DATASHEET

DURATRON PBI

Duratron PBI offers the highest temperature resistance and best mechanical property retention over 200°C of all unfilled thermoplastics. Duratron PBI is very “clean” in terms of ionic impurity and does not outgas (except water). These characteristics make this material extremely attractive to high-tech industries such as semiconductor and aerospace. Usually, Duratron PBI is used in critical components to decrease maintenance costs and to gain valuable production “uptime”.

Applications

- Pump Components
- Valve Seats
- Bearings
- Rollers
- High Temperature Insulators

Availability

- Colour – Black
- Type – Sheets, Rods & Tubes
- Regularly produced in a wide variety of thicknesses

Typical Properties

General Properties	Method	Unit	Test Result
Physical Properties			
Colour	-	-	Black
Density	ISO 1183-1	g/cm2	1.3
Water Absorption:			
- After 24h immersion in water of 23°C	ISO 62	mg	0.74
- At saturation in water of 23°C	-	%	14.00
Thermal Properties			
Melting Temperature (DSC, 10°C/min)	ISO 11357 – 1/-3	°C	-
Glass Transition Temperature (DSC, 10°C/min)	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	-	W/(K.m)	25x10 -6
- Average value between 23 and 150°C	-	W/(K.m)	25x10 -6
- Average value above 150°C	-	W/(K.m)	35x10 -6
Temperature of Deflection Under Load:			
- Method A: 1.8 MPa	ISO 75-1/-2	°C	425
Max Allowable Service Temperature in Air:			
- Continuously: for 5,000 to 20,000h	-	°C	310

Minimum Service Temperature	-	°C	-50
Flammability:			
- According to UL94 (3/6mm thickness)	-	-	V-0
Mechanical Properties			
Tension Test:			
- Tensile Strength	ISO 527-1/-2	MPa	130
- Tensile Strain at Yield	ISO 527-1/-2	%	-
- Tensile Strain at Break	ISO 527-1/-2	%	3
- Tensile Modulus of Elasticity	ISO 527-1/-2	MPa	6000
Flexural Test:			
- Flexural Strength	ISO 178	MPa	160
- Flexural Modulus of Elasticity	ISO 178	MPa	
Compression Test:			
- Compressive Stress @ 1/2/5% Nominal Strain	ISO 604	MPa	58 / 118 / 280
Charpy Impact Strength - Unnotched	ISO 179-1-1eU	kJ/m2	20
Charpy Impact Strength - Notched	ISO 179-1-1eU	kJ/m2	2.5
Rockwell Hardness	ISO 2039-2	-	-
Dynamic Coefficient of Friction	ISO 7148-2(15)	-	0.3 – 0.5
Wear Rate	ISO 7148-2(15)	Um/km	3
Electrical Properties			
Electric Strength	EC 60243-1	kV/mm	28
Volume Resistivity	IEC 60093	Ohm.cm	>10E 14
Surface Resistivity	IEC 60093	Ohm	>10E 13
Relative Permittivity – at 1MHz	IEC 60250	-	3.20
Dielectric Dissipation Factor – at 1 MHz	IEC 60250	-	-