

TECHNICAL DATA SHEET

Bakelite® MP 4165

Bakelite Synthetics
MPF-(GF+X)

Processing

Injection molding, Transfer molding

Product Text
Product Information
Product description:

Melamine/phenolic moulding compound, inorganically filled, glass fibre reinforced, good temperature stability, high level of mechanical properties, copper adhesive, flammability UL 94 V-0 / 1,5 mm (MP 4165-8899-S5), UL 94 V-0 / 1,6 mm (not listed).

Application areas:

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

Property Name	Value	Unit	Standard No.
Apparent density (moulding compound)	0.65	g/cm ³	ISO 60
Moulding shrinkage (injection moulding, longitudinal)	0.15	%	ISO 2577
Post shrinkage (injection moulding, 168h/110°C)	0.25	%	ISO 2577
Moulding shrinkage (compression moulding, longitudinal)	0.25	%	ISO 2577
Post shrinkage (compression moulding, 168h/110°C)	0.25	%	ISO 2577
Tensile strength (5mm/min)	60	MPa	ISO 527-1/2
Compr. strength (test spec. flat tested)	160	MPa	ISO 604
Flexural strength (2mm/min)	115	MPa	ISO 178

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Flexural modulus	14000	MPa	ISO 178
Ball indentation hardness (H 961/30)	290	MPa	ISO 2039/P1
Water absorption (24h/23°C)	20	mg	similar to ISO 62

Additional characteristics: low shrinkage/good dimensional stability, high mechanical strength

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)

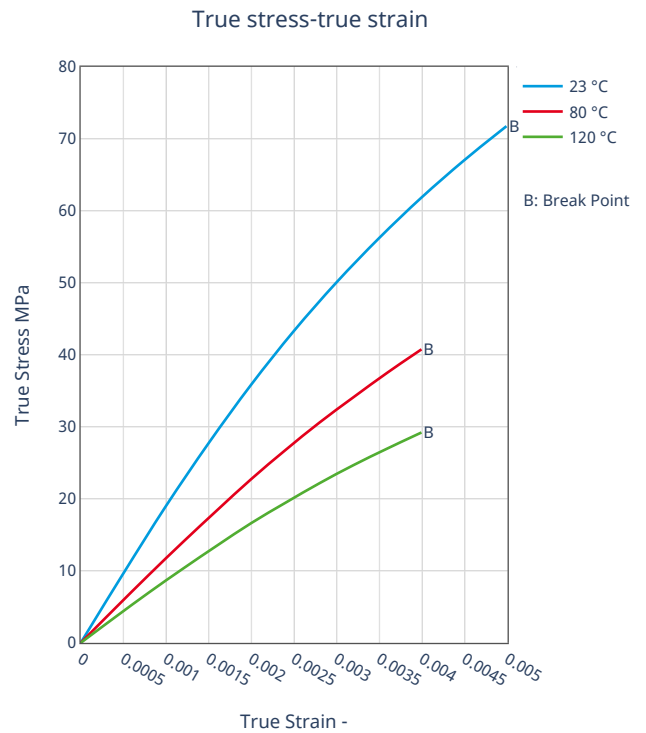
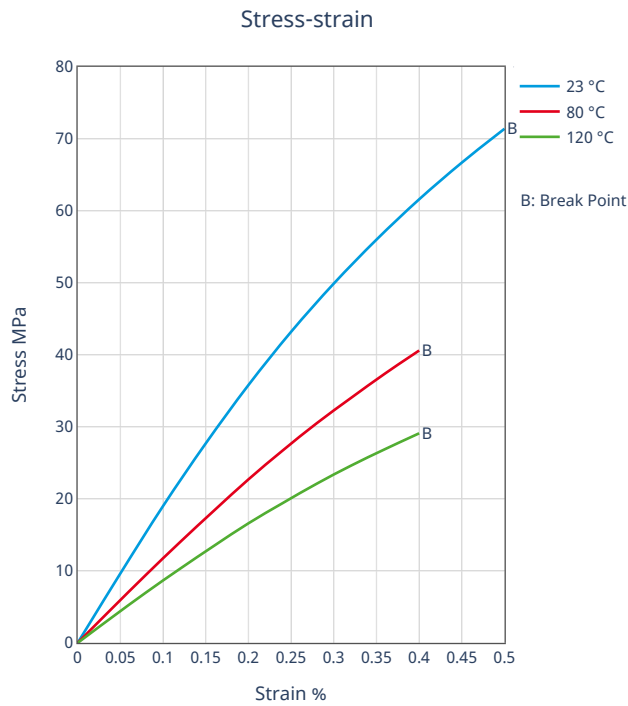
Processing/Physical Characteristics	Value	Unit	Standard
Molding shrinkage, parallel	0.15	%	ISO 294-4, 2577
Mechanical Properties	Value	Unit	Standard
Tensile modulus	13000	MPa	ISO 527
Poisson's ratio	0.35		ISO 527
Charpy impact strength, +23°C	7.5	kJ/m ²	ISO 179/1eU
Thermal Properties	Value	Unit	Standard
Temp. of deflection under load, 8.00 MPa	135	°C	ISO 75-1/-2
Electrical Properties	Value	Unit	Standard
Relative permittivity, 100Hz	7.5		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	28.5	kV/mm	IEC 60243-1
Comparative tracking index	300		IEC 60112
Other Properties	Value	Unit	Standard
Density	1810	kg/m ³	ISO 1183
Test Specimen Production	Value	Unit	Standard
Injection molding, injection temperature	125	°C	ISO 10724

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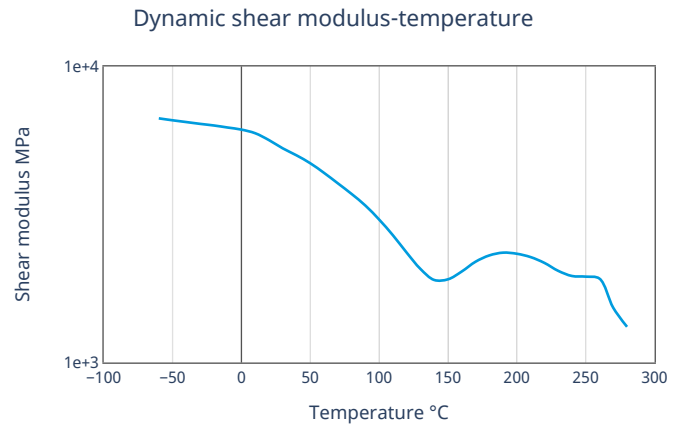
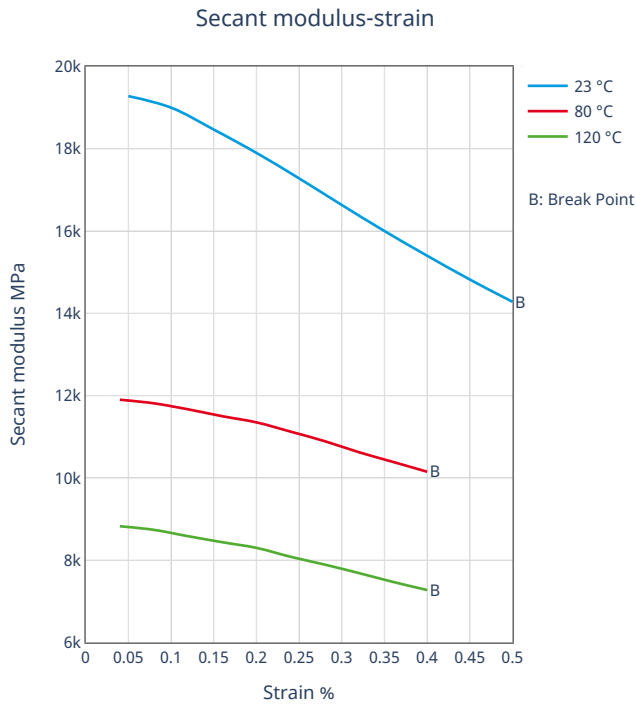
Test Specimen Production	Value	Unit	Standard
Injection molding, injection velocity	170	mm/s	ISO 10724
Injection molding, hold pressure	100	MPa	ISO 10724
Injection molding, cure time	25	min	ISO 10724
Compression molding, mold temperature	160	°C	ISO 295
Compression molding, cure time	1	min	ISO 295

Diagrams



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Processing Information

Injection molding

PROCESSING

Temperature of material:	80 - 100	°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:	160-170	°C
Curing time:	20-40	sec

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Cavity moulding pressure:

>15

MPa