

# ONX™ 600

## A Fluoropolymer Composite with Excellent Acid Resistance at High Temperatures

Greene Tweed's ONX™ 600, a fluoropolymer-based, carbon-fiber-reinforced composite, is a high-strength, high-purity material that withstands strong acid chemistries at high temperatures.

Used in wafer cleaning, ONX™ 600 is resistant to SPM (sulfuric-peroxide, Piranha), SC1 (ammonium hydroxide-peroxide), SC2 (HCl-peroxide), and dilute HF cleaning solutions.

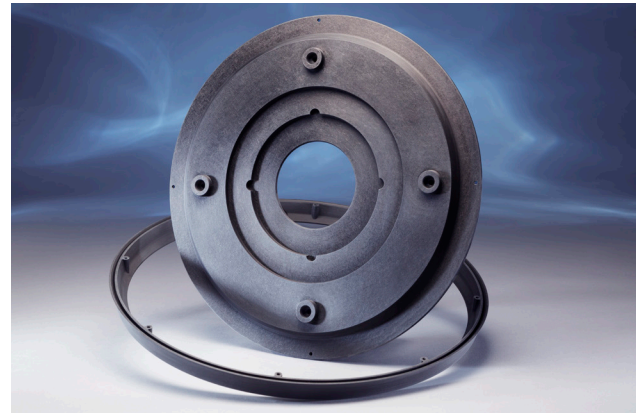
ONX™ 600 is recommended for precision components, is stable to wet process temperatures up to 200°C (392°F), and is pure enough for applications that must contact the wafer edge. Moreover, because Silicon is harder than ONX™ 600, edge damage and particles are minimized. Finally, ONX™ 600 is electrically conductive to remove static charges caused by spin-spray actions, protecting delicate features of semiconductor devices.

ONX™ 600 offers enhanced performance and reduced cost of ownership over other fluoropolymer materials. It maximizes equipment capability and reliability through outstanding mechanical properties and consistent quality, making it an ideal choice for the challenging specifications of OEM equipment manufacturers.

ONX™ 600 combines Greene Tweed's engineering, design, and materials expertise, our focus on continuous product improvement, and dedicated customer support and collaboration to deliver a highly engineered solution to meet the rapidly evolving needs of the semiconductor market.

Greene Tweed, the direct supplier for ONX™ 600, is your single source for material knowledge, manufacture, and cleaning. Our engineering team offers expert assistance in optimizing designs to meet your specific requirements.

Component sizes up to 20 inches in diameter can be accommodated.



ONX™ 600 Components

### Features and Benefits

- Low cost of ownership
- Thermally stable – no deformation after 200°C (392°F) exposure or with temperature cycling
- Superior strength and stiffness allow for applications with high angular acceleration
- High purity – ionics in low ppb range
- Electrically conductive to protect against process-related electrostatic discharge
- Resistant to strong acids, bases, and solvents, enabling a wide range of use
- Smooth surface finish
- Black color – resists discoloration; no marking or color transfer upon contact/physical abrasion

### Applications

Components for high-temperature wafer cleaning (front side and backside/bevel), wet etch processing, and resist removal:

- Precision wafer chuck assemblies
- Wafer clamps
- Wafer pins
- Screws

#### Contact Us

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04/19-GT DS-US-SC-177

Typical Properties		
Physical Properties (Standard)	Typical	
Specific Gravity (ASTM D792)	2.02	
Resistivity, $\Omega$ -cm, (JIS K7194)	$10^{-1}$	
Thermal (ASTM Standard)		
Coefficient of Thermal Expansion, x-y plane, $\mu\text{m}/\text{m}^{\circ}\text{C}$ [ $\mu\text{in}/\text{in}^{\circ}\text{F}$ ] (E831)	35°C to 90°C	5.0 [2.8]
	90°C to 145°C	5.3 [2.9]
	145°C to 200°C	8.5 [4.7]
Coefficient of Thermal Expansion, z plane, $\mu\text{m}/\text{m}^{\circ}\text{C}$ [ $\mu\text{in}/\text{in}^{\circ}\text{F}$ ] (E831)	35°C to 90°C	250 [140]
	90°C to 145°C	320 [180]
	145°C to 200°C	420 [230]
Mechanical (ASTM Standard)		
Tensile Strength @ Break, 24°C, x-y plane, MPa [ksi] (D638)	179 [26.0]	
Elongation @ Break, 24°C, x-y plane, % (D638)	1.36	
Tensile Modulus @ Break, 24°C, x-y plane, MPa [ksi] (D638)	16,800 [2,437]	
Tensile Strength @ Break, 200°C, x-y plane, MPa [ksi] (D638)	93.4 [13.5]	
Elongation @ Break, 200°C, x-y plane, % (D638)	1.03	
Tensile Modulus @ Break, 200°C, x-y plane, MPa [ksi] (D638)	10,800 [1,566]	
Flexural Strength @ Break, 24°C, x-y plane, MPa [ksi] (D638)	159 [23]	
Flexural Strain @ Break, 24°C, x-y plane, % (D638)	1.35	
Flexural Modulus @ Break, 24°C, x-y plane, MPa [ksi] (D638)	13,400 [1,944]	
Flexural Strength @ Break, 200°C, x-y plane, MPa [ksi] (D638)	56.7 [8.22]	
Flexural Strain @ Break, 200°C, x-y plane, % (D638)	1.11	
Flexural Modulus @ Break, 200°C, x-y plane, MPa [ksi] (D638)	6,040 [876]	

Note:

Reference GT Stock/Solid Code: 682.

The information contained in this document has been developed by and is proprietary Greene, Tweed and Co. All data regarding ONX™ 600 is for prototype purposes only and is not intended for use with production components. Preliminary testing to confirm suitability in the end applications is required.

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