

# BMC 940-22695 EXPERIMENTAL

## 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

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

### Processing Method

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

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

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<b>MECHANICAL (As molded)</b>	<b>Typical</b>	<b>Unit</b>	<b>Test Method</b>
Tensile Strength	1,550 (10.7)	psi (MPa)	ASTM D638
Flexural Modulus (RT)	9.3 x 10 <sup>5</sup> (.64)	psi (GPa)	ASTM D790
Flexural Strength	2,350 (16.2)	psi (MPa)	ASTM D790
Compressive Strength	2,100 (14.5)	psi (MPa)	ASTM D695

<b>IMPACT</b>	<b>Typical</b>	<b>Unit</b>	<b>Test Method</b>
Unnotched Impact Strength	0.20 (10.6)	ft-lb/in (J/m)	ASTM D4812

<b>THERMAL</b>	<b>Typical</b>	<b>Unit</b>	<b>Test Method</b>
Glass Transition T <sub>g</sub>	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 <sup>2</sup> /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		

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

For additional information, please contact:

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