

Quantum AMC® 8590 NT

Sheet Molding Compound

PRODUCT DESCRIPTION

Carbon Fiber reinforced hybrid vinyl ester molding compound

GENERAL

Material Status	• Commercial: Active		
Availability	• North America	• Europe	• Asia Pacific
Filler/Reinforcement	• 12K PAN Carbon Fiber	• Nominal 53% w/w	• Nominal 1" (25 mm) Length
Features	• Fatigue resistance • High strength	• High stiffness • Shelf Life 2 months @ 75°F	• Black or Natural Color
Processing Method	• AMC® 8590 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 3-5 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. Matched metal die molds.		
Resin	• VE Hybrid Composite		

PHYSICAL	Typical	Unit	Test Method
Density	1.48	g/cm ³	ASTM D792
Shrinkage	<0.000	in/in	cold mold to cold part
CLTE, X-Y plane	12	ppm/°C	ASTM E831
CLTE, Z plane	60	ppm/°C	ASTM E831
Poisson's Ratio	0.33	psi (MPa)	ASTM D638

MECHANICAL (Machined)	Typical	Unit	Test Method
Tensile Modulus	5.3E+6 (36,500)	psi (MPa)	ASTM D3039
Tensile Stress (Break)	23,500 (162)	psi (MPa)	ASTM D3039
Flexural Modulus	4.1E+6 (28,300)	psi (MPa)	ASTM D790
Flexural Stress (Break)	65,000 (448)	psi (MPa)	ASTM D790
Short Beam Shear	8,000 (55.2)	psi (MPa)	ASTM D2344

Machined Properties are determined using specimen machined from molded 12"x12" panels with 80% mold coverage, 1000 psi pressure, 280-300°F mold temperature for 3-5 minutes

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MECHANICAL (As molded)	Typical	Unit	Test Method
Tensile Modulus	9.0E+6 (62,100)	psi (GPa)	ASTM D638
Tensile Strength	40,000 (276)	psi (MPa)	ASTM D638
Flexural Modulus (RT)	5.2E+6 (35,900)	psi (GPa)	ASTM D790
Flexural Strength	90,000 (621)	psi (MPa)	ASTM D790

IMPACT	Typical	Unit	Test Method
Izod Notched Impact Strength	28 (1495)	ft-lb/in (J/m)	ASTM D256

THERMAL	Typical	Unit	Test Method
Glass Transition T _i , TanDelta	142	(°C)	ASTM D7028
Glass Transition T _g , Storage Modulus	118	(°C)	ASTM D7028

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