TECHNICAL DATA SHEET

Bakelite® UP 3415

Bakelite Synthetics

UP-(GF+X)

Processing	Injection molding, Transfer molding

Product Text

Product Information

Product description:

Polyester moulding compound, inorganically filled, glass fibre reinforced, styrene free, very high dimensional stability, non flammable, high mechanical properties, UL listed moulding compound 0.75 mm / V-0 (ALL), RTI 170°C

Application areas:

Safety switch housings and electrotechnical parts, e. g. energy regulators, clamp boards, lamp parts, MCB housings, MCCB housings.

Property Name	Value	Unit	Standard No.
Apparent density (moulding compound)	0.9	g/cm³	ISO 60
Moulding shrinkage (injection moulding, longitudinal)	0.3	%	ISO 2577
Post shrinkage (injection moulding, 168h/110°C)	0.02	%	ISO 2577
Moulding shrinkage (compression moulding, longitudinal)	0.15	%	ISO 2577
Post shrinkage (compression moulding, 168h/110°C)	0.02	%	ISO 2577
Tensile strength (5mm/min)	45	MPa	ISO 527-1/2
Compr. strength (test spec. flat tested)	160	MPa	ISO 604
Flexural strength (2mm/min)	105	MPa	ISO 178
Flexural modulus	13000	MPa	ISO 178

Bakelite® UP 3415

Bakelite Synthetics

Ball indentation hardness (H 961/30)	325	MPa	ISO 2039/P1
Water absorption (24h/23°C)	20	mg	similar to ISO 62

Additional characteristics: high arc resistance

Preparation of Test Specimens of Thermosetting Moulding Compound

- Compression to ISO 295
- Injection to ISO 10724

Storage capability
12 month (shorter shelf life for darker colours), (relative humidity of 50-60% and maximum storage temperature of approximately 20°C)

Processing/Physical Characteristics	Value	Unit	Standard
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577

Mechanical Properties	Value	Unit	Standard
Tensile modulus	10000	MPa	ISO 527
Poisson's ratio	0.35		ISO 527
Charpy impact strength, +23°C	8.5	kJ/m²	ISO 179/1eU
Charpy notched impact strength, +23°C	4.5	kJ/m²	ISO 179/1eA

Thermal Properties	Value	Unit	Standard
Temp. of deflection under load, 8.00 MPa	210	°C	ISO 75-1/-2
Burning behav. at thickness h	V-0	class	IEC 60695-11-10
Thickness tested	0.75	mm	
Yellow card available	yes		

Electrical Properties	Value	Unit	Standard
Relative permittivity, 100Hz	5.25		IEC 62631-2-1
Dissipation factor, 100Hz	0.02	E-4	IEC 62631-2-1
Volume resistivity	1E11	Ohm*m	IEC 62631-3-1
Surface resistivity	1E12	Ohm	IEC 62631-3-2
Electric strength	25	kV/mm	IEC 60243-1
Comparative tracking index	600		IEC 60112

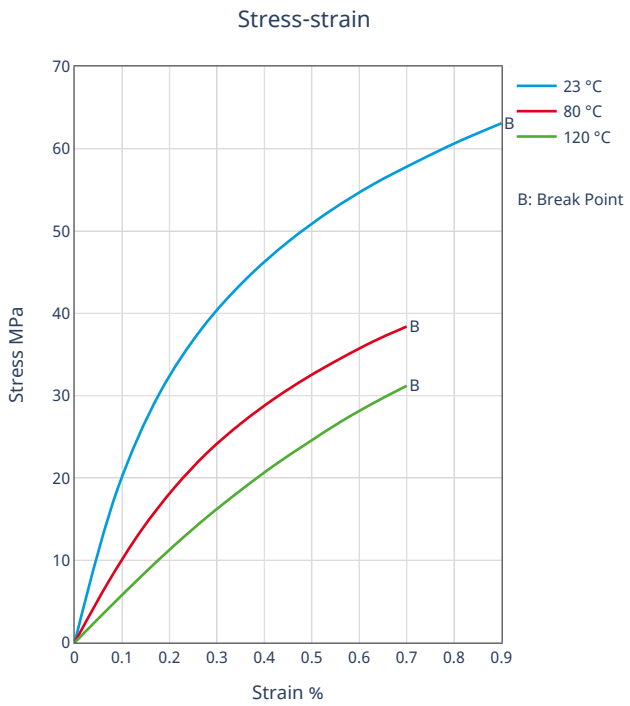
Bakelite® UP 3415

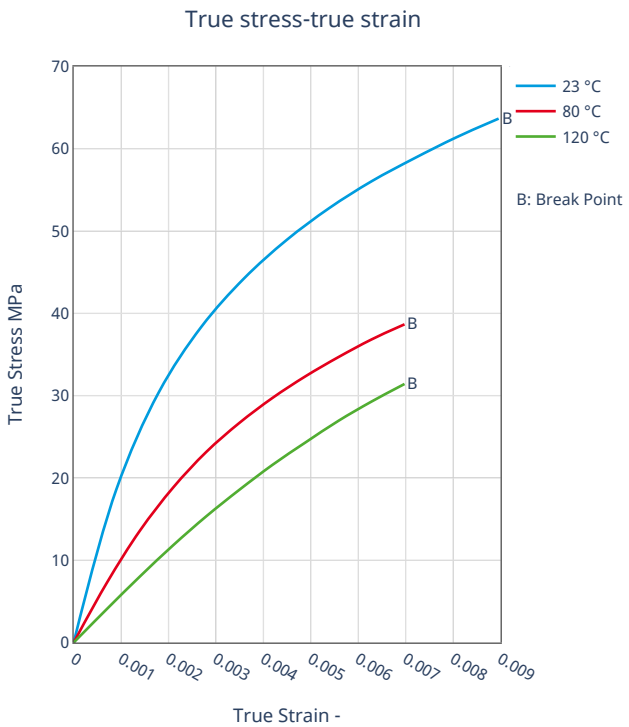
Bakelite Synthetics

Other Properties	Value	Unit	Standard
Density	2000	kg/m³	ISO 1183

Test Specimen Production	Value	Unit	Standard
Injection molding, injection temperature	105	°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

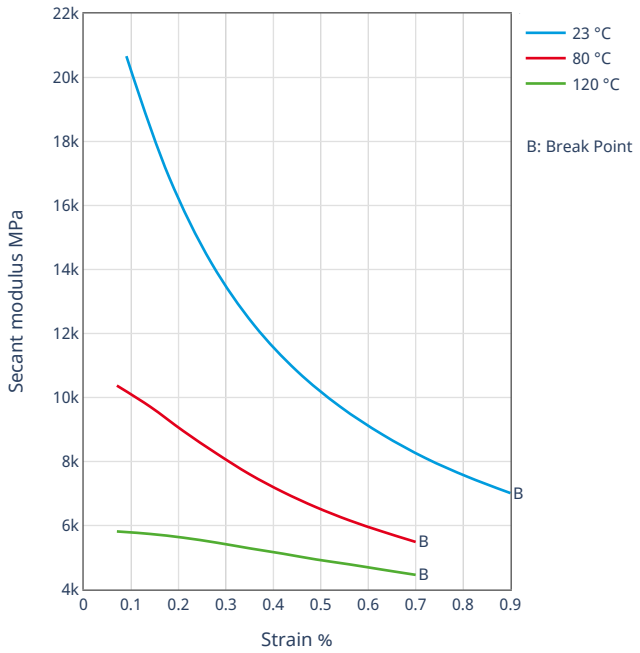




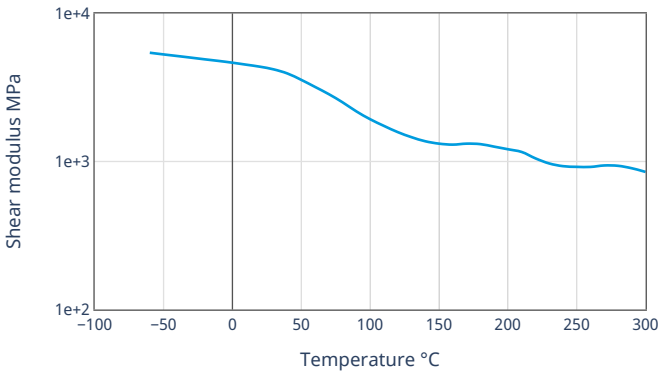
Bakelite® UP 3415

Bakelite Synthetics

Secant modulus-strain



Dynamic shear modulus-temperature



Processing Information

Injection molding

VERARBEITUNG

Temperature of material:	70 - 100	°C
Mould temperature:	160 - 180	°C
Curing time:	10-20	sec

Further Information:

Barrel temperature

- Feed zone:	60-70	°C
- Nozzle zone:	70-100	°C
Cavity moulding pressure:	>10	MPa
Back pressure:	0.5-1	MPa
Holding pressure:	60% of injection pressure	

Compression molding

PROCESSING

Mould temperature:	160-180	°C
Curing time:	20-40	sec
Cavity moulding pressure:	>10	MPa