



CHEMRAZ[®] XCD

SUPERIOR THERMAL RESISTANCE & CLEANLINESS

Chemraz[®] XCD, a perfluoroelastomer, is specifically designed to exceed the most rigorous demands of front-end semiconductor thermal processing equipment. Chemraz XCD withstands the extreme thermal challenges typically found in LPCVD (low pressure chemical vapor deposition), RTP (rapid thermal process) and epitaxial deposition systems.

Because of its unique polymer and filler structure, Chemraz XCD provides the lowest compression set at high operating temperatures (> 300°C/572°F) of any perfluoroelastomer available on the market, resulting in increased seal integrity and longer seal lifetimes. This means reduced downtime and higher wafer processing yields. With the lowest outgassing profile for perfluoroelastomer materials in high-temperature applications, Chemraz XCD provides a cleaner process environment. Because of its reduced surface stiction, Chemraz XCD can be used for semi-dynamic as well as static sealing applications. Chemraz XCD remains stable at operating temperatures up to 300°C (572°F) while maintaining exceptional compression set.

FEATURES & BENEFITS

- Outstanding resistance to extreme heat broadens thermal budgets
- Minimal compression set at elevated temperatures ensures extended sealing integrity
- High purity and lower outgassing assures cleaner processing
- Reduced sticking increases longevity in semi-dynamic applications and facilitates installation and removal



APPLICATIONS

- Chamber seals
- Gas inlet/outlet seals
- Gate valve seals
- Isolator valve seals
- Reaction chamber lid seals
- Seals in close proximity to high-temperature wafer heaters
- Slit valve seals
- Tube capping seals

RECOMMENDED PROCESS APPLICATIONS

- **LPCVD (low pressure chemical vapor deposition)**
(Silicon Nitride, Silicon Oxide)
- **RTP (rapid thermal process)**
(Annealing, Oxidation, Nitridation, Silicidation)
- Epitaxial deposition
- Thermal CVD
- Atomic layer deposition
- Silicon wafer ingot growing
- SOI annealing

TYPICAL PROPERTIES*

Physical	ASTM Method	Typical Value
Color		Black
Polymer Type		Perfluoroelastomer
Specific Gravity	D792	1.99
Hardness, Shore A**	D2240	74
Hardness, Shore M	D1414 D2240	81
Mechanical		
Tensile Strength, psi (kPa)	D1414 D412	2600 (17,927)
Elongation, %	D1414 D412	217
Tensile Modulus @ 100% Elongation, psi (kPa)	D1414 D412	610 (4206)
Compression Set @ 25% Deflection, % 70 hours @ 300°C 168 hours @ 300°C		32 43
Thermal		
Maximum Service Temperature***		300°C (572°F)

* Note: Unless otherwise indicated, all tests are performed on AS 568A (-214) O-rings.

** Note: Test performed on button samples.

*** Note: Consult GT for proper design guidelines in applications that exceed 250°C (482°F)

Collaborative innovation from GREENE, TWEED & CO., INC., and DAIKIN INDUSTRIES, LTD.

Statements and recommendations in this publication are based on our experience and knowledge of typical applications of this product and shall not constitute a guarantee of performance nor modify or alter our standard warranty applicable to such products.

Prior to actual use it is recommended compatibility tests be run to determine suitability in a specific application. This is critical where failure could result in injury or damage. A regular program of inspection and replacement should be implemented. Greene, Tweed technical personnel are available to help with a recommendation.



Contact Us

Greene, Tweed
Semiconductor
Kulpsville, PA, USA

Tel: +1.215.256.9521

Fax: +1.215.256.0189

www.gtsemi.com