

TECHNICAL DATA SHEET

Bakelite® PF 4109

Bakelite Synthetics
PF-(GF+X)

Processing

Injection molding, Transfer molding

Product Text
Product Information
Product description:

Phenolic moulding compound, inorganically filled, glass fibre reinforced, ammonia and acetic acid free, electrically high grade, high temperature stability, low shrinkage, high mechanical strength, UL listed moulding compound 0.84 mm / V-0 (BK).

Application areas:

Commutators (fuel pumps, actuators, HVAC motors, fan motors, window lift motors, ABS, wiper motors, garden appliances, household appliances, power tools, universal motors), bobbins.

Property Name	Value	Unit	Standard No.
Apparent density (moulding compound)	0.81	g/cm ³	ISO 60
Moulding shrinkage (compression moulding, longitudinal)	0.1	%	ISO 2577
Post shrinkage (compression moulding, 168h/110°C)	0.1	%	ISO 2577
Compr. strength (test spec. flat tested)	200	MPa	ISO 604
Flexural strength (2mm/min)	140	MPa	ISO 178
Flexural modulus	17000	MPa	ISO 178
Ball indentation hardness (H 961/30)	400	MPa	ISO 2039 /P1

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Water absorption (24h/23°C)	8	mg	similar to ISO 62
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Additional characteristics: .low shrinkage/good dimensional stability, high arc resistance, preparation of test specimen only in compression moulding process

Preparation of Test Specimens of Thermosetting Moulding Compound

- Compression to ISO 295
- Injection to ISO 10724

Storage capability

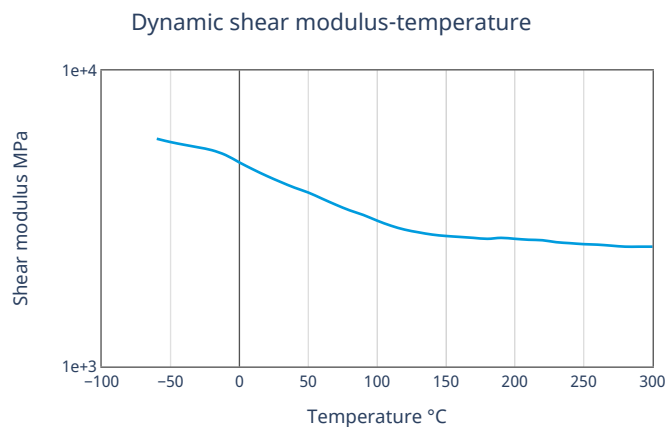
6 months (relative humidity of 50-60% and maximum storage temperature of approximately 20°C)

Mechanical Properties	Value	Unit	Standard
Charpy impact strength, +23°C	8	kJ/m ²	ISO 179/1eU
Charpy notched impact strength, +23°C	3	kJ/m ²	ISO 179/1eA
Thermal Properties	Value	Unit	Standard
Temp. of deflection under load, 8.00 MPa	175	°C	ISO 75-1/-2
Electrical Properties	Value	Unit	Standard
Relative permittivity, 100Hz	8		IEC 62631-2-1
Dissipation factor, 100Hz	0.1	E-4	IEC 62631-2-1
Volume resistivity	1E10	Ohm*m	IEC 62631-3-1
Surface resistivity	1E11	Ohm	IEC 62631-3-2
Electric strength	30	kV/mm	IEC 60243-1
Comparative tracking index	225		IEC 60112
Other Properties	Value	Unit	Standard
Density	1920	kg/m ³	ISO 1183
Test Specimen Production	Value	Unit	Standard
Injection molding, injection temperature	115	°C	ISO 10724
Injection molding, injection velocity	170	mm/s	ISO 10724
Injection molding, hold pressure	100	MPa	ISO 10724
Injection molding, cure time	25	min	ISO 10724
Compression molding, mold temperature	160	°C	ISO 295
Compression molding, cure time	1	min	ISO 295

Diagrams

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Processing Information

Injection molding

VERARBEITUNG

Temperature of material:	105 - 115	°C
Mould temperature:	160 - 190	°C
Curing time:	10-20	sec

Further Information:

Barrel temperature

- Feed zone:	60-75	°C
- Nozzle zone:	80-100	°C
Cavity moulding pressure:	>15	MPa
Back pressure:	0.5-2	MPa
Holding pressure:	60% of injection pressure	

Compression molding

PROCESSING

Mould temperature:	160-190	°C
Curing time:	20-40	sec
Cavity moulding pressure:	>15	MPa