

**Celazole® PBI Material Data Sheet**

MECHANICAL PROPERTIES	ENGLISH VALUES	COMMENTS	METRIC VALUES
Specific Gravity	1.3	ASTM D792	1.3
Tensile Strength, psi	20000	ASTM D638	138 MPa
Tensile Modulus, psi	850000	ASTM D638	5,861 MPa
Elongation, %	3	ASTM D638	3 %
Flexural Strength, psi	32000	ASTM D790	221 MPa
Flexural Modulus, psi	950000	ASTM D790	6,550 MPa
Compressive Strength, psi	50000	ASTM D695, 10% Def.	345 MPa
Compressive Modulus, psi	900000	ASTM D695	6,206 MPa
Hardness, Rockwell E	105	ASTM D785	105
Hardness, Rockwell M	125	ASTM D785	125
Hardness, Durometer, Shore D Scale	94	ASTM D2240	94
Izod Impact (Notched), ft-lb/in	0.5	ASTM D256 Type A	27 J/m
Coefficient of Friction, Dynamic	0.24	Dry vs. Steel, QTM55007	0.24
Limiting PV, psi-fpm	37500	4:1 safety factor; QTM 55007	1.3 MPa-m/sec
k (wear) factor, 10 ⁻¹⁰ in ³ -min/lb-ft-hr	60	QTM 55010	60 10 ⁻¹⁰ in ³ -min/lb-ft-hr
Relative Machinability	10	1-10, 1=Easier to Machine	10
THERMAL PROPERTIES	ENGLISH VALUES	COMMENTS	METRIC VALUES
Coefficient of Thermal Expansion, 10E-4/°F	0.13	ASTM E831 (-40°F to 300°F)	0.23 10 ⁻⁴ /K
Deflection Temperature 264 psi, °F	800	ASTM D648	427 °C
Tg-Glass Transition (Amorphous), °F	750	ASTM D3418	399 °C
Continuous Service in Air (Max), °F	600	Long Term	316 °C
Thermal Conductivity, BTU-in/hr-ft ² -°F	2.8	ASTM F433	0.40 W/m-K
ELECTRICAL PROPERTIES	VALUES	COMMENTS	METRIC VALUES
Dielectric Strength, Short Term, Volts/mil	550	ASTM D149	22 kV/mm
Surface Resistance, Ohm/Square	1E+13	Lower Limit; EOS/ESD S11.11	1E+13 Ohm/Square
Dielectric Constant, 1 MHz	3.2	ASTM D150	3.2
Dissipation Factor, 1 MHz	0.003	ASTM D150	0.003
CHEMICAL PROPERTIES	ENGLISH VALUES	COMMENTS	METRIC VALUES
Water Absorption Immersion, 24 hr., %	0.4	ASTM D570(2)	0.4 %
Water Absorption Immersion Sat, %	5	ASTM D570(2)	5 %
Acids, Weak (acetic, dilute HCl)	2	Limited Service	2
Acids, Strong (conc. HCl or sulfuric)	1	Unacceptable	1
Alkalies, Weak (dilute NaOH)	2	Limited Service	2

Alkalies, Strong (conc. NaOH)	1	Unacceptable	1
Hydrocarbons, Aromatic (toluene)	3	Acceptable Service	3
Hydrocarbons, Aliphatic (gasoline)	3	Acceptable Service	3
Ketones, Esters (acetone)	3	Acceptable Service	3
Ethers (diethyl ether, THF)	3	Acceptable Service	3
Chlorinated Solvents (methylene chloride)	3	Acceptable Service	3
Alcohols (methanol, anti-freeze)	3	Acceptable Service	3
Continuous Sunlight	2	Limited Service	2
COMPLIANCE	ENGLISH VALUES	COMMENTS	METRIC VALUES
Flammability, UL94 (5=V-0; 4=V-1; 3=V-2; 1=HB)	5 (V-0)	UL94; 1/8 inch	5
FDA (1=Yes)	0	Not Compliant	0

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