

Chemraz® XRZ

Plasma Resistance for Corrosive Environments

Increased Seal Integrity

Chemraz® XRZ, a perfluoroelastomer, is specifically developed to exceed the most rigorous demands of aggressive in situ NF_3 plasma cleaning.

Chemraz® XRZ withstands the application challenges typically found in HDPCVD (high-density plasma chemical vapor deposition), PECVD (plasma enhanced CVD), and newer PEALD (plasma-enhanced atomic layer deposition) process chambers.

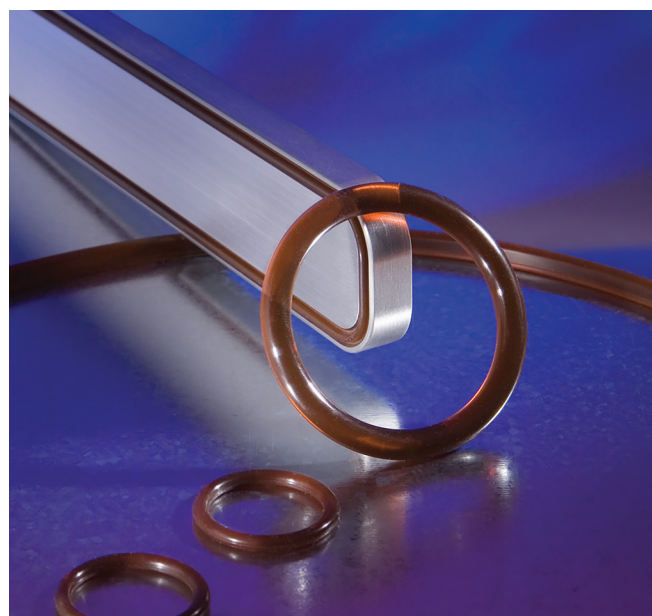
Because of its unique molecular composite structure,

Chemraz® XRZ provides the highest plasma resistance available to fluorine plasma processes, resulting in minimal contamination. This leads to increased seal integrity and longer seal lifetimes, reducing downtime and driving higher wafer processing yields.

Chemraz® XRZ can be used for both static and semidynamic dry wafer processing applications such as etch, deposition (CVD, HDPCVD, PEALD), and remote plasma cleans. Chemraz® XRZ remains stable at operating temperatures up to 572°F (300°C) while maintaining exceptional compression set.

Features & Benefits

- Outstanding plasma resistance in highly corrosive fluorine environments with minimal seal degradation
- Excellent surface resistance for minimal particulation and sealing integrity
- High purity for minimal contamination risk
- Minimal compression set at elevated temperatures ensures seal integrity
- Extended equipment uptime with added reliability in dry applications



Applications

- Chamber seals
- Endpoint windows
- Gas inlet/outlet seals
- Gate valve seals
- Isolator valve seals
- Reactant delivery system seals
- Reaction chamber lid seals
- Slit valve seals

Recommended Process Applications

- Deposition (CVD, PECVD, HDPCVD, PEALD)
- Plasma etch (fluorine species)
- Remote fluorine plasma cleans

Typical Properties	
Physical Properties (ASTM Standard)	
Color	Translucent Brown
Polymer Type	Perfluoroelastomer
Specific Gravity (D792)	2.05
Hardness, Shore A* (D2240)	67
Hardness, Shore M (D1414, D2240)	72
Mechanical (ASTM Standard)	
Tensile Strength, psi (kPa) (D1414, D412)	1250 (8618)
Elongation, % (D1414, D412)	255
Tensile Modulus @ 100% Elongation, psi (kPa) (D1414, D412)	250 (1723)
Compression Set @ 25% Deflection, % (D1414, D395) 70 Hours @ 300°C 168 Hours @ 300°C	17 31
Thermal	
Maximum Service Temperature**	572°F (300°C)

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.

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.

** Consult Greene Tweed for proper design guidelines in applications that exceed 482°F (250°C).