

StarPCS™ SMP-500

Polycarbosilane Precursor



POLYMER-TO-CERAMIC™ TECHNOLOGY

Technical Data Sheet

StarPCS™ SMP-500 is a polycarbosilane precursor to thermally stable silicon carbide. SMP- 500 is very viscous at room temperature and readily flows at moderate (60 - 120°C) temperatures. Upon heating to higher temperatures the polymer cures to a thermoset solid. The cured polymer can then be fired to form a high temperature, oxidation resistant, amorphous silicon carbide material. SMP-500 has been used to form prepreg, molding compounds and ceramic matrix composites.

Product Highlights

- High viscosity at room temperature
- Scrap polymer can be recycled, and reused
- Curable at temperatures above 150°C to 350°C
- Pyrolysis to form dense, amorphous ceramic¹
- Excellent oxidation resistance
- Solvent Free polymer improves handleability
- Slightly Carbon Rich ceramic matrix can be used as a carbon source for subsequent processing

¹ 1,000°C pyrolysis produces 65-70 wt% ceramic yield.

Properties of StarPCS™ SMP-500

Density	1.0 g/cm ³
Appearance	Amber colored liquid
Viscosity	3,000 - 10,000 cPs (tailorable) at 25°C
Compatible Solvents	THF, Hexane, Toluene, Xylene
Flash Point	>90°C (>200°F)
Filler Type	Refractory, Starfire Proprietary Distribution (optional)
Filler Loading	0 -15 vol %
Odor	Mild
Catalyst	None
DOT / IATA Regulations	Non Hazardous
Storage*	Vacuum container or inert environment; Refrigerated

* Refrigeration of container is recommended to extend shelf life; -10°C recommended.

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.