

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

Chemical Designation	Main features			Target Industries
PEI (Polyetherimide)	→ 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			→ aircraft and aerospace technology → automotive industry → electronics → medical technology → semiconductor technology → food engineering → food processing
Colour	amber transparent transparent			
Density	1.27 g/cm ³			
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	M Scale	110		ASTM D 785
Rockwell hardness	R Scale	126		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	@ 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	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
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 (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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