

Application purpose and characteristics

This material is in high demand in the high-tech industry such as the semi-conductor, aeronautics, and astronautics industries as guiding elements, holders, insulating parts, thermal insulation parts, etc.

It offers the highest temperature resistance and best retention of mechanical properties of all non-reinforced high-performance plastics. PBI is ionically very pure and does not degas (dry material). Extremely high maximum service temperature limit in air

Material name, short description	PBI
Material name, based on technical standards	Polybenzimidazol
Density	1.3 g/cm ³
Color	black
Compound code	PBI 00.004-00

Mechanical properties

Modulus of elasticity & tension 1	6000 N/mm ² ISO 527-1,-2
Tensile strength	130 N/mm ² ISO 527-1,-2
Yield stress	3 N/mm ² ISO 527-1,-2
Compressive strength 1	58 N/mm ² ISO 604 at 1%
Compressive strength 2	118 N/mm ² ISO 604 at 2%
Compressive strength 3	280 N/mm ² ISO 604 at 5%
Ball indentation hardness	375 N/mm ² EN ISO 2039-1
Impact strength	#ErrorkJ/m ² ISO 179-1/1eU
Notch impact strength	2.50 kJ/m ² ISO 179/1eA

Other attributes

Moisture absorption	7.5 % at saturation in air of 23°C / 50% RH
Water absorption	14 % 23°C

Thermal attributes

Min. operating temperature	-50 °C
Max. operating temperature long term	310 °C
Max. operating temperature short term	500 °C
Coefficient of linear thermal expansion 1	25 * 10 ⁻⁶ m/(m*K) average value between 23 and 150°C
Glass transition temperature	415 °C ISO 11357-1,-2
Heat deflection temperature 1	425 °C ISO 75-1,-2 method A: 1.8 N/mm ²
Thermal conductivity	0.4 W/(m·K) at 23°C

Electrical attributes

Dielectric dissipation factor 1	0.001 IEC 60250 at 100 Hz
Dielectric strength 1	28 kV/mm IEC 60243-1
Surface resistivity	≥10 ¹³ Ω ANSI/ESD STM 11.11

In compliance with **RoHS** and **REACH** directives.

This information is based on our available data. These values are measured on standard test specimens and are within the normal tolerance range of material properties and do not represent guaranteed property values. Therefore they shall not be used for specification purposes. The customer is solely responsible for quality and suitability of material for his application. He has to test usage and processing prior to use. Angst+Pfister makes no guarantees for the suitability of the material for any given application and assumes no obligation or liability in connection with the information provided above.