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

Chemical Designation
PEI (Polyetherimide)

Colour
amber transparent transparent

Density
1.28 g/cm^3

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

Mechanical properties	condition	value	unit	test method	comment
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	

Thermal properties	condition	value	unit	test method		comment
Vicat softening point		426	°F	ASTM D 1525	1)	(1) Injection molded data (2) Injection molded data (3) Injection molded data (4) Data obtained from public source (5) Data obtained from public source (6) Injection molded data (7) Injection molded data
Deflection temperature	@ 66 psi	410	°F	ASTM D 648	2)	
Deflection temperature	@264 psi	394	°F	ASTM D 648	3)	
Service temperature	short term	392	°F	-	4)	
Service temperature	Long Term	338	°F	-	5)	
Thermal expansion (CLTE)		$3.1*10^{-5}$	in/in/°F	ASTM E 831	6)	
Thermal conductivity		1.5	BTU-in/hr-ft^2-°F	ASTM D 2214	7)	

Electrical properties	condition	value	unit	test method		comment
volume resistance	1/16	1.0×10^{17}	Ω*cm	ASTM D 257	1)	(1) injection molded data (2) injection molded data (3) injection molded data (4) injection molded data (5) Injection molded data
Dielectric strength	In Air	830	V/mil	ASTM D 149	2)	
Dielectric strength	In Oil	709	V/mil	ASTM D 149	3)	
Dissipation factor	1 kHz, 50% RH, 73 °F	0.0013		ASTM D 150	4)	
Dielectric constant	1 kHz, 50% RH	3.15		ASTM D 150	5)	

Other properties	condition	value	unit	test method		comment
Moisture absorption	@ 24 hrs, 73 °F	.15	%	ASTM D 570		(1) Injection molded data (2) Injection molded data (0.75 mm thickness) (3) 3.0 mm specimen
Moisture absorption	@ saturation, 73 °F	1.25	%	ASTM D 570	1)	
Flammability (UL94)		V0		-	2)	
Flammability	3 mm	pass		FAR 25.853	3)	

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

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