



# CHEMRAZ<sup>®</sup> XTR

## Superior Resistance to Corrosive ClF<sub>3</sub> Cleaning Environments

### FFKM INCREASES MANUFACTURING PRODUCTIVITY

Chemraz<sup>®</sup> XTR, a perfluoroelastomer, is specifically designed to withstand the highly corrosive environments that commonly occur from using ClF<sub>3</sub> as a cleaning gas. Chemraz XTR addresses application challenges typically found in ALD (Atomic Layer Deposition) of titanium nitride and other nitride-based film deposition. With its unique molecular composition combined with fillers, it provides the highest available chemical resistance to thermal cleaning processes utilizing ClF<sub>3</sub>, resulting in minimal contamination, minimal weight loss and longer seal lifetime. This means less downtime and higher wafer-processing yields.

Chemraz XTR is recommended for both static and semi-dynamic applications in systems used for film deposition and etching, specifically for ALD of new barrier layers for advanced devices. These layers consist of materials that are difficult to etch; therefore, ClF<sub>3</sub> is employed for cleaning. Chemraz XTR has high chemical resistance to corrosive fluorine-based chemistries at elevated temperatures. In addition, Chemraz XTR remains stable to service temperatures exceeding 300°C (572°F) while demonstrating exceptional compression set resistance. This combination of excellent chemical resistance and low compression set in the extremely elevated temperatures found in process chambers extends seal longevity.

### FEATURES & BENEFITS

- Exceptional resistance to fluorine-based plasma environments for increased productivity
- Outstanding resistance to ClF<sub>3</sub> “thermal cleans” in ALD equipment results in extended PM (preventative maintenance) cycles
- Very low extraneous metallic ion content for reduced contamination
- Minimal compression set at elevated temperatures ensures sealing integrity
- Extended production performance with added reliability increases equipment operational time
- Reduced stiction simplifies PM



### APPLICATIONS

- Process chamber seals including:
  - Gate valve seals
  - Isolator valve seals
  - Lid seals
  - Gas inlet/outlet seals
  - Slit valve seals
  - Chamber wall seals
- Systems employing remote delivery of ionized fluorine

### RECOMMENDED PROCESS APPLICATIONS

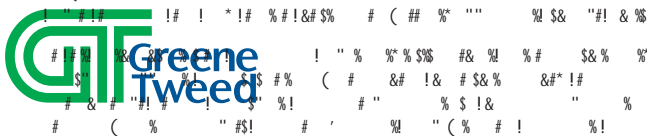
- Systems depositing barrier layers of TiN, TaN and other refractory metal-based films
- Thermal environment with both high temperature (>300°C) and high concentration of ionized fluorine, ionized by plasma or thermal methods
- Delivery tubing seals for remotely generated fluorine-based gaseous cleans or thermally ionized ClF<sub>3</sub> gas



TYPICAL PROPERTIES		
Physical	ASTM Method	Typical Value
Color		Off White
Polymer Type		Perfluoroelastomer
Specific Gravity	D297	2.24
Hardness, Shore A	D2240	68
Hardness, Shore M	D2240	76
Mechanical		
Tensile Strength, psi (MPa)	D1414	2076 (14.3)
Elongation, %	D1414	265
Modulus @ 50% Elongation, psi (MPa)	D1414	185 (1.3)
Modulus @ 100% Elongation, psi (MPa)	D1414	365 (2.5)
Compression Set, (70 hours @ 300°C @ 25% Compression), %	D395	31
Thermal		
Thermal Service Temperature Range		-20 °C to 300°C (-4°F to 572°F)

Chemraz® XTR, collaborative innovation from GREENE, TWEED & CO., INC., and DAIKIN INDUSTRIES, LTD.

© 2008, Greene, Tweed all rights reserved. All trademarks are property of their respective owners. 11/08-GT DS-US-SC-085



**Contact Us**  
 (SFFOF 5XFFE 4FNJDPOEVDUPS ,VMQWTWJMMF 1" 64"

5M  
'B

OVS%JTUSJCVUPS  
 #BOOFS\*OEVTVSJTFT 5FM  
 )JHI 1VSJUZ'MPX 8FC XXXCBOOFSJOEVTUSJFTDPN  
 \$PN QPOFOU%JTUSJCVUJPO  
 64" "TJB 1BDJGJD

