UBE UPIMOL® R Polyimide Shape

Category : Polymer , Thermoset , Polyimide, TS

Material Notes:

Description: Ube's UPIMOL is an exceptionally heat-resistant polyimide Shape. This product has the same molecular structure as UPILEX, an ultra-high heat-resistant polyimide film developed by Ube, produced through polycondensation of biphenyltetracarboxylic dianhydride and diamine. Depending on the type of application, there are two types of UPIMOL available. One is UPIMOL-R for general use and the other is UPIMOL-S for high heat-resistant use.While exhibiting a number of excellent properties over a wide temperature range, of special note are UPIMOL's exceptional mechanical, thermal and chemical properties at high temperatures. Since UPIMOL has been shown to satisfy even the exacting requirements of the ceramics industry, its applications are extremely wide-ranging, the major uses including:Electrical and Electronic EquipmentIC sockets for semiconductor testing machine handlersCollet for IC mounterFrictional parts such as copier bearingsWire guides for wire dot printersIndustrial EquipmentPiston rings for compressors, etc.Thrust washers for gears, etc.Radiation and chemical resistant pipe sealings and other such parts.Aerospace-Related EquipmentVane bushings for jet enginesSpline couplings for aircraftInsulating parts, spacers, etc, for artificial satellites.Information provided by UBE.

Order this product through the following link:
http://www.lookpolymers.com/polymer_UBE-UPIMOL-R-Polyimide-Shape.php

Physical Properties	Metric	English	Comments
Water Absorption	0.46 %	0.46 %	(48Hr); ASTM D-570
Water Absorption at Saturation	1.3 %	1.3 %	ASTM D-570

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	114	114	ASTM D-785
Tensile Strength, Ultimate	116 MPa	16800 psi	ASTM D-638
	41.2 MPa @Temperature 260 °C	5980 psi @Temperature 500 °F	ASTM D-638
Elongation at Yield	5.0 %	5.0 %	ASTM D-638
	6.0 % @Temperature 260 °C	6.0 % @Temperature 500 °F	ASTM D-638
Flexural Yield Strength	161 MPa	23300 psi	ASTM D790
	58.8 MPa @Temperature 260 °C	8530 psi @Temperature 500 °F	ASTM D790
Flexural Modulus	4.17 GPa	604 ksi	ASTM D790
	2.09 GPa @Temperature 260 °C	303 ksi @Temperature 500 °F	ASTM D790

Mechanical Properties	Metric	English	Comments
Compressive Strength	229 MPa	33200 psi	1% Deformation; ASTM D-695
Compressive Modulus	2.60 GPa	377 ksi	23°C; ASTM D695
Izod Impact, Notched	0.745 J/cm @Temperature 23.0 °C	1.40 ft-lb/in @Temperature 73.4 °F	ASTM D-256
Izod Impact, Unnotched	9.20 J/cm	17.2 ft-lb/in	ASTM D-256
Coefficient of Friction, Dynamic	0.25	0.25	0.5m/sec, 5 kgf; S45C
Limiting Pressure Velocity	1.72 MPa-m/sec	49100 psi-ft/min	0.5 m/sec; S45C
Taber Abrasion, mg/1000 Cycles	14.7	14.7	CS-17, 1000 g; ASTM D-1044
Abrasion	3.8	3.8	mg loss, 0.5m/sec, 5 kgf; S45C

Thermal Properties	Metric	English	Comments
CTE, linear	36.2 µm/m-°C @Temperature 20.0 - 100 °C	20.1 µin/in-°F @Temperature 68.0 - 212 °F	ASTM E-233
	55.2 µm/m-°C @Temperature 20.0 - 250 °C	30.7 µin/in-°F @Temperature 68.0 - 482 °F	ASTM E-233
	63.5 µm/m-°C @Temperature 100 - 200 °C	35.3 µin/in-°F @Temperature 212 - 392 °F	ASTM E-233
	82.5 µm/m-°C @Temperature 200 - 300 °C	45.8 µin/in-°F @Temperature 392 - 572 °F	ASTM E-233
Specific Heat Capacity	1.046 J/g-°C	0.2500 BTU/lb-°F	
Thermal Conductivity	0.393 W/m-K	2.73 BTU-in/hr-ft²-°F	
Deflection Temperature at 0.46 MPa (66 psi)	360 °C	680 °F	ASTM D-648
Decomposition Temperature	548 °C	1020 °F	10% Weight Reduction

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.80e+16 ohm-cm	1.80e+16 ohm-cm	ASTM D-257
Surface Resistance	9.40e+16 ohm	9.40e+16 ohm	ASTM D-257
Dielectric Constant	3.59	3.59	ASTM D150

Electrical Properties	Metric	English	Comments
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	18.0 kV/mm @Thickness 2.00 mm	457 kV/in @Thickness 0.0787 in	ASTM D149
Dissipation Factor	0.0012	0.0012	ASTM D-150
Arc Resistance	124 sec	124 sec	23°C; ASTM D-495

Descriptive Properties	Value	Comments
Compressive Creep	0.0083	150°C, 175kg/cm^2 (Stress for 100 hrs)
Thermal Weight Reduction (in Air)	0.002	300°C x 18H
	0.017	400°C x 18H

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