

Hexion Bakelite™ MP 4165 Melamine Phenolic Resin, Copper Adhesive, Low Shrinkage, High Mechanical Strength (d

Category : Polymer , Thermoset , Melamine , Melamine-Phenolic Copolymer , Phenolic

Material Notes:

Melamine/phenolic molding compound, inorganically filled, glass fiber reinforced, good temperature stability, high level of mechanical properties, copper adhesive, flammability UL 94/V-0/1.6 mm (not listed). Application areas: Commutators (fuel pumps, actuators, HVAC motors, fan motors, window lift motors, ABS, wiper motors, garden appliances, household appliances, power tools, universal motors) Information provided by Bakelite AG Bakelite AG became a part of Hexion in 2005.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Hexion-Bakelite-MP-4165-Melamine-Phenolic-Resin-Copper-Adhesive-Low-Shrinkage-High-Mechanical-Strength-nbspd.php

Physical Properties	Metric	English	Comments
Density	1.81 g/cc	0.0654 lb/in ³	ISO 1183
Apparent Bulk Density	0.700 g/cc	0.0253 lb/in ³	ISO 60
Linear Mold Shrinkage, Flow	-0.000500 cm/cm	-0.000500 in/in	Compression molding; ISO 2577
	0.00040 cm/cm	0.00040 in/in	Injection molding; ISO 2577

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	300 MPa	43500 psi	H 961/30; ISO 2039/P1
Tensile Strength at Break	60.0 MPa	8700 psi	5 mm/min; ISO 527 - 1/2
Tensile Modulus	12.5 GPa	1810 ksi	1 mm/min; ISO 527 - 1/2
Flexural Strength	105 MPa	15200 psi	2 mm/min; ISO 178
Flexural Modulus	12.5 GPa	1810 ksi	ISO 178
Compressive Strength	160 MPa	23200 psi	Test specimen flat tested; ISO 604
Charpy Impact Unnotched	0.700 J/cm ² @Temperature 23.0 °C	3.33 ft-lb/in ² @Temperature 73.4 °F	ISO 179-1/2 eU
Charpy Impact, Notched	0.200 J/cm ² @Temperature 23.0 °C	0.952 ft-lb/in ² @Temperature 73.4 °F	ISO 179-1/2 eA

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	150 °C	302 °F	<20000 hours; IEC 60216-P1
	190 °C	374 °F	< 50 hours; IEC 60216-P1

Thermal Properties	Metric	English	Comments
Shrinkage	0.250 %	0.250 %	Compression molding; ISO 2577
	@Temperature 110 °C	@Temperature 230 °F	
	0.290 %	0.290 %	Injection molding; ISO 2577
	@Temperature 110 °C, Time 605000 sec	@Temperature 230 °F, Time 168 hour	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+12 ohm-cm	1.00e+12 ohm-cm	IEC 60093
Surface Resistance	1.00e+11 ohm	1.00e+11 ohm	IEC 60093
Dielectric Constant	7.0	7.0	IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
Dielectric Strength	30.0 kV/mm	762 kV/in	IEC 60243-P1
	@Thickness 1.00 mm	@Thickness 0.0394 in	
Dissipation Factor	0.080	0.080	IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	
Comparative Tracking Index	300 V	300 V	Test liquid A; IEC 60112

Processing Properties	Metric	English	Comments
Feed Temperature	60.0 - 75.0 °C	140 - 167 °F	Injection molding
Nozzle Temperature	80.0 - 100 °C	176 - 212 °F	Injection molding
Melt Temperature	80.0 - 100 °C	176 - 212 °F	Injection molding
Mold Temperature	160 - 170 °C	320 - 338 °F	Injection molding
	160 - 170 °C	320 - 338 °F	Compression molding
Injection Pressure	>= 15.0 MPa	>= 2180 psi	Compression and injection cavity mold pressure
Back Pressure	0.500 - 2.00 MPa	72.5 - 290 psi	Injection molding
Cure Time	0.167 - 0.333 min	0.00278 - 0.00556 hour	Per 1 mm of wall thickness, injection molding
	0.333 - 0.667 min	0.00556 - 0.0111 hour	Per 1 mm of wall thickness, compression molding

Descriptive Properties	Value	Comments
Holding Pressure	Approximately 40-60% of injection pressure	

Descriptive Properties	Value	Comments
Moisture Absorption	1.3 mg	ISO 52, 24 hours at 23°C

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