Celazole® PBI U-60
HIGHER-PERFORMANCE CONTACT PART MATERIALS FOR SENSITIVE GLASS HANDLING NEEDS

Celazole PBI (polybenzimidazole) is a high strength, highly stable linear heterocyclic polymer.

Broadly resistant to hydrocarbons, alcohols, weak acids, weak bases, hydrogen sulfide, chlorinated solvents, oils, heat transfer fluids and many other organic chemicals, it can be used in air up to 315°C (600°F) and up to 375°C (700°F) in vacuum and inert environments.

**EXTREME HIGH TEMPERATURE RESISTANCE:** 425°C

- Will not melt at ambient pressure
- Glass transition temperature of 800°F (427°C) means stability at high temperatures
- Will not scratch glass
- Mohs Hardness of 3 cannot scratch glass with Mohs Hardness 7
- Used in technical glass manufacturing – glass contact applications for this reason
- Excellent wear resistance
- The highest compressive strength of any unfilled plastic
- Excellent thermal and electrical insulator
- Machinable into intricate parts
- Available in electrostatic discharge grade (ESD) to alleviate arc tracking when electrical charges are present

**APPLICATIONS:**
- Glass panel guides, clamps, lifting pins, insulating contacts, etc. – in 600°F (315°C) environments
- Glass handling, conveying, LCD panel sputtering, chemical vapor deposition (CVD) and physical vapor deposition (PVD) processes

**COMPARISONS:**
- Twice the strength of a Polyimide
- Less brittle than ceramic or quartz
- Won’t scratch glass like ceramics
## PBI CELAZOLE U-60 PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>ASTM Method</th>
<th>English Value</th>
<th>Metric Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressive Strength (Yield)</td>
<td>D-695</td>
<td>57 kpsi</td>
<td>390 MPa</td>
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<tr>
<td>Modulus</td>
<td>D-695</td>
<td>850 kpsi</td>
<td>5,900 MPa</td>
</tr>
<tr>
<td>Heat Deflection Temp. (264 psi; 1.8 MPa)</td>
<td>D-648</td>
<td>815°F</td>
<td>435°C</td>
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<tr>
<td>Glass Transition</td>
<td>DMA</td>
<td>800°F</td>
<td>427°C</td>
</tr>
<tr>
<td>CLTE 75-300°F (25-150°C)</td>
<td>TMA</td>
<td>$13 \times 10^6$ in/in°F</td>
<td>$23 \mu$m/m°C</td>
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<tr>
<td>Thermal Conductivity 77°F (25°C)</td>
<td></td>
<td>2.8 Btu-in/hr-ft²°F</td>
<td>0.41 W/m°C</td>
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<tr>
<td>Dielectric Strength</td>
<td>D-149</td>
<td>580 V/mil</td>
<td>23 KV/mm</td>
</tr>
<tr>
<td>Volume Resistivity</td>
<td>D-257</td>
<td>$2 \times 10^{15}$ ohm-cm</td>
<td>$2 \times 10^{15}$ ohm-cm</td>
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<tr>
<td>Arc Resistance</td>
<td>D-495</td>
<td>185 sec.</td>
<td>185 sec.</td>
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<tr>
<td>Coef. of Friction, Static vs Steel</td>
<td></td>
<td>0.15</td>
<td>0.15</td>
</tr>
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