

TECAPEI™ EF natural - Stock Shapes (rods, plates, tubes)

Chemical Designation

PEI (Polyetherimide)

Colour

amber transparent transparent

Density

1.28 g/cm³

Main features

- 100% bio-based
- high dielectric strength
- inherent flame retardant
- easily machinable to tight tolerance
- low smoke emissions
- high thermal and mechanical capacity
- flame retardant according to UL94 V-0

Target Industries

- aircraft and aerospace technology
- automotive industry
- electronics
- medical technology
- semiconductor technology
- food engineering
- food processing

<i>Mechanical properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
Modulus of elasticity (tensile test)	@ 73 °F	592,000	psi	ASTM D 638	
Tensile strength at break	@ 73 °F	17,560	psi	ASTM D 638	
Elongation at yield (tensile test)	@ 73 °F	6.4	%	ASTM D 638	
Elongation at break (tensile test)	@ 73 °F	49	%	ASTM D 638	
Flexural strength	@ 73 °F	20,200	psi	ASTM D 790	
Modulus of elasticity (flexural test)	@ 73 °F	490,400	psi	ASTM D 790	
Compression strength	@ 10% strain	22,160	psi	ASTM D 695	
Compression strength	@1 % strain	4,990	psi	ASTM D 695	
Compression modulus		581,200	psi	ASTM D 695	
Notched impact strength (Izod)	@ 73 °F	0.75	ft-lbs/in	ASTM D 256	
Rockwell hardness	M Scale	126		ASTM D 785	
<i>Thermal properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
Vicat softening point		426	°F	ASTM D 1525	1) (1) Injection molded data
Deflection temperature	@ 66 psi	410	°F	ASTM D 648	2) (2) Injection molded data
Deflection temperature	@264 psi	394	°F	ASTM D 648	3) (3) Injection molded data
Service temperature	short term	392	°F	-	4) (4) Data obtained from public source
Service temperature	Long Term	338	°F	-	5) (5) Data obtained from public source
Thermal expansion (CLTE)		3.1*10 ⁻⁵	in/in/°F	ASTM E 831	6) (6) Injection molded data
Thermal conductivity		1.5	BTU-in/hr-ft ² -°F	ASTM D 2214	7) (7) Injection molded data
<i>Electrical properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
volume resistance	1/16	1.0 x 10 ¹⁷	Ω*cm	ASTM D 257	1) (1) injection molded data
Dielectric strength	In Air	830	V/mil	ASTM D 149	2) (2) injection molded data
Dielectric strength	In Oil	709	V/mil	ASTM D 149	3) (3) injection molded data
Dissipation factor	1 kHz, 50% RH, 73 °F	0.0013		ASTM D 150	4) (4) injection molded data
Dielectric constant	1 kHz, 50% RH	3.15		ASTM D 150	5) (5) Injection molded data
<i>Other properties</i>	<i>condition</i>	<i>value</i>	<i>unit</i>	<i>test method</i>	<i>comment</i>
Moisture absorption	@ 24 hrs, 73 °F	.15	%	ASTM D 570	1) (1) Injection molded data
Moisture absorption	@ saturation, 73 °F	1.25	%	ASTM D 570	2) (2) Injection molded data (0.75 mm thickness)
Flammability (UL94)		V0		-	3) (3) 3.0 mm specimen
Flammability	3 mm	pass		FAR 25.853	

→ Resin specification:
ASTM D 5205-10 PEI0113
Shapes specification:
ASTM D7293-06 S-PEI0111

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