

BMC 940-21769

Bulk Molding Compound

PRODUCT DESCRIPTION

Vinyl ester BMC suitable for stationary fuel cells. This material was specifically formulated to mold bipolar plates for use in electro-chemical devices capable of generating electricity from oxygen and hydrogen. The typical applications are for chemical batteries and fuel cells. A unique characteristic of this product is improved chemical resistance to dilute acids.

GENERAL

Material Status	• Commercial: Active		
Availability	• North America • Asia Pacific	• Europe • South America	
Filler/Reinforcement	• Conductive fiber and conductive filler		
Features	• Medium conductivity	• Excellent corrosion resistance	• Cost effective
Resin	• Vinyl ester Composite		

Processing Method

Mold Temperature	300-320	F
Cure Time (<3.0mm thick)	30-90	Seconds
Recommend Press Tonnage	3-4	Tons/in2 on Projected Area
Final Press Closure Speed (Start of material flow to close)	1-3	Seconds
Time to Full Press Tonnage (Close to full tonnage)	<1.0	Second
Post Bake Temperature	180	C
Post Bake Time at Temperature	>20	Minutes

PHYSICAL	Typical	Unit	Test Method
Density	1.87-1.91	g/cm ³	ASTM D792
Mold Shrinkage (RT mold/RT part)	0.00075-0.00125	in/in	ASTM D955
Water Absorption, 24 hrs, 23°C	<0.10	%	ASTM D570
CLTE, X-Y plane	13.4	ppm/°C	ASTM E831
CLTE, Z plane	34.3	ppm/°C	ASTM E831
Poisson's Ratio	0.32		ASTM D638

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MECHANICAL (As molded)	Typical	Unit	Test Method
Tensile Strength	2,000 (13.8)	psi (MPa)	ASTM D638
Flexural Modulus (RT)	1.6 x 10 ⁶ (11)	psi (GPa)	ASTM D790
Flexural Strength	4,300 (29)	psi (MPa)	ASTM D790
Compressive Strength	5,200 (35)	psi (MPa)	ASTM D695

IMPACT	Typical	Unit	Test Method
Unnotched Impact Strength	1.1 (58)	ft-lb/in (J/m)	ASTM D4812

THERMAL	Typical	Unit	Test Method
Glass Transition T _g	365 (185)	°F (°C)	ASTM D4065
Thermal Conductivity,		W/m-°K	ASTM E1461
In Plane/Through Plane at 25°C	16.9/35.5		
In Plane/Through Plane at 100°C	15.9/32.6		
Diffusivity		cm ² /s	ASTM E1461
At 25°C	0.126		
At 100°C	0.089		
Specific Heat Capacity		J/kg-K	ASTM E1461
At 25°C	708		
At 100°C	949		

ELECTRICAL	Typical	Unit	Test Method
Conductivity			Vendor
Through Plane (Z direction)	25-28	S/cm	

For additional information, please contact:

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