

Quadrant EPP Duratron® PBI CU60 compression moulded (ISO Data)

Category : Polymer , Thermoplastic , Polybenzimidazole (PBI)

Material Notes:

Duratron CU60 PBI is very "clean" in terms of ionic impurity and does not outgas (except water). These characteristics make this material extremely attractive to high-tech industries such as semiconductor and aerospace industries. Usually Duratron CU60 PBI is used in critical components to decrease maintenance costs and to gain valuable production "uptime". It is used to replace metals and ceramics in pump components, valve seats (high tech valves), bearings, rollers, high temperature insulators. Extremely high maximum allowable service temperature in air (310°C continuously, going up to 500°C for short periods of time) Excellent retention of mechanical strength, stiffness and creep resistance over a wide temperature range Excellent wear & frictional behaviour Extremely low coefficient of linear thermal expansion Excellent resistance against high energy radiation (gamma- and X-rays) Inherent low flammability High purity in terms of ionic contamination Good electrical insulating and dielectric properties

Order this product through the following link:

http://www.lookpolymers.com/polymer_Quadrant-EPP-Duratron-PBI-CU60-compression-moulded-ISO-Data.php

Physical Properties	Metric	English	Comments
Density	1.30 g/cc	0.0470 lb/in ³	ISO 1183-1
Moisture Absorption at Equilibrium	7.5 %	7.5 %	50% RH
Water Absorption at Saturation	14 %	14 %	
Outgassing - Total Mass Loss	2.2 %	2.2 %	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell E	120	120	ISO 2039-2
Hardness, Shore D	92	92	
Ball Indentation Hardness	375 MPa	54400 psi	ISO 2039-1
Tensile Strength	130 MPa	18900 psi	at Break (NYP); ISO 527-1/-2
Elongation at Break	3.0 %	3.0 %	ISO 527-1/-2
Tensile Modulus	6.00 GPa	870 ksi	ISO 527-1/-2
Flexural Strength	160 MPa	23200 psi	
Compressive Strength	58.0 MPa	8410 psi	ISO 604
	@Strain 1 %	@Strain 1 %	
	118 MPa	17100 psi	ISO 604
	@Strain 2 %	@Strain 2 %	
	280 MPa	40600 psi	

Mechanical Properties	Metric @Strain 5 %	English @Strain 5 %	ISO 604 Comments
K Factor (ISO)	3.0 $\mu\text{m}/\text{km}$	3.0 $\mu\text{m}/\text{km}$	
Charpy Impact Unnotched	2.00 J/cm ²	9.52 ft-lb/in ²	ISO 179-1/1eU
Charpy Impact, Notched	0.250 J/cm ²	1.19 ft-lb/in ²	ISO 179-1/1eA
Coefficient of Friction, Dynamic	0.30 - 0.50	0.30 - 0.50	
Limiting Pressure Velocity	1.14 MPa-m/sec	32500 psi-ft/min	at 1 m/s unlubricated
	1.80 MPa-m/sec	51400 psi-ft/min	at 0.1 m/s unlubricated

Thermal Properties	Metric	English	Comments
CTE, linear	25.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature 23.0 - 100 $^{\circ}\text{C}$	13.9 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature 73.4 - 212 $^{\circ}\text{F}$	
Thermal Conductivity	0.400 W/m-K	2.78 BTU-in/hr-ft ² - $^{\circ}\text{F}$	
Maximum Service Temperature, Air	310 $^{\circ}\text{C}$	590 $^{\circ}\text{F}$	Continuous
Deflection Temperature at 1.8 MPa (264 psi)	425 $^{\circ}\text{C}$	797 $^{\circ}\text{F}$	ISO 75-1/-2
Glass Transition Temp, Tg	415 $^{\circ}\text{C}$	779 $^{\circ}\text{F}$	DSC, 20 $^{\circ}\text{C}/\text{min}$.; ISO 11357-1/-2
Flammability, UL94	V-0	V-0	
Oxygen Index	58 %	58 %	ISO 4589-1/-2

Electrical Properties	Metric	English	Comments
Volume Resistivity	$\geq 1.0\text{e}+14$ ohm-cm	$\geq 1.0\text{e}+14$ ohm-cm	IEC 60093
Surface Resistivity per Square	$\geq 1.0\text{e}+13$ ohm	$\geq 1.0\text{e}+13$ ohm	IEC 60093
Dielectric Constant	3.3 @Frequency ≥ 100000 Hz	3.3 @Frequency ≥ 100000 Hz	IEC 60250
Dielectric Strength	28.0 kV/mm	711 kV/in	
Dissipation Factor	0.0010 @Frequency 100000 Hz	0.0010 @Frequency 100000 Hz	IEC 60250

Compliance Properties	Metric	English	Comments
3A-Dairy	No	No	

Compliance Properties	Metric	English	Comments
FDA	No	No	
USP Class VI	No	No	

Chemical Resistance Properties	Metric	English	Comments
Acids, Strong (pH 1-3)	Unacceptable	Unacceptable	
Acids, Weak	Limited	Limited	
Alcohols	Acceptable	Acceptable	
Alkalies, Strong (pH 11-14)	Unacceptable	Unacceptable	
Alkalies, Weak	Limited	Limited	
Chlorinated Solvents	Acceptable	Acceptable	
Continuous Sunlight	Limited	Limited	
Hot Water / Steam	Limited	Limited	
Hydrocarbons - Aliphatic	Acceptable	Acceptable	
Hydrocarbons - Aromatic	Acceptable	Acceptable	
Inorganic Salt Solutions	Acceptable	Acceptable	
Ketones, Esters	Acceptable	Acceptable	

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