

SDMC-396

Dry Molding Compound



POLYMER-TO-CERAMIC™ TECHNOLOGY

Technical Data Sheet

SDMC-396 Dry Molding Compound (DMC) is a silicon carbide (SiC) forming molding compound based on Starfire's polycarbosilane SiC forming resin. SDMC-396 cures at temperatures between 200-310°C to form a nearly net shaped part which can be machined to final shape. Firing is conducted at temperatures from 850-2200°C, and sintering is observed at temperatures as low as 1650°C. Open porosity and pore size distribution can be engineered through polymer infiltration and pyrolysis (PIP) using StarPCS™ SMP-10 polymer and through modifying the particle sizes and distribution.

Product Highlights

- Supplied as a dry moldable material for use with common forming methods such as compression molding, powder compaction, and vibration casting.
- Cures to green, machinable state at temperatures as low as 200°C.
- Firing temperatures from 850°C -2200°C, with sintering behavior observed as low as 1650°C.
- No binder burn-out required; the Starfire polymer binder converts to SiC.
- No solvent removal necessary.
- Suitable for a variety of structural, thermal, suitable for low, medium temperature applications and friction uses.
- Tailorable thermal and mechanical properties.
- Cured parts are easily machineable to complex geometries with diamond tooling.
- Highly polishable.
- Highly corrosion resistant.

Applications

- Semiconductor Furnace Hardware
- Automotive Components
- Nozzles
- Industrial Wear Parts
- Ballistic Armor
- Mechanical Seals
- Thermal Insulator
- Fluid Processing Equipment

Physical Properties of SDMC-396

Density	2.4 +/- 0.2 g/cm ³
Open Porosity (%)	Tailorable based on processing
Appearance	Gray-green powder
Odor	Odorless
Storage	Refrigerate*

Product	Product Description	Flexural Properties			
		Flexural Strength		Flexural Modulus	
SDMC-396*	Dry Molding Compound	KSI	MPa	MSI	GPa
*expected values with infiltrated with SMP-10 Tested per ASTM C1341-00 4-point bend test		14.5	100	51	350

*Periodic venting required.

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.