

Celazole® (U-Series) U-60

Polybenzimidazole
PBI Performance Products, Inc.

Message:

Celazole U-60 PBI is an unfilled PBI polymer suitable for compression molding. U-60 is commonly molded and machined into precision parts for industrial, chemical and petrochemical industries; aerospace; glass making; liquid crystal display (LCD) panel manufacture; and photovoltaic (PV) panel manufacture.

General Information			
Features	Good Chemical Resistance		
	Good Thermal Stability		
	High Heat Resistance		
	Hydrocarbon Resistant		
	Hydrolytically Stable		
Uses	Aerospace Applications		
	Industrial Applications		
	LCD Applications		
	Solar Panels		
Forms	Powder		
Processing Method	Compression Molding		
	Machining		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.30	g/cm ³	
Water Absorption (23°C, 24 hr)	0.40	%	ASTM D570
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
E-Scale	104		
M-Scale	> 125		
Durometer Hardness (Shore D)	95		ASTM D2240
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	5860	MPa	ASTM D638
Tensile Strength	159	MPa	ASTM D638
Tensile Elongation (Break)	3.0	%	ASTM D638
Flexural Modulus	6550	MPa	ASTM D790
Flexural Strength	221	MPa	ASTM D790
Compressive Modulus	5860	MPa	ASTM D695
Compressive Strength			ASTM D695
-- 1	393	MPa	

10% Strain	345	MPa	
Coefficient of Friction			
vs. Metal - Dynamic ²	0.18		
vs. Metal - Dynamic ³	0.16		
vs. Metal - Static ⁴	0.14		
vs. Metal - Static ⁵	0.16		
vs. Steel - Dynamic	0.16		
vs. Steel - Static	0.15		
Tensile Fatigue - % of stress to failure ⁶	35	%	ASTM D638
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact	28	J/m	ASTM D256
Unnotched Izod Impact	590	J/m	ASTM D256
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load (1.8 MPa, Unannealed)	435	°C	ASTM D648
Glass Transition Temperature	427	°C	DMA
CLTE - Flow			TMA
24 to 149°C	2.3E-5	cm/cm/°C	
199 to 299°C	3.2E-5	cm/cm/°C	
Thermal Conductivity (25°C)	0.40	W/m/K	
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	2.0E+15	ohms · cm	ASTM D257
Dielectric Strength	23	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
1 kHz	3.40		
10 kHz	3.40		
100 kHz	3.30		
Dissipation Factor			ASTM D150
1 kHz	0.0		
10 kHz	3.0E-3		
100 kHz	0.034		
Arc Resistance	185	sec	ASTM D495
Flammability	Nominal Value	Unit	Test Method
Oxygen Index	58	%	ASTM D2863
NOTE			
1.	Yield		
2.	Brass		
3.	Aluminum		
4.	Aluminum		
5.	Brass		
6.	8.1 kpsi, 1000000 cycles, 1Hz		

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519
Phone: +86 13424755533
Email: sales@su-jiao.com
No. 215, Lianhe North Road, Fengxian District, Shanghai, China

