

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

Chemical Designation

PEI (Polyetherimide)

Colour

amber transparent transparent

Density

1.27 g/cm³

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
Deflection temperature	@ 264 psi	394	°F	ASTM D 648	2) (2) Injection molded data
Deflection temperature	@ 66 psi	410	°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

Electrical properties	condition	value	unit	test method	comment
volume resistance	1/16	1.0 x 10 ¹⁷	Ω*cm	ASTM D 257	1) (1) injection molded data
Dielectric strength	In Oil	709	V/mil	ASTM D 149	2) (2) injection molded data
Dielectric strength	In Air	830	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
Dissipation factor	1 MHz, 50% RH, 73 °F	0.007		ASTM D 150	5) (5) injection molded data
Dielectric constant	1 kHz, 50% RH	3.15		ASTM D 150	
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
Moisture absorption	@ saturation, 73 °F	1.25	%	ASTM D 570	2) (2) Injection molded data
Flammability (UL94)		V0		-	3) (3) Injection molded data (0.75 mm thickness)
Flammability	3 mm	pass		FAR 25.853	4) (4) 3.0 mm specimen

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

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