

## COI Ceramics Sylramic™ Crystalline Silicon Carbide (SiC) Fiber

Category : Ceramic , Carbide

### Material Notes:

**Description:** Sylramic™ SiC fiber is a textile grade continuous tow (yarn) made up of 800 filaments with a denier of 1600. Each filament is 10µm in diameter and is coated with a polyvinyl alcohol (PVA) sizing for improved handleability. **Product Form:** Sylramic™ SiC Fiber Tow: Continuous tow is supplied on 3 inch diameter cardboard spools. Lengths up to 800m (145g weight) are available. Tow length may vary depending upon availability and customer requirements. **Sylramic™ SiC Fiber, Woven:** Cloth is available in standard weaves such as plain (PW), 5 harness satin (5HS) and 8 harness satin (8HS). As a textile grade yarn, Sylramic™ SiC Fiber can be readily incorporated into a variety of weaves, woven tapes, braids, etc. **Special Properties:** Sylramic™ SiC Fiber has excellent room temperature strength and stiffness. The fiber has excellent creep resistance, maintaining strength and stiffness for extended times at extremely high temperatures (1400C [2252F]). These fiber properties are due to its chemical composition, crystalline structure, small crystal size, and very low oxygen content. This also allows it to have excellent wear and corrosion resistance capability. **Uses:** Sylramic™ SiC Fiber is used as reinforcement in structures such as ceramic, plastic, and metal matrix composites. These products are used in severe environments such as aircraft and land-based turbine engines, hypersonics, thermal protection systems and chemical manufacturing. Sylramic™ SiC Fiber is used as a composite reinforcement to increase the part strength, toughness, and high temperature creep resistance. **Information from COI Ceramics, Inc.**

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_COI-Ceramics-Sylramic-Crystalline-Silicon-Carbide-SiC-Fiber.php](http://www.lookpolymers.com/polymer_COI-Ceramics-Sylramic-Crystalline-Silicon-Carbide-SiC-Fiber.php)

| Physical Properties | Metric         | English                     | Comments                      |
|---------------------|----------------|-----------------------------|-------------------------------|
| Density             | >= 2.95 g/cc   | >= 0.107 lb/in <sup>3</sup> |                               |
|                     | 3.10 g/cc      | 0.112 lb/in <sup>3</sup>    |                               |
| Particle Size       | 0.10 µm        | 0.10 µm                     | B <sub>4</sub> C Crystal Size |
|                     | 0.10 - 0.50 µm | 0.10 - 0.50 µm              | SiC Crystal Size              |
|                     | 0.50 µm        | 0.50 µm                     | TiB <sub>2</sub> Crystal Size |
| Filament Diameter   | 10 µm          | 10 µm                       |                               |
| Fiber Count         | 1780 dtex      | 1600 denier                 |                               |

| Mechanical Properties | Metric        | English       | Comments |
|-----------------------|---------------|---------------|----------|
| Tensile Strength      | 2600 MPa      | 377000 psi    |          |
|                       | >= 2760 MPa   | >= 400000 psi |          |
| Tensile Modulus       | >= 310.23 GPa | >= 44996 ksi  |          |
|                       | 420 GPa       | 60900 ksi     |          |

| Thermal Properties     | Metric   | English   | Comments |
|------------------------|--|---|----------|
| CTE, linear            | 5.40 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ | 3.00 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$                            |          |
|                        | @Temperature 20.0 - 1320 $^{\circ}\text{C}$      | @Temperature 68.0 - 2410 $^{\circ}\text{F}$                                   |          |
| Specific Heat Capacity | 0.750 $\text{J}/\text{g}\cdot^{\circ}\text{C}$   | 0.179 $\text{BTU}/\text{lb}\cdot^{\circ}\text{F}$                             |          |
|                        | @Temperature 50.0 $^{\circ}\text{C}$             | @Temperature 122 $^{\circ}\text{F}$   |          |
| Thermal Conductivity   | 40.0 $\text{W}/\text{m}\cdot\text{K}$            | 278 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}^2\cdot^{\circ}\text{F}$ |          |
|                        | @Temperature 500 $^{\circ}\text{C}$              | @Temperature 932 $^{\circ}\text{F}$   |          |
|                        | 45.0 $\text{W}/\text{m}\cdot\text{K}$            | 312 $\text{BTU}\cdot\text{in}/\text{hr}\cdot\text{ft}^2\cdot^{\circ}\text{F}$ |          |
|                        | @Temperature 25.0 $^{\circ}\text{C}$             | @Temperature 77.0 $^{\circ}\text{F}$  |          |

| Component Elements Properties | Metric         | English        | Comments |
|-------------------------------|----------------|----------------|----------|
| Oxygen, O                     | $\leq 0.050\%$ | $\leq 0.050\%$ |          |
|                               | 0.30 %         | 0.30 %         |          |
| SiC                           | 96 %           | 96 %           |          |

| Descriptive Properties | Value | Comments |
|------------------------|-------|----------|
| B4C(%)                 | 1     |          |
| Filaments per tow      | 800   |          |
| TiB2(%)                | 3     |          |

## Contact Songhan Plastic Technology Co.,Ltd.

Website : [www.lookpolymers.com](http://www.lookpolymers.com)

Email : [sales@lookpolymers.com](mailto:sales@lookpolymers.com)

Tel : +86 021-51131842

Mobile : +86 13061808058

Skype : lookpolymers

Address : United North Road 215,Fengxian District, Shanghai City,China