

StarPCS™ SMP-750

Hot Melt-able Solid Poly-Carbosilane Precursor



Technical Data Sheet

SMP-750 is a hot-meltable poly-carbosilane precursor to thermally stable silicon carbide (SiC). SMP-750 is very viscous at room temperature but flows at moderate temperatures (>100°C) and cures at or above 200°C to form a thermoset solid. Cured SMP-750 can be fired in an inert environment to form an amorphous SiC at temperatures up to 1200°C. Conversion to a crystalline and nearly Stoichiometric SiC can take place at temperatures above 1450°C.

A film can be produced from SMP-750 and can be used to produce fabric impregnated cloth (pre-preg) for composite fabrication. Additional fillers are not recommended to be added to SMP-750.

Product Highlights

- Ideal for prepegging of fabric or chopped fiber
- Curable at temperatures between 200°C and 350°C.
- Vacuum bag processing recommended.
- Reinfiltration with SMP-10 or SMP-850 recommended
- High mass yield through pyrolysis (850°C) with a value of **81 – 83 %**
- Pyrolysis at 1,450°C or 1,600°C generates a yield of **77-82%**. Typical Stoichiometry of C:Si of **1.1: 1.0**
- Prepeg material SPPG-1090A based on SMP-750 available upon request.

Properties of StarPCS™ SMP-750 (typical)	
Density	1.30 – 1.35 g/cm ³
Appearance	Brown / Tan
Viscosity, 25C**	70 – 80 cP
Compatible Solvents	Hexane, Tetrahydrofuran, Toluene
Flash Point	>93°C (>200°F)
Catalyst	N/A
DOT / IATA Regulations	Non-Hazardous
Storage	-10°C

**SMP-750:Toluene 70:30; Brookfield Viscometer, Spindle S18, 6RPM

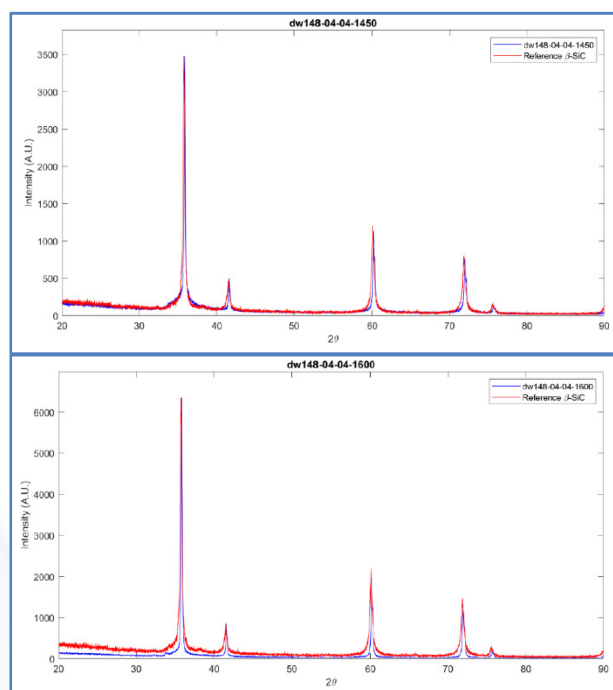


Figure 1: XRD of SMP-750, hot melt-able carbosilane; 1450°C, 1600°C, with beta-SiC overlay.

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.