

Hexion Bakelite™ PF 6501 Phenolic Formaldehyde Resin, Low Shrinkage

Category : Polymer , Thermoset , Filled/Reinforced Thermoset , Phenolic

Material Notes:

Phenolic molding compound, inorganically filled, glass fiber reinforced, high dimensional stability at raised temperature, good media resistance, heat-resistant. Application areas: Thermally and dynamically highly stressed parts in automotive field, pulleys. This product was originally produced by Bakelite AG, now a part of Hexion.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Hexion-Bakelite-PF-6501-Phenolic-Formaldehyde-Resin-Low-Shrinkage.php

Physical Properties	Metric	English	Comments
Density	1.60 g/cc	0.0578 lb/in ³	ISO 1183
Apparent Bulk Density	0.640 g/cc	0.0231 lb/in ³	ISO 60
Linear Mold Shrinkage, Flow	0.0017 cm/cm	0.0017 in/in	Compression molding; ISO 2577
	0.0018 cm/cm	0.0018 in/in	Injection molding; ISO 2577

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	400 MPa	58000 psi	H 961/30; ISO 2039/P1
Flexural Strength	175 MPa	25400 psi	2 mm/min; ISO 178
Flexural Modulus	12.5 GPa	1810 ksi	ISO 178
Charpy Impact Unnotched	1.20 J/cm ²	5.71 ft-lb/in ²	ISO 179-1/2 eU
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Charpy Impact, Notched	0.350 J/cm ²	1.67 ft-lb/in ²	ISO 179-1/2 eA
	@Temperature 23.0 °C	@Temperature 73.4 °F	

Thermal Properties	Metric	English	Comments
Deflection Temperature at 8.0 MPa	170 °C	338 °F	ISO 75-2
Shrinkage	0.0700 %	0.0700 %	Compression molding; ISO 2577
	@Temperature 110 °C	@Temperature 230 °F	
	0.0800 %	0.0800 %	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+11 ohm-cm	1.00e+11 ohm-cm	IEC 60093

Electrical Properties	Metric	English	Comments
Surface Resistance	$1.00 \times 10^9 \text{ ohm}$	$1.00 \times 10^9 \text{ ohm}$	IEC 60093
Dielectric Constant	6.5	6.5	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	0.10	0.10	IEC 60250
	@Frequency 100 Hz	@Frequency 100 Hz	

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 - 190 °C	320 - 374 °F	Injection molding
	160 - 190 °C	320 - 374 °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
Chromatic Spectrum	All Colors	
Creep Rupture Strength	Very Good	
Holding Pressure	Approximately 40-60% of injection pressure	
Media Resistance	Very Good	
Moisture Absorption	11 mg	ISO 62, 24 hours at 23°C
Reserves by Peak Temperature	Very High	
Thermal Expansion	Very Slight	

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