

Preliminary Data Sheet
HTC-9593 (127-51-5)
(High Temperature Composite) Molding Compound

HTC-9593 (127-51-5) is a 3K Pan Based Carbon Fiber reinforced Bismaleimide (BMI) ESC (Engineered Structural Composite) molding compound. It exhibits outstanding elevated temperature characteristics providing greatly extended service temperature range versus epoxy compounds for compression molding applications.

TYPICAL PROPERTIES -- UNCURED

Form	Rolled Sheet, 18" wide	Carbon Fiber Content	Nominal 55%
Colors	Natural (Black)	Carbon Fiber Length	Nominal 1-inch
Shelf Life: @ 10°F	6 months	and @ 40°F	1 month

TYPICAL PROPERTIES -- CURED

<u>Test</u>	<u>Procedure</u>	<u>Value</u>
Specific Gravity	ASTM D-792	1.55
Molding Shrinkage, inch/inch (mm/mm)	ASTM D-955	<0.0015 (<0.038)
Flexural Strength, psi (MPa) ¹	ASTM D-790	75,000 (517)
Flexural Modulus, psi (GPa) ¹	ASTM D-790	7.0 x10 ⁶ (48.3)
Tensile Strength, psi (MPa) ¹	ASTM D-638	26,000 (179)
Tensile Modulus, psi (GPa) ¹	ASTM D-638	9.0 x10 ⁶ (62.1)
Izod Impact (notched) ft.lb./in. (J/M)	ASTM D-256	27 (1441)
Glass Transition Temp. (T _g dry)	ASTM D-648	714°F (379°C)
Glass Transition Temp. (T _g wet)	ASTM D-4065	646°F (341°C)

TYPICAL PROCESS PARAMETERS

Suggested Equipment needed:

Circulating Air / Convection Oven

1. Pre-weigh desired amount of molding compound and cut charge pattern.
2. Pre-stage molding compound at 212°F ±10°F in an oven for 20-24 hours.
3. Place in mold at 325°F for 25 minute cure cycle at 1000 PSI.
4. Post cure at desired temperature up to 700°F for 2-hours, then allow to cool to room temperature.

For above data specimen were allowed to cool to room temperature out of mold then placed in oven and the temperature was ramped to 500°F. After two hours the samples were taken out of the oven and allowed to cool to room temperature.

The carrier film may tend to cling to the ESC. It is easiest to remove after the charge has been pre-staged in the oven for 20-24 hours.

Precautions: For maximum shelf life, HTC-9593 must be stored cold. Storage for more than a few days at temperatures above 75°F may result in advancement of the material. HTC-9593 contains carbon fibers and should be handled carefully in order to minimize skin contact. Molding areas should be well-ventilated to minimize exposure to fumes. Presses and preheaters must be provided with local exhaust to remove vapors from work areas. If adequate ventilation is not available, a respirator approved for removing organic vapor must be used.

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This ESC product is generally intended to be compression molded in matched-metal die molds. Strength values may be affected by the molding process. **The values presented in this data sheet are typical values and are not to be interpreted as product specifications.**

¹Tensile and Flexural Properties are determined using net shape molded specimens. Values obtained on cut specimens will typically be lower.