

Technical Data Sheet

Starfire® Systems Inc. has developed a new class of SiC ceramic precursors that are solid at room temperature and melt processable at low temperatures. These resin systems are engineered to process like a thermoplastic polymer and are capable of being repeatedly melted and solidified. Starfire melt processable products can be combined with our proprietary powder filler compounds to improve yields and reduce processing times. These resins are compatible with a variety of fiber weaves used for the fabrication of ceramic matrix composite materials and can be processed into a prepreg material.

Key Benefits

Tough SiC Ceramics

- Produces a high temperature stable SiC ceramic.
- Suitable as a prepreg material or matrix film to produce tough, ceramic matrix composites (CMC's).

High Ceramic Yield

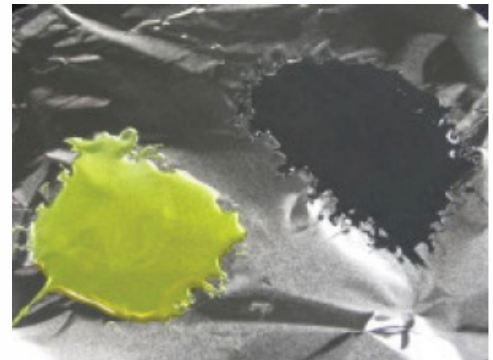
- Neat resin achieves a ceramic yield between 65-70%.
- Filled resin achieves a ceramic yield between 85-90%.

Processing Ease

- Combines the meltable, moldable capabilities long associated with organic materials, with performance properties of an inorganic ceramic.
- Excess material can be recycled by melting and combining with new material, resulting in significant materials cost savings.
- Easily used as part of tooling and molds to produce complex, near-net shapes.

Compatible and Versatile

- Resins have demonstrated compatibility as a prepreg material. Pilot scale proof-of-concept has been achieved for prepreg manufacture and CMC fabrication.
- Can be used with a variety of fiber reinforcements.
- Compatible with StarPCS™ SMP-10, which can be used to fill porosity with silicon carbide thereby increasing density and improving composite strength and toughness.



Mechanical Test Data

| Material System | Flexural Stress | Flex Modulus |
|---|-----------------|-------------------|
| Neat Resin, T300 1k Carbon Fiber, Film or Prepreg | 50 - 55 ksi | 9.50 - 10.75 msi |
| Slurry Resin, T300 1k Carbon Fiber, Film or Prepreg | 54 - 57 ksi | 10.00 - 11.50 msi |

Warranty

No analysis of this product is permitted. The data provided relates only to the material identified above, as supplied by Starfire Systems®, Inc. (SSI). Because conditions and methods of use of our products are beyond our control, this information should not be used as a substitution for customer's tests to ensure that SSI's products are safe, effective, and fully satisfactory for the intended end use. SSI's sole warranty is that the product will meet sales specifications in effect at the time of shipment.