

StarPCS™ SMP-10

Silicon Carbide Matrix Precursor



POLYMER-TO-CERAMIC™ TECHNOLOGY

Technical Data Sheet

StarPCS™ SMP-10 is the only commercially available one-component liquid precursor to silicon carbide (SiC) ceramics. It facilitates the manufacture of ceramic matrix composites, monolithic parts created from ceramic powders, high-temperature silicon carbide coatings, and joined silicon carbide materials. Our polymer produces high purity ceramic yields of near stoichiometric SiC. SMP-10 offers a reduction in manufacturing cycle times and is recognized for its ease of use.

High Ceramic Yields

- Low temperature green cure at 180–400°C, depending on the degree of hardness required, allows for flexibility in the use of a variety of inexpensive mold materials.
- Amorphous (glassy) SiC forms at 850–1200°C with 72-78% ceramic yield. Nano-crystalline β -SiC forms at 1250-1700°C.

High Thermal Stability and High Purity

- The ceramics formed are stable to 1800°C in air and to 2200°C in inert gases making them ideal for high temperature applications such as high porosity filters.
- The silicon carbide produced has a 1:1 silicon to carbon atomic ratio. Trace contaminating elements are typically at a ppm level.

Ease of Use

- SMP-10 contains and requires no solvents for processing. No chlorides, acids or corrosives are generated during cure or pyrolysis.



Properties of StarPCS™ SMP-10

Density	0.998 g/cm ³
Appearance	Clear, Amber Liquid
Viscosity	40 to 100 cPs at 25°C
Compatible Solvents	Hexanes, Tetrahydrofuran, Toluene, Insoluble in water
Flash Point	89°C (192°F)
Moisture Absorption	<0.1% in 24 hours at room temperature
Surface Tension	30 dynes/cm ²
Odor	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

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