Bakelite® UP 3415

UP-(GF+X) Momentive Specialty Chemicals

Product Texts

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. strip switch housings, clamp boards, bobbins, neon tubes-end parts and -bases etc.

Property Name	Value	Unit	Standard No.
Apparent density (moulding compound)	0.88	g/cm³	ISO 60
Moulding shrinkage (injection moulding, longitudinal)	0.3	%	ISO 2577
Post shrinkage (injection moulding, 168h/110°C)	0.01	%	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)	160	MPa	ISO 178
Flexural modulus	13000	MPa	ISO 178
Ball indentation hardness (H 961/30)	325	MPa	ISO 2039/P1
Water absorption (24h/23°C)	20	mg	similar to ISO 62

Additional characteristics: D, LB, UL, HS

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)

Rheological properties	Value	Unit	Test Standard
ISO Data			
Molding shrinkage, parallel	0.3	%	ISO 294-4, 2577

Mechanical properties	Value	Unit	Test Standard
ISO Data			
Tensile Modulus	10000	MPa	ISO 527-1/-2
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	Test Standard
ISO Data			
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	0.8	mm	IEC 60695-11-10
UL recognition	UL	-	-

Electrical properties	Value	Unit	Test Standard
ISO Data			
Relative permittivity, 100Hz	5	-	IEC 60250

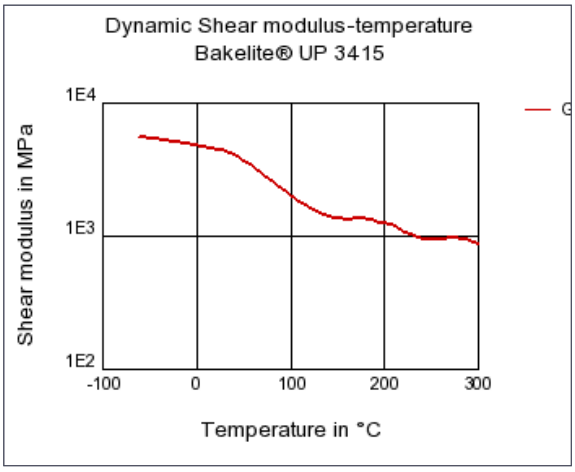
Dissipation factor, 100Hz	0.02	E-4	IEC 60250
Volume resistivity	1E11	Ohm*m	IEC 60093
Surface resistivity	1E12	Ohm	IEC 60093
Electric strength	29	kV/mm	IEC 60243-1
Comparative tracking index	600	-	IEC 60112

Other properties	**Value**	**Unit**	**Test Standard**
ISO Data			
Density	2000	kg/m³	ISO 1183

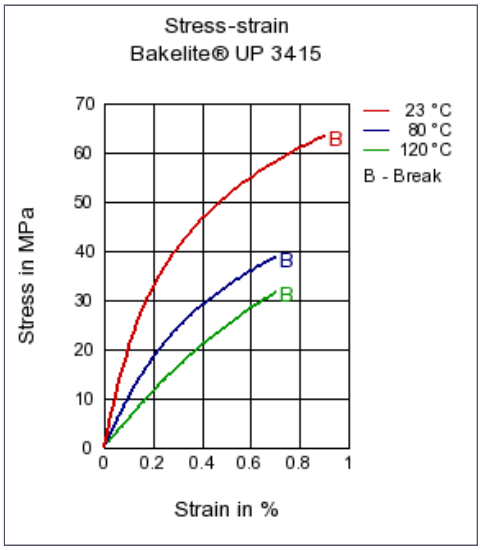
Test specimen production	**Value**	**Unit**	**Test Standard**
ISO Data			
Injection Molding, injection temperature	105	°C	ISO 10724
Injection Molding, injection velocity	170	mm/s	ISO 10724
Injection Molding, hold pressure	100	MPa	ISO 10724
Injection Molding, cure time	25	min	ISO 10724
Compression Molding, mold temperature	160	°C	ISO 295
Compression Molding, cure time	1	min	ISO 295

Diagrams

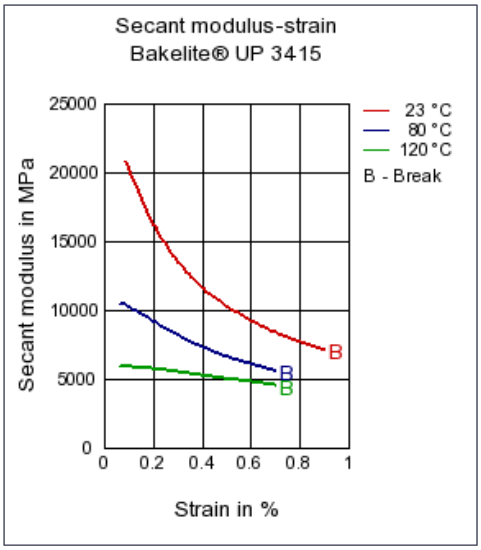
Dynamic Shear modulus-temperature



Stress-strain



Secant modulus-strain



Characteristics

Processing
Injection Molding, Transfer Molding

Other text information

Injection Molding

VERARBEITUNG		
Temperature of material:	100-110	°C
Mould temperature:	160-190	°C
Curing time:	10-20	sec
Further Information:		
Barrel temperature		
- Feed zone:	50-70	°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