

TECHNICAL DATA SHEET

AMC® 8593, 126-76-118 Engineered Structural Composite® (ESC®) Molding Compound

AMC® 8593 is a chopped carbon fiber reinforced ESC® molding compound. It is easily moldable and provides parts that are high strength, fatigue resistant, with high heat resistance and a low density. The carbon fiber is standard modulus PAN based 3K tow.

TYPICAL PROPERTIES | UNCURED

Form and Color	Rolled Sheet, Black or Natural	Fiber Length	Nominal 1.0-inch
Carbon Fiber Content	Nominal-50% w/w	Shelf Life: @ 75°F	2 months
Resin Content	Nominal-50% w/w		

TYPICAL PROPERTIES | CURED | “Net Shape” Specimen

<u>Test</u>	<u>Procedure</u>	<u>Value</u>
Specific Gravity, g/cc	ASTM D-792	1.47
Molding Shrinkage, inch/inch (mm/mm)	ASTM D-955	<0.000 (<0.000)
Flexural Strength, psi (MPa) ¹	ASTM D-790	115,000 (792)
Flexural Modulus, psi (GPa) ¹	ASTM D-790	6.5 x10 ⁶ (44.8)
Tensile Strength, psi (MPa) ¹	ASTM D-638	61,000 (421)
Tensile Modulus, psi (GPa) ¹	ASTM D-638	9.5 x10 ⁶ (65.5)
Izod Impact (notched) ft.lb./in. (J/M)	ASTM D-256	20 (1068)

¹ Tensile and Flexural Properties are determined using net shape molded specimens.

TYPICAL PROPERTIES | CURED | “Machined” Specimen

<u>Test</u>	<u>Procedure</u>	<u>Value</u>
Flexural Strength, psi (MPa) ²	ASTM D-790	73,000 (503)
Flexural Modulus, psi (GPa) ²	ASTM D-790	4.5 x10 ⁶ (31.0)
Tensile Strength, psi (MPa) ²	ASTM D-3039	41,500 (286)
Tensile Modulus, psi (GPa) ²	ASTM D-3039	5.2 x10 ⁶ (35.8)
Short Beam Shear, psi (MPa) ²	ASTM D-2344	8,394 (57.87)
Glass Transition Temp. °F (°C) TanDelta	ASTM D-7028	288 (142)

² Machined Properties are determined using specimen machined from molded 12"x12" panels with 80% mold coverage.

Note: The above cured properties are for both “Net Shape” and “Machined” specimens to respective test methods. Net shape specimens produce higher mechanical properties than machined specimens due to favorable fiber orientation in net shape molding. Established engineering practices use machined specimen data for structural analysis. Net shape specimen data represent best case, pristine properties.

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Data Sheet Continued

Technical Data Sheet AMC® 8593, 126-76-118

Molding Suggestions – AMC® 8593 can be molded at temperatures in the range of 260-310°F, with 280°F suggested as a starting point. Cure times will be dependent on molding temperature and part thickness and will typically be 5-10 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.

Precautions – AMC® 8593 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 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. Care must be taken to prevent contact of carbon fibers with electrical equipment.

Typical Uncured and Cured Properties tested each lot of – AMC® 8593:

- 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 or email 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.**