

## UBE Tyranno Grade SA Ceramic High Temperature Fiber

Category : Ceramic , Other Engineering Material , Composite Fibers

### Material Notes:

Description: Tyranno Fiber is the continuous ceramic fiber consisting of Si, Ti or Zr,C and O. Advanced composites reinforced by the Tyranno Fiber are expected to play a very important role in the environmental preservation field in the future such as ultra high speed transportation, energy savings, CO2 and NOx reduction, and purification of the exhaust fumes. The reinforcing fibers need to meet the demand for these applications such as high temperature stability, high strength, and high reliability in the extreme environment. The Tyranno Fiber with excellent properties is extending its applicability in various fields and will realize these. Tyranno Fiber SA is a polycrystalline SiC fiber containing small amount of Aluminum, produced by decomposing and subsequently sintering of the amorphous Si-Al-C-O fiber. Tyranno Fiber SA is very stable fiber-----for example, the weight loss of this fiber was only 1.8wt% at 2200°C. The initial strength of this fiber was perfectly maintained up to 1900°C in Argon. In spite of its crystalline structure, as the diameter is very small (~10µm), Tyranno Fiber SA is flexible enough to weave to fabrics. Its excellent creep resistance at high temperature has been already confirmed. High Temperature Grade One of the features of the Tyranno Fiber is its high strength and high temperature stability. ZMI-grade fiber which contains Zirconium has improved its stability and oxidation resistance at high temperatures comparing with ordinary type of Tyranno Fibers which contain Titanium. Information provided by UBE.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_UBE-Tyranno-Grade-SA-Ceramic-High-Temperature-Fiber.php](http://www.lookpolymers.com/polymer_UBE-Tyranno-Grade-SA-Ceramic-High-Temperature-Fiber.php)

Physical Properties	Metric	English	Comments
Density	3.10 g/cc	0.112 lb/in <sup>3</sup>	
Filament Diameter	7.5 - 10 µm	7.5 - 10 µm	

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	2800 MPa	406000 psi	
Elongation at Break	0.70 %	0.70 %	
Tensile Modulus	380 GPa	55100 ksi	

Thermal Properties	Metric	English	Comments
CTE, linear	4.50 µm/m-°C	2.50 µin/in-°F	
	@Temperature 1000 °C	@Temperature 1830 °F	
Specific Heat Capacity	0.669 J/g-°C	0.160 BTU/lb-°F	
Thermal Conductivity	64.6 W/m-K	448 BTU-in/hr-ft <sup>2</sup> -°F	

Component Elements Properties	Metric	English	Comments
Aluminum, Al	<= 2.0 %	<= 2.0 %	

Component Elements Properties	Metric	English	Comments
Oxygen, O	0.30 %	0.30 %	
Silicon, Si	67.8 %	67.8 %	

Descriptive Properties	Value	Comments
Number of Filaments	800-1600 fil./yarn	
Structure	crystalline	
Tex	180-190 g/1000m	

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