



# Polymics, Ltd.

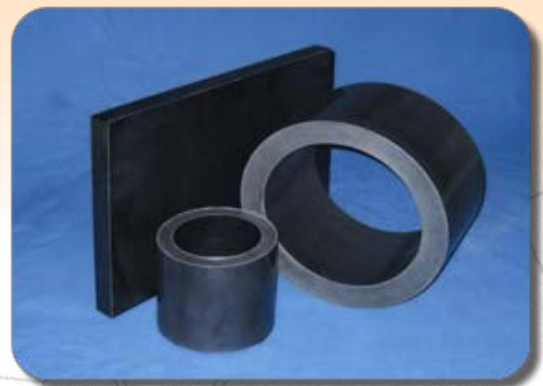
Concept to Solution®

## CELAZOLE® PBI U-SERIES

Polymics, Ltd. is proud to offer compression molded stock shapes in a variety of ultra-high performance engineering polymers, including the world's highest performing thermoplastic, **Celazole® PBI**.

### Compression Molded Shapes Available!

By offering both U-Series and T-Series PBI as well as extensive industry expertise and manufacturing capabilities, we are able to work with customers to develop custom solutions geared toward their specific applications.









## Polymics' Standard Celazole® U-Series PBI Products

### Celazole® U-Series





|          |  |
|----------|--|
| U-60     | Unfilled PBI                                     |
| U-60 CF  | 25% Carbon Fiber Reinforced PBI                  |
| U-60 ESD | 15% Carbon-Filled Electro-Static Dissipative PBI |
| U-60 EZM | Increased Machinability PBI                      |

### General Properties of Unfilled Celazole® PBI (U-60)

-  Highest Compressive Strength of Any Unfilled Thermoplastic (57 kpsi at yield)
-  Excellent Tensile and Flexural Strengths (23 kpsi and 32 kpsi, respectively)
-  Very Good Chemical, Steam, and Plasma Resistances
-  Outstanding Wear Resistance
-  Excellent Thermal and Electrical Insulator
-  Very Low Coefficient of Thermal Expansion









**Common Applications** – Due to its high temperature, pressure, and chemical resistances, Celazole® U-60 (unfilled) is commonly used in extremely harsh environments. It is routinely molded and machined into precision parts for a wide variety of applications and industries including:

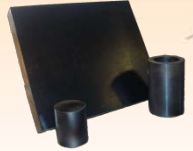
-  Semiconductor and flat panel display manufacturing, including LCDs and PVs (photovoltaics)
-  Electrical and heat insulating applications
-  Aerospace applications
-  Use as seals, bearings, and wear plates

**Unfilled Celazole® (U-60)** - The highest performing engineering plastic is ideally-suited for use in the most extreme engineering applications. At temperatures over 400°F (205°C), PBI exhibits the highest strength and stiffness of any unfilled plastic. It is even capable of withstanding brief exposure to temperatures as high as 1400°F (760°C) and performs best in an oxygen-free environment.

**Reinforced Celazole® (U-60 ESD, U-60 CF, EZM)** - Polymics, Ltd. is currently offering a 25% Carbon-Filled PBI (U-60 CF) and a 15% Carbon-Filled Static Dissipative PBI grade (U-60 ESD) in both standard and custom-sized compression molded shapes. In addition to the surface resistivity properties of the ESD grade, both products offer increased tensile and flexural strength (37 kpsi and 42 kpsi, respectively). Also, our unique EZM material is both more machinable and lower cost. Contact us for details!





## Benefits of Celazole® PBI

-  Able to briefly withstand temperatures as high as 1400°F (760 °C)
-  Best mechanical properties of any plastic at high temperatures (400°F - 800°F) (204°C - 425° C)
-  Does not react with water
-  No noticeable changes in strength or appearance after 200 megarad exposure to Cobalt 60 gamma radiation (based on tests conducted in air at room temperature)
-  Broadly resistant to hydrocarbons, alcohols, weak acids, weak bases, hydrogen sulfide, chlorinated solvents, oils, heat transfer fluids, and many other organic chemicals
-  Performs better in harsh conditions than other high-performance materials including PEI, PI, PAI, PEEK, and PPS



## Polymics' Compression Molded Sizes/Shapes

Polymics, Ltd. is proud to offer Celazole® PBI products as compression molded shapes in several standard sizes of plate, rod, tube, and disc. In addition we are also prepared to mold custom sizes perfectly-suited for specific applications, so please contact us with your specific needs.

-  Plates - available as standard sizes at 5"x10", 10"x10", 12"x12", 15"x10.5", 18"x12", 24"x12" in thicknesses from 0.25" to 2.0"
-  Rods - available diameters up to 8.0" in lengths from 0.25" to 6.0"; in diameters of 2.0" and below, lengths up to 17.7" are also available
-  Tubes - available OD (outer diameters) range from 3.0" to 16.5" with wall thicknesses up to 3.0"
-  Discs - available OD (outer diameters) range from 4.0" to 15.0" with wall thicknesses up to 3.0"

\*Size and shape capabilities of individual materials may vary. Contact Polymics, Ltd. for details.

**Contact Us to Develop Your Own Customized PBI Solution Today!**



Corporate Headquarters  
2215 High Tech Road  
State College, PA 16803  
Phone: 814.357.5860  
Fax: 814.357.5863  
Email: [info@polymics.com](mailto:info@polymics.com)  
[www.polymics.com](http://www.polymics.com)

Sales Office  
600 Kenrick Dr., ste. C29  
Houston, TX 77060  
Phone: 713.568.3170  
Fax: 713.481.0769  
Email: [sales@polymics.com](mailto:sales@polymics.com)  
[www.polymics.com](http://www.polymics.com)

PBI Performance Products, Inc.  
9800D Southern Pine Blvd.,  
Charlotte, NC 28273  
Phone: 704-554-3378  
Fax: 704-554-3101  
Email: [info@pbiproducts.com](mailto:info@pbiproducts.com)  
[www.pbiproducts.com](http://www.pbiproducts.com)

