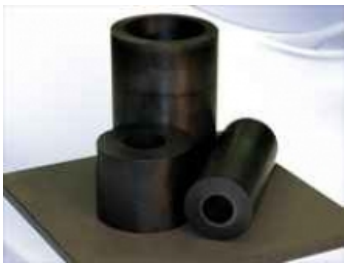
Duratrone® PBI - polybenzimidazol

Other material names PBI: PBI
Material group: Special plastics



Duratron® PBI is the highest performance engineering thermoplastic available today. It offers the highest heat resistance and mechanical property retention of any unfilled plastic It has better wear resistance and load carrying capabilities at extreme temperatures than any other reinforced or unreinforced engineering plastic.

As an unreinforced material, Duratron PBI is very "clean" in terms of ionic impurity and it does not outgas (except water). These characteristics make this material very attractive to semiconductor manufacturers for vacuum chamber applications. Duratron PBI has excellent ultrasonic transparency which makes it an ideal choice for parts such as probe tip lenses in ultrasonic measuring equipment.

Duratron PBI is also an excellent thermal insulator. Other plastics in melt do not stick to Duratron PBI. These characteristics make it ideal for contact seals and insulator bushings in plastic production and molding equipment.

Color of material:

Black

Typical applications:

- Bushings used in hot runner plastic injection molds
- connectors exposed to temperatures over 205°C
- Seats manufactured from PBI excel in high temperature fluid handling service
- arts machined from PBI for gas plasma etching equipment last longer than polyimide parts due to reduced high energy erosion rates

The material is used in:

Electrotechnical industry
Automobile industry
Chemical industry
Engineering industry
Steel industry

Features:

- Highest mechanical properties of any plastic above 204°C
- Highest heat deflection temperature 427°C, with a continuous service capability of 399°C in inert environments, or 343°C in air with short term exposure potential to 538°C
- Lowest coefficient of thermal expansion and highest compressive strength of all unfilled plastics

Material availability: Material in stock at the manufacturer

Material properties table

Specific weight	1.30 g/cm³
Tensile strength	130 N/mm²
Allowable mean pressure deformation 1%	58.00 N/mm²
Allowable mean pressure deformation 2%	118.00 N/mm²

Allowable mean pressure deformation 5%	280.00 N/mm²
Tensibility	5 %
Tensile modulus	6 000 N/mm²
Impact toughness	20
Notched toughness	>3 kJ/m²
Ball hardness	375 N/mm²
Friction coefficient	0.25
Antistatic material	No
Permittivity	3.20
Electrical strength	22 kV/mm
Specific internal resistance	10^(14) Ω
Specific surface resistance	10^(13) Ω.cm
Thermal expansion	3 10^(-5)/K
Thermal conductivity	0.40 W/(K.m)
Permanent use temperature	-50 ; 310 °C
Transient temperature of use	-50 ; 500 °C
Absorbability	7 %
Water absorption	14 %
Resistance - oils	resistant
Acid resistance	resistant
Durability - alcali	resistant
Food contact	No
Special features	• the highest performance engineering thermoplastic available today

Engineering plastics are supplied in the form of bars, plates, strips, tubes and sheets. From the semi-finished products the company TechPlasty has regularly in stock, we also supply blanks.

All standard and special materials are designed to meet your specific requirements. Their mechanical, thermal, and electrical properties and chemical resistance satisfy the most demanding requirements and this allows them to work even in the most difficult conditions. If you need advice when choosing the appropriate material for your application, please contact us. We'll gladly advise you. You can utilize the long-term experience of our technical advisors free-of- charge, who can visit you right in your operation and solve your requirements for engineering plastics directly at the site of their usage.

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