

TECASINT 2011 brown - Stock Shapes

Chemical Designation

PI (Polyimide)

Colour

brown

Density

1.38 g/cm³

Main features

- very good thermal stability
- high thermal and mechanical capacity
- low outgassing
- very good electrical insulation
- resistance against high energy radiation
- good chemical resistance
- high creep resistance
- sensitive to hydrolysis in higher thermal range

Target Industries

- aircraft and aerospace technology
- semiconductor technology
- precision engineering
- electrical engineering
- medical technology
- electronics

Mechanical properties	condition	value		test method	comment
Modulus of elasticity (tensile test)	@ 73 °F	681,500	psi	ASTM D 638	
Tensile strength at yield	@ 73 °F	17,110	psi	ASTM D 638	
Elongation at break	@ 73 °F	4.4	%	ASTM D 638	
Flexural strength	@ 73 °F	25,700	psi	ASTM D 790	
Modulus of elasticity (flexural test)	@ 73 °F	522,000	psi	ASTM D 790	
Impact strength (Charpy)	@ 73 °F, notched	41.8	ft-lbs/in	DIN EN ISO 179-1eA	
Thermal properties	condition	value		test method	comment
Deflection temperature	@264 psi	>600	°F	ASTM D 648	(1) per ASTM E1269
Service temperature	Intermittent	626	°F	-	
Service temperature	Long Term	536	°F	-	
Thermal expansion (CLTE)		3.0*10 ⁻⁵	in/in/°F	ASTM D 696	
Specific heat		0.221	BTU/lb-F°	-	1)
Thermal conductivity		1.53	BTU-in/hr-ft ² -°F	ASTM C 177	
Electrical properties	condition	value		test method	comment
surface resistivity		5.0*10 ¹⁵	Ω/square	ASTM D 257	
Volume resistivity		8.0*10 ¹⁵	Ω*cm	ASTM D 257	
Dielectric strength		554	V/mil	ASTM D 149	
Dissipation factor	@ 60 Hz, 73 °F	0.003		-	
Dielectric constant	@ 1 MHz	4.2		ASTM D 150	
Other properties	condition	value		test method	comment
Moisture absorption	@ 24 hrs, 73 °F	0.24	%	ASTM D 570	
Flammability (UL94)		V0		-	

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