

## TECHNICAL DATA SHEET

### HTC™ 9510

#### Engineered Structural Composite® (ESC®) Molding Compound

HTC™ 9510 is an E-Glass Fiber reinforced Bismaleimide (BMI) ESC® 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 and Color . . . . .	Rolled Sheet, Natural	Fiber Length . . . . .	Nominal 1-inch
Glass Fiber Content . . . . .	Nominal-52% w/w	Shelf Life: @ 10°F or below . . .	6 months
Resin Content . . . . .	Nominal-48% w/w		

#### TYPICAL PROPERTIES | CURED | “Net Shape” Specimen

<u>Test</u>	<u>Procedure</u>	<u>Value</u>
Specific Gravity, g/cc	ASTM D-792	1.82
Molding Shrinkage, inch/inch (mm/mm)	ASTM D-955	0.0015 (0.038)
Flexural Strength, psi (MPa) <sup>1</sup>	ASTM D-790	94,000 (648)
Flexural Modulus, psi (GPa) <sup>1</sup>	ASTM D-790	4.0 x10 <sup>6</sup> (27.6)
Flexural Strength, psi (MPa) <sup>1</sup> @ 350° F	ASTM D-790	70,000 (483)
Tensile Strength, psi (MPa) <sup>1</sup>	ASTM D-638	28,500 (196)
Tensile Modulus, psi (GPa) <sup>1</sup>	ASTM D-638	4.0 X10 <sup>6</sup> (27.6)
Tensile Strength, psi (MPa) <sup>1</sup> @ 350° F	ASTM D-638	28,500 (196)
Izod Impact (notched) ft.lb./in. (J/M)	ASTM D-256	30 (1600)
Compressive, psi (MPa) <sup>2</sup>	ASTM D-3410	36,000 (248)
Compressive, psi (MPa) <sup>2</sup> @ 350° F	ASTM D-3410	32,000 (221)
Glass Transition Temp. °F (°C) Tan Delta <sup>2</sup>	ASTM D-7028	700 (371)

<sup>1</sup> Tensile and Flexural Properties are determined using net shaped molded specimen

<sup>2</sup> Glass Transition Temp measured from machined specimen

**Molding Suggestions** – HTC™ 9510 can be molded at temperatures in the range of 260-350° F, with 300° F suggested as a starting point. Cure times will be dependent on molding temperature and part thickness and will typically be 25+ minutes. Detailed molding suggestions are available on request. Cool molded parts at ambient temperature. A cooling fixture may be needed depending on part thickness and geometry.

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## Data Sheet Continued

### Technical Data Sheet HTC™ 9510

Precautions – HTC™ 9510 contains glass fibers and should be handled carefully in order to minimize skin contact. Molding areas should be well ventilated to minimize exposure to fumes. Presses 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.

#### 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 200° F ±5° F in an oven for 16 ±0.5-hours.
3. Place in mold at 260-325° F for 25 minute cure cycle depending on part thickness at 1000 PSI.
  - a. Thicker parts may take longer to cure.
4. Post cure at temperature up to 500° F ±20° F for a minimum of 4-hours, then allow to cool to room temperature.
5. 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.

Typical Uncured and Cured Properties tested each lot of – HTC™ 9510:

- Fiber Content/Resin Content
- Specific Gravity
- Molding Shrinkage
- Mat Weight, (Areal Density)

Additional technical information and data on this material is available from Quantum Composites, Inc. Please contact us via phone, local representative, web site [www.quantumcomposites.com](http://www.quantumcomposites.com) or email [info@quantumcomposites.com](mailto:info@quantumcomposites.com)

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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.**