

UBE UPIMOL® S High Heat 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 Equipment IC sockets for semiconductor testing machine handlers Collet for IC mounter Frictional parts such as copier bearings Wire guides for wire dot printers Industrial Equipment Piston rings for compressors, etc. Thrust washers for gears, etc. Radiation and chemical resistant pipe sealings and other such parts. Aerospace-Related Equipment Vane bushings for jet engines Spline couplings for aircraft Insulating parts, spacers, etc, for artificial satellites. Information provided by UBE.

Order this product through the following link:

http://www.lookpolymers.com/polymer_UBE-UPIMOL-S-High-Heat-Polyimide-Shape.php

Physical Properties	Metric	English	Comments
Water Absorption	0.12 %	0.12 %	(48Hr); ASTM D-570
Water Absorption at Saturation	0.40 %	0.40 %	ASTM D-570

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	113	113	ASTM D-785
Tensile Strength, Ultimate	82.4 MPa	11900 psi	ASTM D-638
	23.5 MPa	3410 psi	ASTM D-638
	@Temperature 300 °C	@Temperature 572 °F	
Elongation at Yield	2.0 %	2.0 %	ASTM D-638
	1.5 %	1.5 %	ASTM D-638
	@Temperature 300 °C	@Temperature 572 °F	
Flexural Yield Strength	101 MPa	14700 psi	ASTM D790
	41.2 MPa	5970 psi	ASTM D790
	@Temperature 300 °C	@Temperature 572 °F	
Flexural Modulus	7.98 GPa	1160 ksi	ASTM D790
	3.66 GPa	531 ksi	ASTM D790
	@Temperature 300 °C	@Temperature 572 °F	

Mechanical Properties	Metric	English	Comments
Compressive Modulus	4.00 GPa	580 ksi	23°C; ASTM D695
Izod Impact, Notched	0.216 J/cm @Temperature 23.0 °C	0.404 ft-lb/in @Temperature 73.4 °F	ASTM D-256
Izod Impact, Unnotched	1.09 J/cm	2.04 ft-lb/in	ASTM D-256
Coefficient of Friction, Dynamic	0.31	0.31	0.5m/sec, 5 kgf; S45C
Limiting Pressure Velocity	2.21 MPa-m/sec	63100 psi-ft/min	0.5 m/sec; S45C
Abrasion	1.2	1.2	mg loss, 0.5m/sec, 5 kgf; S45C

Thermal Properties	Metric	English	Comments
CTE, linear	25.0 µm/m-°C	13.9 µin/in-°F	ASTM E-233
	@Temperature 20.0 - 100 °C	@Temperature 68.0 - 212 °F	
	36.9 µm/m-°C	20.5 µin/in-°F	ASTM E-233
	@Temperature 20.0 - 250 °C	@Temperature 68.0 - 482 °F	
	38.0 µm/m-°C	21.1 µin/in-°F	ASTM E-233
	@Temperature 100 - 200 °C	@Temperature 212 - 392 °F	
	59.2 µm/m-°C	32.9 µin/in-°F	ASTM E-233
	@Temperature 20.0 - 400 °C	@Temperature 68.0 - 752 °F	
Specific Heat Capacity	66.0 µm/m-°C	36.7 µin/in-°F	ASTM E-233
	@Temperature 200 - 300 °C	@Temperature 392 - 572 °F	
Thermal Conductivity	101 µm/m-°C	56.1 µin/in-°F	ASTM E-233
	@Temperature 300 - 400 °C	@Temperature 572 - 752 °F	
Deflection Temperature at 0.46 MPa (66 psi)	500 °C	932 °F	ASTM D-648
Decomposition Temperature	592 °C	1100 °F	10% Weight Reduction

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.90e+16 ohm-cm	1.90e+16 ohm-cm	ASTM D-257
Surface Resistance	7.90e+16 ohm	7.90e+16 ohm	ASTM D-257
Dielectric Constant	3.58	3.58	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	19.0 kV/mm	483 kV/in	ASTM D149
	@Thickness 2.00 mm	@Thickness 0.0787 in	
Dissipation Factor	0.0015	0.0015	ASTM D-150
Arc Resistance	123 sec	123 sec	23°C; ASTM D-495

Descriptive Properties	Value	Comments
Compressive Creep	0.0086	150°C, 175kg/cm ² (Stress for 100 hrs)
Thermal Weight Reduction (in Air)	0.0015	300°C x 18H
	0.0088	400°C x 18H

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