

Bulk Molding Compounds BMC 940 Vinyl Ester Bipolar Plate Material

Category : Polymer , Thermoset , Vinyl Ester , Vinyl Ester Sheet Molding Compound

Material Notes:

Bulk Molding Compounds, Inc. is the largest manufacturer of thermoset bulk molding compounds in North America, serving the automotive, appliance, and electrical markets. BMC thermosets are the most cost-effective plastic products on the market today. The process of manufacturing BMC thermosets is geared toward high-volume, automated systems to ensure the highest quality at the lowest possible cost. BMC thermosets can be designed to conduct electricity for use in applications such as bipolar plates that are used in fuel cells.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Bulk-Molding-Compounds-BMC-940-Vinyl-Ester-Bipolar-Plate-Material.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.82 g/cc	1.82 g/cc	ASTM D792
Water Absorption	<= 0.060 %	<= 0.060 %	24 hours, 23°C; ASTM D570
Linear Mold Shrinkage	0.0010 cm/cm	0.0010 in/in	ASTM D955

Mechanical Properties	Metric	English	Comments
Tensile Strength, Ultimate	>= 30.3 MPa	>= 4400 psi	ASTM D638
Flexural Strength	>= 40.0 MPa	>= 5800 psi	ASTM D790
Flexural Modulus	>= 10.3 GPa	>= 1500 ksi	ASTM D790
Izod Impact, Unnotched	0.160 J/cm	0.300 ft-lb/in	
Dynatup @ -18°C	3.57 J	2.63 ft-lb	
Dynatup @ -18°C Max Load	76600 g	169 lb	

Thermal Properties	Metric	English	Comments
CTE, linear	>= 30.0 µm/m-°C	>= 16.7 µin/in-°F	
	@Temperature 20.0 °C	@Temperature 68.0 °F	
Specific Heat Capacity	0.841 J/g-°C	0.201 BTU/lb-°F	through-plane
Thermal Conductivity	19.2 W/m-K	133 BTU-in/hr-ft²-°F	Through Plane
	46.2 W/m-K	321 BTU-in/hr-ft²-°F	In-Plane
	18.5 W/m-K	128 BTU-in/hr-ft²-°F	Through Plane
	@Temperature 85.0 °C	@Temperature 185 °F	
	43.7 W/m-K	303 BTU-in/hr-ft²-°F	In Plane

Thermal Properties	@Temperature 85.0 °C Metric	@Temperature 185 °F English	Comments
Glass Transition Temp, Tg	>= 200 °C	>= 392 °F	
Flammability, UL94	V-0	V-0	
	@Thickness 3.56 mm	@Thickness 0.140 in	

Electrical Properties	Metric	English	Comments
Volume Resistivity	0.010 ohm-cm	0.010 ohm-cm	in plane
	0.020 ohm-cm	0.020 ohm-cm	Through plane

Processing Properties	Metric	English	Comments
Mold Temperature	163 - 168 °C	325 - 335 °F	
Cure Time	0.500 - 1.00 min	0.00833 - 0.0167 hour	

Descriptive Properties	Value	Comments
Compressive Creep, 200 psi	0.025%	200hr @ 80°C
	0.04%	1000hr @ 80°C
Diffusivity, cm²/s	0.098	85°C Through Plane
	0.125	25°C Through Plane
	0.231	85° In-Plane
	0.302	25° In-Plane
DMA-Modulus	0.5	10 ⁶ psi, 200°C
	0.94	10 ⁶ psi, 175°C
	1.23	10 ⁶ psi, 150°C
	1.6	10 ⁶ psi, 100°C
	2	10 ⁶ psi, 25°C

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