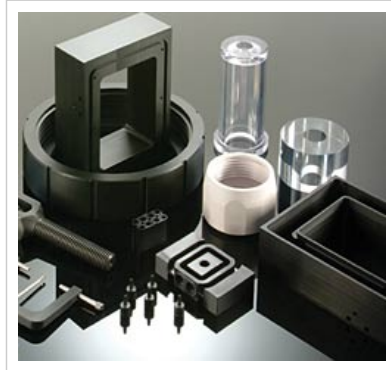


## High Performance > 300 °F | Polyimide (PI)

### TECASINT 2011 unfilled PI

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™ 2011 series can operate up to 536° F continuously.
- **Excellent long-term thermal stability**
- **Outstanding bearing and wear properties**  
At elevated temperatures, TECASINT™ 2011 formulations offer superior wear rates.
- **Excellent creep resistance**
- **High strength and stiffness properties**
- **High purity characteristics**  
Only extremely low levels of extractables and ionic impurities are apparent in TECASINT™ 2011.
- **Good chemical resistance**  
TECASINT™ 2011 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.*

	Properties	Condition	Units	Value
	Chemical Designation			PI
Physical	Filler			
	Density		g/cm <sub>3</sub>	1.38
Mechanical	Tensile Modulus	@ 73 °F	PSI	681,500
	Tensile Strength @ Yld	@ 73 °F	PSI	17,110
	Tensile Strength @ Brk	@ 73 °F	PSI	
	Shear Strength	@ 73 °F	PSI	
	Elongation @ Yld	@ 73 °F	%	
	Elongation @ Brk	@ 73 °F	%	4.4
	Flexural Modulus	@ 73 °F	PSI	522,000
	Flexural Strength	@ 73 °F	PSI	25,700

# Ensinger

	Rockwell Hardness	@ 73 °F	M (R) Scale	
	Coefficient of Friction	Static		
	Coefficient of Friction	Dynamic, 40 PSI, 50 FPM		
	Wear (K) Factor		in_-min/ft-lbs-hr	
	Limiting PV		psi-fpm	
	Vicat Softening Point		°F	
	Melting Temperature		°F	
	Heat Deflection Temperature	@ 66	°F	
	Heat Deflection Temperature	@ 264	°F	>600
Thermal	Service Temperature	Intermittent	°F	626
	Service Temperature	Long Term	°F	536
	Thermal Expansion (CLTE)		in/in/°F	3.0*10-5
	Specific Heat		BTU/lb-°F	0.221
	Thermal Conductivity		BTU-in/hr-ft_-°F	1.53
	Surface Resistivity		ohms/square	5.0*1016
	Volume Resistivity		ohm-cm	8.0*1015
Electrical	Dielectric Strength		V/mil	544
	Dielectric Contant	@ 60 HZ, 73 °F, 50% RH		
	Dissipation Factor	@ 60 Hz, 73 °F		0.003
	Moisture Absorption	@ 24 hrs, 73 °F	%	0.24
	Moisture absorption	@ Saturation, 73 °F	%	
Other	Flammability	UL 94		V-0
	Food Grade			N
	Relative Cost			\$\$\$ \$\$\$\$