

# StarPCS™ SMP-877

Polycarbosilane Precursor



POLYMER-TO-CERAMIC™ TECHNOLOGY

## Technical Data Sheet

StarPCS™ SMP-877 is a liquid polycarbosilane precursor to thermally stable silicon carbide. Like the other polymers of the StarPCS™ family, SMP-877 facilitates the manufacture of ceramic matrix composites, monolithic ceramics, and high temperature silicon carbide coatings. SMP-877 can be cured at relatively low temperatures to enable machining in the green state. SMP-877, when heated to pyrolysis temperatures, produces high purity ceramics of nearly Stoichiometric SiC but remains slightly carbon rich as a ceramic. As a high temperature ceramic, SMP-877 operates to become a high temperature, oxidation resistant, amorphous silicon carbide material.

## Product Highlights

- Curable at temperatures between 150°C up to 300°C.
- Pyrolysis to form dense, amorphous ceramic<sup>1</sup>.
- Slightly carbon rich ceramic matrix can be used as a carbon source for subsequent processing
- Solvent free polymer improves handelability
- Can be used for infiltration polymer to yield strong, tough ceramic composites

<sup>1</sup> 1,000°C pyrolysis produces 58-62 wt% ceramic yield.

### Properties of StarPCS™ SMP-877

Density	1.0 g/cm <sup>3</sup>
Appearance	Amber colored liquid
Viscosity	40 – 120 cPs at 25°C
Compatible Solvents	THF, Hexane, Toluene, Xylene
Flash Point	60°C
Filler Type	Refractory, carbon, oxides
Filler Loading	0 – 30 vol%
Odor	Mild
Catalyst	Platinum based, peroxide based
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.