TECAPEI™ natural (Sabic Ultem ® 1000 series) - Stock Shapes (rods, plates, tubes)

Chemical Designation
PEI (Polyetherimide)

Colour
amber transparent transparent

Density
1.27 g/cm^3

Main features
- high dielectric strength
- inherent flame retardant
- low smoke emissions
- easily machinable to tight tolerance
- 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	430,000	psi	ASTM D 638	
Tensile strength at break	@ 73 °F	17,500	psi	ASTM D 638	
Elongation at yield (tensile test)	@ 73 °F	7	%	ASTM D 638	
Elongation at break (tensile test)	@ 73 °F	40	%	ASTM D 638	
Flexural strength	@ 73 °F	23,000	psi	ASTM D 790	
Modulus of elasticity (flexural test)	@ 73 °F	480,000	psi	ASTM D 790	
Compression strength	@ 10% strain	21,000	psi	ASTM D 695	
Compression strength	@1 % strain	3,500	psi	ASTM D 695	
Compression modulus		480,000	psi	ASTM D 695	
Notched impact strength (Izod)	@ 73 °F	0.60	ft-lbs/in	ASTM D 256	
Rockwell hardness	M Scale	110		ASTM D 785	
Rockwell hardness	R 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	@264 psi	394	°F	ASTM D 648	2)	
Deflection temperature	@ 66 psi	410	°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 Oil	709	V/mil	ASTM D 149	2)	
Dielectric strength	In Air	830	V/mil	ASTM D 149	3)	
Dissipation factor	1 kHz, 50% RH, 73 °F	0.0013		ASTM D 150	4)	
Dissipation factor	1 MHz, 50% RH, 73 °F	0.007		ASTM D 150		
Dielectric constant	1 kHz, 50% RH	3.15		ASTM D 150	5)	
Dielectric constant	1 MHz, 50% RH, 73 °F	3.1		ASTM D 150		

Other properties	condition	value	unit	test method		comment
Moisture absorption	@ 24 hrs, 73 °F	.25	%	ASTM D 570	1)	(1) injection molded data (2) Injection molded data (3) Injection molded data (0.75 mm thickness) (4) 3.0 mm specimen
Moisture absorption	@ saturation, 73 °F	1.25	%	ASTM D 570	2)	
Flammability (UL94)		V0		-	3)	
Flammability	3 mm	pass		FAR 25.853	4)	

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

Ensinger Inc. Headquarters
365 Meadowlands Boulevard
Washington, PA 15301, USA

Phone 800-243-3221 Sales
Phone 800-869-4029 Technical
Fax 724-746-9209
sales@ensingerusa.com

Date: 2024/07/31

Version: A2