

Chemraz® XPE

Provides Superior O₂ Plasma Resistance to Protect Critical Components

Advanced Elastomer Resists Breakdown

Protection against oxygen-infused plasma is key in many etch chamber environments. These harsh environments often break down non-resistant materials, causing harmful particulation and, ultimately, defective chips.

Greene Tweed's Chemraz® XPE is highly resistant to O₂ plasma and can be used in a wide range of applications, such as slit valve doors, reaction chamber lid seals, and gate valve seals. This advanced elastomeric material offers the semiconductor and solar industry an alternative to legacy products that quickly erode in the oxygen environment. With excellent resistance to both O₂ and CF₄ plasmas, this material affords an increased chip yield and maximized production. In addition, XPE seals provide customers with an increased MTBR (mean time between repair) to reduce downtime and maintenance costs.

Features & Benefits

- High-temperature capability enables future technology and next-generation applications
- Superior O₂ plasma resistance resulting in improved product integrity
- High CF₄ plasma resistance
- Reduced product weight loss
- Decreased maintenance and replacement requirements
- Excellent compression set performance



Applications

- Chamber and slit valve seals
- Endpoint windows
- Gas inlet/outlet seals
- Gate and isolator valve seals
- Reactant delivery system seals
- Reaction chamber lid seals

Note: Color variations and dark spots that might be observed in Chemraz® parts are considered cosmetic and an inherent result of the polymer curing process. They are not foreign matter and not anticipated to adversely affect the performance of the part in service. Please contact a Greene Tweed applications engineer for additional information.

Typical Properties

Physical Properties (ASTM Standard)

Color	Gray
Polymer Type	Perfluoroelastomer
Specific Gravity (D792)	2.13
Hardness, Shore A* (D2240)	73
Hardness, Shore M (D2240)	76

Mechanical (ASTM Standard)

Tensile Strength, psi (kPa) (D1414)	1924 (13270)
Elongation, % (ASTM D1414)	223
Tensile Modulus @ 100% Elongation, psi (kPa) (D1414)	526 (3627)

Compression Set @ 25% Deflection, % (D395)	15
70 Hours @ 399°F (204°C)	22
70 Hours @ 464°F (240°C)	

Thermal

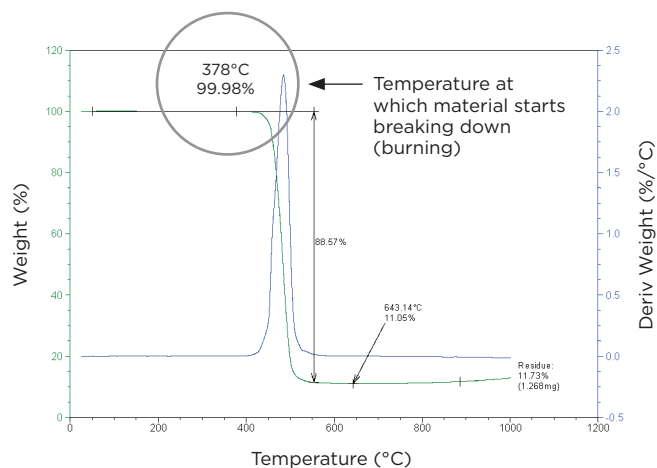
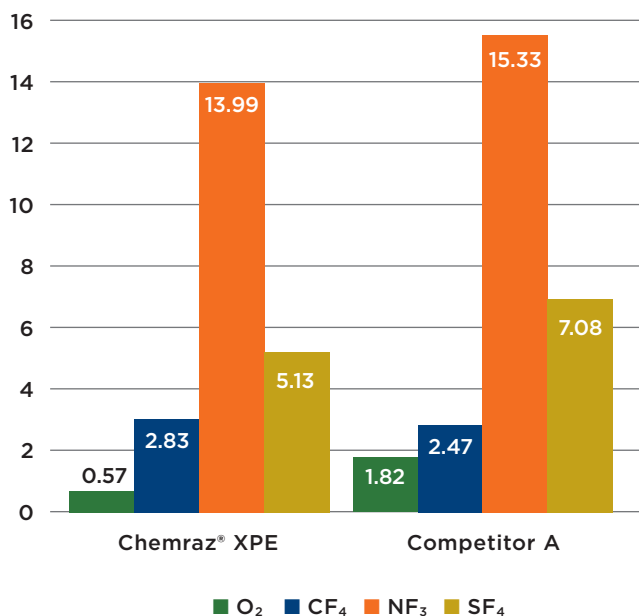
Maximum Service Temperature	536°F (280°C)
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Not to be used for specification purposes

Unless otherwise indicated, all tests are performed on AS 568A (-214) o-rings.

* Test performed on button samples.

Plasma Weigh Loss Comparison



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