

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

## Chemical Designation

PEI (Polyetherimide)

## Colour

amber transparent transparent

## Density

1.27 g/cm<sup>3</sup>

## 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	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	R Scale	126	ASTM D 785	
Rockwell hardness	M Scale	110	ASTM D 785	
Thermal properties	condition	value	test method	comment
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	Long Term	338 °F	-	4) (4) Data obtained from public source
Service temperature	short term	392 °F	-	5) (5) Data obtained from public source
Thermal expansion (CLTE)		3.1*10 <sup>-5</sup> in/in/°F	ASTM E 831	6) (6) Injection molded data
Thermal conductivity		1.5 BTU-in/hr-ft <sup>2</sup> -°F	ASTM D 2214	7) (7) Injection molded data
Electrical properties	condition	value	test method	comment
Volume resistivity	1/16	1.0 x 10 <sup>17</sup> 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
Other properties	condition	value	test method	comment
Moisture absorption	@ 24 hrs, 73 °F	.25 %	ASTM D 570	1) (1) injection molded data
Moisture absorption	@ saturation, 73 °F	1.25 %	ASTM D 570	2) (2) Injection molded data
Flammability	3 mm	pass	FAR 25.853	3) (3) 3.0 mm specimen
Flammability (UL94)		V0	-	4) (4) Injection molded data (0.75 mm thickness)

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

This information reflects the current state of our knowledge and is intended only to assist and advise. It is given without obligation or liability. It does not assure or guarantee chemical resistance, quality of products or their suitability in any legally binding way. Values are not minimum or maximum values, but 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. All trade and patent rights should be observed. All rights reserved. Data sheet values are subject to periodic review, the most recent update can be found at [www.ensingerplastics.com](http://www.ensingerplastics.com).