

## Ensinger TECASINT™ 2011 Polyimide (PI)

Category : Polymer , Thermoplastic , Polyimide, Thermoplastic

### Material Notes:

TECASINT™ 2000 series of polyimide stock shapes provide a superior combination of high temperature and bearing and wear, properties that make it an ideal choice for the most demanding applications. TECASINT™ 2011 is very pure, and exhibits low outgassing. It is also characterized by its long term thermal stability, outstanding wear resistance, high creep resistance, and strength up to its continuous use temperature of 536° F. TECASINT™ 2021 contains 15% graphite and is also available for applications requiring improved wear resistance & lower coefficient of friction. Superior high temperature characteristics (TECASINT™ 2000 series can operate up to 536° F continuously)Excellent long-term thermal stabilityOutstanding bearing and wear properties (at elevated temperatures, TECASINT™ 2000 formulations offer superior wear rates)Excellent creep resistanceHigh strength and stiffness propertiesHigh purity characteristics (only extremely low levels of extractables and ionic impurities are apparent in TECASINT™ 2011)Good chemical resistance (TECASINT™ 2000 series is not attacked by common solvents or fuels and is acceptable for use in contact with many acids)TECASINT™ 2000 series with their superior physical properties, are ideal for applications in the aerospace, nuclear, automotive, electrical/electronics, and chemical processing industries. TECASINT™ shapes are excellent candidates for high purity applications in the semiconductor processing industry. Typical components produced from TECASINT™ applications include seals, thrust washers, bushings and wear pads in transportation/off-highway equipment, insulating and support elements in electrical welding and brazing equipment, and wafer-handling components in the harsh environment of semiconductor plasma ovens. Pump and valve seals, vanes, and piston rings are also commonly produced from TECASINT™ series materials.Information Provided by Ensinger Inc.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Ensinger-TECASINT-2011-Polyimide-PI.php](http://www.lookpolymers.com/polymer_Ensinger-TECASINT-2011-Polyimide-PI.php)

Physical Properties	Metric	English	Comments
Density	1.38 g/cc	0.0499 lb/in <sup>3</sup>	DIN 53 479
	@Temperature 23.0 °C	@Temperature 73.4 °F	
Water Absorption	0.47 %	0.47 %	EN ISO 62
	@Temperature 23.0 °C, Time 86400 sec	@Temperature 73.4 °F, Time 24.0 hour	
	1.65 %	1.65 %	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	118 MPa	17100 psi	EN ISO 527
	@Temperature 23.0 °C	@Temperature 73.4 °F	
	4.5 %	4.5 %	

Elongation at Break Mechanical Properties	Metric @ Temperature 23.0 °C	English @ Temperature 73.4 °F	EN ISO 527 Comments
Elongation at Yield	6.1 %	6.1 %	Flexural; EN ISO 178
Tensile Modulus	3.70 GPa @Temperature 23.0 °C	537 ksi @Temperature 73.4 °F	EN ISO 527
Flexural Strength	177 MPa @Temperature 23.0 °C	25700 psi @Temperature 73.4 °F	EN ISO 178
Flexural Modulus	2.15 GPa @Temperature 300 °C	312 ksi @Temperature 572 °F	EN ISO 178
	2.30 GPa @Temperature 250 °C	334 ksi @Temperature 482 °F	EN ISO 178
	3.60 GPa @Temperature 23.0 °C	522 ksi @Temperature 73.4 °F	EN ISO 178
Compressive Yield Strength	105 MPa	15200 psi	10% Strain; EN ISO 604
Compressive Strength	486 MPa @Temperature 23.0 °C	70500 psi @Temperature 73.4 °F	EN ISO 604
Compressive Modulus	1.713 GPa @Temperature 23.0 °C	248.5 ksi @Temperature 73.4 °F	EN ISO 604
Charpy Impact Unnotched	8.79 J/cm <sup>2</sup>	41.8 ft-lb/in <sup>2</sup>	EN ISO 179
Charpy Impact, Notched	0.930 J/cm <sup>2</sup> @Temperature 23.0 °C	4.43 ft-lb/in <sup>2</sup> @Temperature 73.4 °F	EN ISO 179
Compression Set	58 %	58 %	Compression at Break; EN ISO 604

Thermal Properties	Metric	English	Comments
CTE, linear	54.0 µm/m-°C @Temperature 50.0 - 200 °C	30.0 µin/in-°F @Temperature 122 - 392 °F	DIN 53 752
	61.0 µm/m-°C @Temperature 200 - 300 °C	33.9 µin/in-°F @Temperature 392 - 572 °F	DIN 53 752
Specific Heat Capacity	0.925 J/g-°C	0.221 BTU/lb-°F	
Thermal Conductivity	0.220 W/m-K @Temperature 40.0 °C	1.53 BTU-in/hr-ft <sup>2</sup> -°F @Temperature 104 °F	ISO 8302

Thermal Properties	Metric	English	Comments
Maximum Service Temperature, Air	300 °C	572 °F	
Deflection Temperature at 1.8 MPa (264 psi)	325 °C	617 °F	DIN 53 461
Glass Transition Temp, Tg	370 °C	698 °F	DMTA
Flammability, UL94	V-0	V-0	

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+15 ohm-cm @Temperature 23.0 °C	1.00e+15 ohm-cm @Temperature 73.4 °F	IEC 60093
Surface Resistance	1.00e+15 ohm @Temperature 23.0 °C	1.00e+15 ohm @Temperature 73.4 °F	IEC 60093
Dielectric Constant	4.1 @Frequency 10000 Hz, Temperature 23.0 °C	4.1 @Frequency 10000 Hz, Temperature 73.4 °F	IEC 60250
	4.1 @Frequency 100000 Hz, Temperature 23.0 °C	4.1 @Frequency 100000 Hz, Temperature 73.4 °F	IEC 60250
	4.2 @Frequency 100 Hz, Temperature 23.0 °C	4.2 @Frequency 100 Hz, Temperature 73.4 °F	IEC 60250
	4.2 @Frequency 1000 Hz, Temperature 23.0 °C	4.2 @Frequency 1000 Hz, Temperature 73.4 °F	IEC 60250
Dielectric Strength	21.8 kV/mm @Temperature 23.0 °C	554 kV/in @Temperature 73.4 °F	DC; ISO 60243-1

Descriptive Properties	Value	Comments
Color	Brown	
DIN-Abbreviation	PI	

## Contact Songhan Plastic Technology Co.,Ltd.

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