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 5205-24 PEI0113
  Shapes specification:
  ASTM D7293-19 S-PEI0111

Information about products and services sold by Ensinger, including without limitation information contained in this document do not constitute a warranty by Ensinger as to the quality and state or durability of products or services, or any guarantee of chemical resistance. Such information reflects the current state of our knowledge and is intended only to assist and advise the recipient. The recipient shall not be entitled to rely on Ensinger provided information and the recipient agrees to evaluate such information, to make an independent decision regarding the suitability of such information, products and services for its application, and only use such products, services and information pursuant to then current good product stewardship principles and all regulatory requirements applicable to the recipient's business. Values are guidelines that can be used for comparative purposes in material selection. They are within the normal range of product properties and do not represent guaranteed property values. Testing under individual application circumstances is always recommended. Data is obtained from extruded shapes material unless otherwise noted. References to FDA compliance refer to the resins from which the products were made unless otherwise noted. Data sheet values are subject to periodic review and the most recent update can be found at www.ensingerplastics.com

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