

BMC 940-15252A

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.

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	380-400	F
Cure Time (<3.0mm thick)	30-60	Seconds
Recommend Press Tonnage	3-4	Tons/in ² 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

PHYSICAL	Typical	Unit	Test Method
Density	1.75-1.89	g/cm ³	ASTM D792
Mold Shrinkage (RT mold/RT part)	0.00015-0.00045	in/in	ASTM D955
Water Absorption, 24 hrs, 23°C	<0.10	%	ASTM D570
CLTE, X-Y plane	13	ppm/°C	ASTM E831
CLTE, Z plane	25	ppm/°C	ASTM E831
Poisson's Ratio	0.32		ASTM D638

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MECHANICAL (As molded)	Typical	Unit	Test Method
Tensile Strength	4,000 (27.6)	psi (MPa)	ASTM D638
Tensile Modulus	1.5 x 10 ⁶ (10.3)	psi (GPa)	ASTM D638
Flexural Modulus (RT)	2.5 x 10 ⁶ (17.25)	psi (GPa)	ASTM D790
Flexural Strength	5,500 (37.9)	psi (MPa)	ASTM D790
Compressive Strength	11,000 (75.9)	psi (MPa)	ASTM D695
Compressive Creep, 200 psi			ASTM D2990
200 hr at 80°C	0.025	%	
1000 hr at 80°C	0.040	%	

IMPACT	Typical	Unit	Test Method
Unnotched Impact Strength	0.16 (8.5)	ft-lb/in (J/m)	ASTM D4812
Instrumented Impact at 23°C			ASTM D3763
Max Load	752	N	
Total Energy	3.57	N-M	
Energy to Max Load	0.75	N-M	

THERMAL	Typical	Unit	Test Method
Glass Transition T _g	323 (162)	°F (°C)	ASTM D4065
Thermal Conductivity, 25°C		W/m-°K	ASTM E1461
In Plane/Through Plane at 25°C	46.2/19.2		
In Plane/Through Plane at 85°C	43.7/18.5		
Diffusivity		cm ² /s	ASTM E1461
In Plane/Through Plane at 25°C	0.302/0.125		
In Plane/Through Plane at 85°C	0.231/0.054		
Specific Heat Capacity		J/kg-K	ASTM E1461
At 25°C	0.841		
At 85°C	1.04		

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ELECTRICAL	Typical	Unit	Test Method
Conductivity			Vendor
Through Plane (Z direction)	36	S/cm	
In Plane (X, Y direction)	75	S/cm	

Typical Process Settings			
Mold Temperature	380-400	F	
Cure Time (<3.0mm thick)	30-60	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	

For additional information, please contact:

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