

Ensinger TECASINT 1011 Polyimide (PI)

Category : Polymer , Thermoplastic , Polyimide, Thermoplastic

Material Notes:

TECASINT is a range of non-melting high temperature polyimides characterized by high strength over a wide range of temperatures, good long term thermal stability, minimal thermal expansion and excellent wear resistance among other things. The TECASINT 2000 series offers these enhanced thermal properties along with lower moisture absorption, a higher degree of toughness, and better machining properties.

TECASINT 2011 is unfilled, while TECASINT 2021 contains 15% graphite which offer improved wear resistance and a lower coefficient of friction. TECASINT 2000 series with their superior physical properties, are ideal for application in the aerospace, nuclear, automotive, electrical/electronics, and chemical processing industries. Main Features High thermal and mechanical capacity Good radiation-resistance Broad chemical compatibility Easily machined to tight tolerances Very good electrical insulation Very creep resistant Low outgassing Wear-resistant Sensitive to hydrolysis in higher thermal range Flame retardant according to UL94 V-

Applications Cryogenics Electrical engineering Precision engineering Mechanical engineering Nuclear and vacuum technology Semiconductor technology Electronics Aircraft and aerospace industries Food technology Preferred Fields Insulators, switch parts, valve faces, friction rings, chain guides, gripper finger for hot glass, sole plate, wear parts Information Provided by Ensinger, Inc.

Order this product through the following link:

http://www.lookpolymers.com/polymer_Ensinger-TECASINT-1011-Polyimide-PI.php

Physical Properties	Metric	English	Comments
Density	1.34 g/cc	0.0484 lb/in ³	DIN 53 479
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Water Absorption	1.08 %	1.08 %	EN ISO 62
	@Temperature 23.0 °C, Time 86400 sec	@Temperature 73.4 °F, Time 24.0 hour	
	3.29 %	3.29 %	EN ISO 62
	@Temperature 80.0 °C, Time 86400 sec	@Temperature 176 °F, Time 24.0 hour	

Mechanical Properties	Metric	English	Comments
Hardness, Shore D	90	90	DIN 53 505
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Tensile Strength, Yield	116 MPa	16800 psi	EN ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Break	9.0 %	9.0 %	EN ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Elongation at Yield	7.3 %	7.3 %	Flexural; EN ISO 178
	4.00 GPa	580 ksi	

Tensile Modulus Mechanical Properties	Metric @ Temperature 23.0 °C	English @ Temperature 73.4 °F	EN ISO 527 Comments
Flexural Strength	210 MPa @ Temperature 23.0 °C	30500 psi @ Temperature 73.4 °F	EN ISO 178
Flexural Modulus	3.448 GPa @ Temperature 23.0 °C	500.1 ksi @ Temperature 73.4 °F	EN ISO 178
Compressive Yield Strength	240 MPa	34800 psi	10% Strain; EN ISO 604
Compressive Strength	556 MPa @ Temperature 23.0 °C	80600 psi @ Temperature 73.4 °F	EN ISO 604
Compressive Modulus	4.00 GPa @ Temperature 23.0 °C	580 ksi @ Temperature 73.4 °F	EN ISO 604
Charpy Impact Unnotched	7.58 J/cm²	36.1 ft-lb/in²	EN ISO 179
Charpy Impact, Notched	0.330 J/cm² @ Temperature 23.0 °C	1.57 ft-lb/in² @ Temperature 73.4 °F	EN ISO 179
Compression Set	45 %	45 %	Compression at Break; EN ISO 604

Thermal Properties	Metric	English	Comments
CTE, linear	43.0 µm/m-°C @ Temperature 50.0 - 200 °C	23.9 µin/in-°F @ Temperature 122 - 392 °F	DIN 53 752
	53.0 µm/m-°C @ Temperature 200 - 300 °C	29.4 µin/in-°F @ Temperature 392 - 572 °F	DIN 53 752
CTE, linear, Transverse to Flow	43.0 µm/m-°C @ Temperature 50.0 - 200 °C	23.9 µin/in-°F @ Temperature 122 - 392 °F	DIN 53 752
	53.0 µm/m-°C @ Temperature 200 - 300 °C	29.4 µin/in-°F @ Temperature 392 - 572 °F	DIN 53 752
Specific Heat Capacity	1.04 J/g-°C	0.249 BTU/lb-°F	
Thermal Conductivity	0.220 W/m-K @ Temperature 40.0 °C	1.53 BTU-in/hr-ft²-°F @ Temperature 104 °F	ISO 8302
Maximum Service Temperature, Air	300 °C	572 °F	
Deflection Temperature at 1.8 MPa			DIN 53 461

(264 psi) Thermal Properties	368 °C Metric	694 °F English	Comments
Glass Transition Temp, Tg	368 °C	694 °F	DMTA
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+17 ohm-cm	1.00e+17 ohm-cm	IEC 60093
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Surface Resistance	1.00e+16 ohm	1.00e+16 ohm	IEC 60093
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Dielectric Constant	3.1	3.1	IEC 60250
	@Frequency 2.70e+7 Hz, Temperature 23.0 °C	@Frequency 2.70e+7 Hz, Temperature 73.4 °F	
	3.5	3.5	IEC 60250
	@Frequency 50.0 Hz, Temperature 23.0 °C	@Frequency 50.0 Hz, Temperature 73.4 °F	
Dielectric Strength	20.0 kV/mm	508 kV/in	DC; ISO 60243-1
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Dissipation Factor	0.0010	0.0010	DIN 53 483
	@Frequency 50.0 Hz, Temperature 23.0 °C	@Frequency 50.0 Hz, Temperature 73.4 °F	
	0.0030	0.0030	DIN 53 483
	@Frequency 2.70e+7 Hz, Temperature 23.0 °C	@Frequency 2.70e+7 Hz, Temperature 73.4 °F	

Descriptive Properties	Value	Comments
Color	Black	
DIN-Abbreviation	PI	

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