

BMC 940-14868C

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 application is for direct methanol fuel cell stacks (DMFC). This material utilizes a special polymer that resists up to 100% methanol immersion at 65°C.

GENERAL

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

Processing Method

Mold Temperature	300-320	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
Post Bake Temperature	180-200	C
Post Bake Time at Temperature	>20	Minutes

PHYSICAL	Typical	Unit	Test Method
Density	1.87-1.90	g/cm ³	ASTM D792
Mold Shrinkage (RT mold/RT part)	0.0008-0.0012	in/in	ASTM D955
Water Absorption, 24 hrs, 23°C	<0.10	%	ASTM D570
Poisson's Ratio	0.32		ASTM D638

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MECHANICAL (As molded)	Typical	Unit	Test Method
Tensile Modulus	1.4 x 10 ⁶ (9.66)	psi (GPa)	ASTM D638
Tensile Strength	4,000 (27.6)	psi (MPa)	ASTM D638
Flexural Modulus (RT)	1.5 x 10 ⁶ (10.35)	psi (GPa)	ASTM D790
% Retention (2250 hrs w 50% MeOH reflux)	>90	%	
% Retention (2250 hrs w 100% MeOH reflux)	>80	%	
Flexural Strength	5,500 (38)	psi (MPa)	ASTM D790
Compressive Strength	11,000 (75)	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	0.15 (8.0)	ft-lb/in (J/m)	ASTM D4812

THERMAL	Typical	Unit	Test Method
Glass Transition T _g	372 (189)	°F (°C)	ASTM D4065
Thermal Conductivity, 25°C	13.4	W/m-°K	ASTM E1461
Diffusivity	0.0889	cm ² /s	ASTM E1461
Specific Heat Capacity	0.846	J/kg-K	ASTM E1461

ELECTRICAL	Typical	Unit	Test Method
Conductivity			Vendor
Through Plane (Z direction)	32	S/cm	
In Plane (X, Y direction)	70	S/cm	

For additional information, please contact:

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