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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	