

Hexion Bakelite™ PF 2874 Phenolic Formaldehyde Resin, Low Shrinkage, Improved Electrical Properties, UL Listed, High Mechanical Strength

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

Material Notes:

Phenolic molding compound, inorganically filled, glass fiber reinforced, increased mechanical strength, increased temperature stability, low water absorption, good dimensional stability, UL listed molding compound 0.75 mm/V-0 (BK). Application areas: Insulating flanges, automotive engine parts, steering housings, end plates for electrical motors, carbon brush holders, clamp boards, bobbins, cross bars, terminal boards, switches/regulator knobs, pulleys, impellers, pump parts. 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-2874-Phenolic-Formaldehyde-Resin-Low-Shrinkage-Improved-Electrical-Properties-UL-Listed-High-Mechanical-Strength.php

Physical Properties	Metric	English	Comments
Density	1.57 g/cc	0.0567 lb/in ³	ISO 1183
Apparent Bulk Density	0.700 g/cc	0.0253 lb/in ³	ISO 60
Linear Mold Shrinkage, Flow	0.0019 cm/cm	0.0019 in/in	Compression molding; ISO 2577
	0.0045 cm/cm	0.0045 in/in	Injection molding; ISO 2577

Mechanical Properties	Metric	English	Comments
Ball Indentation Hardness	400 MPa	58000 psi	H 961/30; ISO 2039/P1
Tensile Strength at Break	65.0 MPa	9430 psi	5 mm/min; ISO 527 - 1/2
Tensile Modulus	10.5 GPa	1520 ksi	1 mm/min; ISO 527 - 1/2
Flexural Strength	125 MPa	18100 psi	2 mm/min; ISO 178
Flexural Modulus	10.5 GPa	1520 ksi	ISO 178
Compressive Strength	230 MPa	33400 psi	Test specimen flat tested; ISO 604
Charpy Impact Unnotched	0.900 J/cm ² @Temperature 23.0 °C	4.28 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	170 °C	338 °F	<20000 hours; IEC 60216-P1

Thermal Properties	230 °C Metric	446 °F English	< 50 hours* IEC 60216-P1 Comments
Deflection Temperature at 8.0 MPa	155 °C	311 °F	ISO 75-2
UL RTI, Electrical	150 °C @Thickness 0.750 mm	302 °F @Thickness 0.0295 in	BK
UL RTI, Mechanical with Impact	150 °C @Thickness 0.750 mm	302 °F @Thickness 0.0295 in	BK
UL RTI, Mechanical without Impact	150 °C @Thickness 0.750 mm	302 °F @Thickness 0.0295 in	BK
Flammability, UL94	V-0 @Thickness 0.750 mm	V-0 @Thickness 0.0295 in	BK
Shrinkage	0.180 % @Temperature 110 °C	0.180 % @Temperature 230 °F	Compression molding; ISO 2577
	0.250 % @Temperature 110 °C, Time 605000 sec	0.250 % @Temperature 230 °F, Time 168 hour	Injection molding; ISO 2577

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	8.0 @Frequency 100 Hz	8.0 @Frequency 100 Hz	IEC 60250
Dielectric Strength	30.0 kV/mm @Thickness 1.00 mm	762 kV/in @Thickness 0.0394 in	IEC 60243-P1
Dissipation Factor	0.20 @Frequency 100 Hz	0.20 @Frequency 100 Hz	IEC 60250
Arc Resistance	130 - 135 sec	130 - 135 sec	ASTM D495
Comparative Tracking Index	175 V	175 V	Test liquid A; IEC 60112
Hot Wire Ignition, HWI	>= 120 sec @Thickness 0.750 mm	>= 120 sec @Thickness 0.0295 in	BK
High Amp Arc Ignition, HAI	>= 120 arcs @Thickness 0.750 mm	>= 120 arcs @Thickness 0.0295 in	BK

Electrical Properties	Metric	English	Comments
High Voltage Arc Tracking Rate, HVTR	0.000 - 10.0 mm/min	0.000 - 0.394 in/min	
	@Thickness 3.00 mm	@Thickness 0.118 in	

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	20 mg	ISO 62, 24 hours at 23°C
Reserves by Peak Temperature	Very High	
Thermal Expansion	Very Slight	

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