CELAZOLE® PBI U & T SERIES

Celazole® PBI (Polybenzimidazole) offers the highest performance of any engineering polymers and is suited for use at extreme temperatures as high as 800 °F (427 °C). It is known for unmatched level of strength, stiffness, outstanding wear and plasma resistance. Because the material does not melt of burn, it can withstand brief exposure to 1400 °F (760 °F).

Polymics offer both U-series and T-series PBI stock shapes utilizing several of its innovative processes. With our extensive industrial expertise and manufacturing capabilities, we are able to work withcustomers to develop custom solutions geared toward their specific applications.

BENEFITS

- **HIGHEST COMPRESSIVE STRENGTH OF ANY UNFILLED THERMOPLASTICS** (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**
- **T-SERIES OFFERS INJECTION MOLDABLE SOLUTION FOR HIGH VOLUME APPLICATIONS**

STANDARD CELAZOLE® PBI PRODUCTS

CELAZOLE® PBI U-SERIES	U-60	Unfilled PBI
	U-60 CF	Carbon Fiber Reinforced PBI
	U-60 ESD	Carbon-Filled Electro-Static Dissipative PBI (See also Statimax® by Polymics)
	U-60 EZM	Increased Machinability PBI
CELAZOLE® PBI T-SERIES	TU-60	Standard thermoplastic grade PBI
	TL-60	Tribological grade for wear applications
	TF-60V	Glass fiber reinforced for strength, insulation and heat resistance
	TF-60C	Increased Machinability PBI

TYPICAL APPLICATIONS

Typical Celazole® PBI Applications	Semiconductor and Flat Panel Display Manufacturing, including LCD's & Photovoltaics
	Electrical and Extreme Temperature Insulators
	Aerospace high heat components
	High heat bushing, Bearing, and Wear Plates
	Other high temperature seal and structural components

POLYMICS' COMPRESSION MOLDED SIZES/ SHAPES

PLATES	5"x10", 10"x10", 12"x12", 15"x10.5", 18"x12", 24"x12"
	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"
TUBES	OD (Outer Diameters) Range From 3.0" to 16.5"
	Wall Thicknesses up to 3.0"
DISCS	OD (Outer Diameters) Range From 4.0" to 15.0"
	Wall Thicknesses up to 3.0"

Size and shape capabilities of individual materials may vary. Contact Polymics, Ltd. for details. Custom materials/sizes also available.

TYPICAL PROPERTIES OF CELAZOLE PBI PRODUCTS

PROPERTIES	ASTM METHOD	UNITS	U-60	TU-60	TL-60	TF-60V	TF-60C
Specific Gravity	D-792	g/cm³	1.3	1.3	1.43	1.52	1.41
Hardness, Rockwell A	D-785	–	95-Shore D	25	24	30	30
Tensile Strength	D-638	M Pa	160	100	110	150	230
Tensile Modulus	D-638	M Pa	5900	5000	18000	12000	24000
Elongation	D-638	%	3.0	2.2	0.9	1.4	1.4
Flexural Strength	D-790	M Pa	220	155	158	250	320
Flexural Modulus	D-790	M Pa	6500	4800	13000	13000	21000
Compressive Strength	D-695	M Pa	390	206	123	220	220
Compressive Modulus	D-695	M Pa	5900	2900	5100	3600	3800
Coefficient of Linear Thermal Expansion	TMA	µm/m°C	23	34	26	17	26
Heat Deflection Temperature	D-648	°C	435	305	310	310	320

SUMMARY

Celazole® PBI stock shapes manufactured by Polymics provide engineers in technology oriented industries with an incredibly strong, light weight, and wear resistant option to metals.
To Meet the wide ranging needs of machinists and fabricators, Celazole® PBI are offered in an expansive array of molded shapes covering all standard PBI grades in both U- and T-series.