



# CELAZOLE® PBI

## Characteristics

- \* Highest Mechanical Properties of Any Plastic Above 400° F (204° C)
- \* Highest Heat Deflection Temperature 800° F (427° C)
  - With a continuous Service Capability of 750° F (399° C) in Inert Environments
  - or 650° F (343° C) in Air
  - Short Term Exposure Potential to 1000° F (538° C)
- \* Lowest Coefficient of Thermal Expansion and Highest Compressive Strength of all Unfilled Plastics

## Description

**Celazole PBI** is one of the highest performance engineering thermoplastics available. It offers the highest heat resistance and mechanical property retention over 400° F 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, Celazole 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. Celazole PBI has excellent ultrasonic transparency which makes it an ideal choice for parts such as probes in ultrasonic measuring equipment. Thermal properties offer it as an excellent insulator. Other plastics in melt do not stick to PBI, making it ideal for contact seals.

## Forms Available

- ROD .375 to 3.375 " diameter, Lengths to 48"
- TUBE Custom produced as requested
- PLATE .500" to 1.500" thick, Widths to 12", Lengths to 24"
- COLOR Black

## Typical Property Values

### MECHANICAL @ 73°F

		Celazole® PBI
Specific Gravity		1.30
Tensile Strength	psi	20,000
Tensile Modulus of Elasticity	psi	850,000
Tensile Elongation ( at Break )	%	3
Flexural Strength	psi	32,000
Flexural Modulus of Elasticity	psi	950,000
Shear Strength	psi	
Compressive Strength, 10% Deformation	psi	50,000
Compressive Modulus of Elasticity	psi	900,000
Rockwell Hardness	M Scale	125
Izod Impact Strength, Notched	ft-lbs/in. of notch	0.50
Coefficient of Friction, Dynamic ( Dry vs. Steel )		0.24
Limiting PV ( 4 :1 Safety Factor Applied )	ft.lbs/in. <sup>2</sup> min	37,500
Wear Factor	in <sup>3</sup> -min/ft.lbs. hr.	60
Water Absorption 24 hrs	% by wt.	0.40
<b>THERMAL</b>		
Coefficient of Linear Expansion ( -40°F to 300°F )	in./in./°F	1.3 x 10 <sup>-5</sup>
Heat Deflection Temperature @264 psi	°F	800
Melting Point ( Crystalline )	°F	750
Continuous Service Temperature in Air	°F	600
Thermal Conductivity	°F	2.80
<b>ELECTRICAL</b>		
Dielectric Strength, Short Term	Volts/mil	550
Surface Resistivity	Ohms/Sq.	>10 <sup>13</sup>
Dielectric Constant	1 MHz	3.20
Dissipation Factor	1 MHz	0.003

( Properties listed above are provided for reference only, they should not be used for design specifications or quality control , Celazole is a registered Trademark of Celanese Corp. )