. Kalrez® parts are incompatible and should not be exposed to alkali metals or interhalogen products. Please consult the "Guide For Safety In Handling Kalrez® Perfluoroelastomer Parts" (KZE-A10301) for additional information.

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