

Physical properties PBI Celazole

Properties	Test methods	Units	Values
Colour	-	-	black
Density	ISO 1183-1	g/m ³	1.30
Water absorption:			
- after 24/96 h immersion in water of 23°C	ISO 62	mg	60 / 112
	ISO 62	%	0.74 / 1.37
- at saturation in air of 23°C / 50% RH	-	%	7.5
- at saturation in water of 23°C	-	%	14
Thermal Properties			
Melting temperature (DSC, 10° C/min.)	ISO 11357-1/-3	°C	NA
Glass transition temperature	ISO 11357-1/-2	°C	415
Thermal conductivity at 23°C	-	W/(K.m)	0.40
Coefficient of linear thermal expansion:			
- average value between 23 and 100°C	-	m/(m.K)	25 x 10 ⁻⁶
- average value between 23 and 150°C	-	m/(m.K)	25 x 10 ⁻⁶
- average value above 150°C	-	m/(m.K)	35 x 10 ⁻⁶
Temperature of deflection under load:			
- method A: 1.8 MPa	ISO 75-4/-2	°C	425
Max. allowable service temperature in air:			
- for short periods	-	°C	500
- continuously: for. min. 20'000 h	-	°C	310
Min. service temperature	-	°C	-50
Flammability:			
- „Oxygen Index“	ISO 4589-1/-2	%	58
- according to UL 94 (1.5 / 3 mm thickness)	-	-	V-0 / V-0
Mechanical Properties at 23°C			
Tension test:			
- tensile stress at yield / tensile stress at break	ISO 527-1/-2	MPa	NYP / 130
- Tensile strength	ISO 527-1/-2	MPa	130
- tensile strain at yield	ISO 527-1/-2	%	NYP
- tensile strain at break	ISO 527-1/-2	%	3
- tensile modulus of elasticity	ISO 527-1/-2	MPa	6000
Compression test:			
- compressive stress at 1 / 2 / 5% nominal strain	ISO 604	MPa	58 / 118 / 280
Flexural test:			
- flexural strength	178	MPa	-
- flexural strain at flexural strength	178	%	-
- flexural stress at conventional deflection)	178	MPa	-
Charpy impact strength - unnotched	ISO 179-1/1eU	kJ/m ²	20
Charpy impact strength - notched	ISO 179-1/1eA	kJ/m ²	2.5
Ball indentation hardness	ISO 2039-1	MPa	375
Rockwell hardness	ISO 2039-2	-	E 120
Electrical Properties at 23°C			
Electrical strength	IEC 60243-1	kV/mm	28
Volume resistivity	IEC 60093	Ohm.cm	> 10 ¹⁴
Surface resistivity	ANSI/ESD STM 11.11	Ohm/sq.	>10 ¹³
Relative permittivity ϵ_r :			
- bei 100 Hz	IEC 60250	-	3.3
- bei 1 MHz	IEC 60250	-	3.2
Dielectric dissipation factor $\delta \tan$:			
- bei 100 Hz	IEC 60250	-	0.001
- bei 1 MHz	IEC 60250	-	-
Comparative tracking index (CTI)	IEC 60112	--	-

Note: 1 g/cm³ = 1000 kg/m³; 1 Mpa = 1 N/mm²; 1 kV/mm = 1 MV/m.

NA: not applicable
NYP: there is no yield point

This table is a valuable help in the choice of a material. The data listed here fall within the normal range of products properties, but they should not be used to establish material specification limits nor used alone as the basis of design.