

TECAPEI™ CAL natural (Ultem® 1000 series) - Thin Gauge (sheet, coil, strip)

Chemical Designation

PEI (Polyetherimide)

Colour

amber 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	470,000	psi	ASTM D 638	(1) Extruded data thickness > 0.25"
Tensile strength at yield	@ 73 °F	16,200	psi	ASTM D 638	(2) Extruded data thickness > 0.25"
Elongation at break (tensile test)	@ 73 °F	40	%	ASTM D 638	(3) Extruded data thickness > 0.25"
Flexural strength	@ 73 °F	28,000	psi	ASTM D 790	(4) Extruded data thickness > 0.25"
Modulus of elasticity (flexural test)	@ 73 °F	475,000	psi	ASTM D 790	
Compression strength	@ 10% strain	21,500	psi	ASTM D 695	1)
Compression strength	@1 % strain	2,200	psi	ASTM D 695	2)
Compression modulus		480,000	psi	ASTM D 695	3)
Notched impact strength (Izod)	@ 73 °F	0.60	ft-lbs/in	ASTM D 256	4)
Rockwell hardness	M Scale	111		ASTM D 785	
Thermal properties	condition	value	unit	test method	comment
Vicat softening point		426	°F	ASTM D 1525	1)
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 D 696	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 x 10 ¹⁷	Ω*cm	ASTM D 257	1)
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)
Dielectric constant	1 kHz, 50% RH	3.15		ASTM D 150	5)
Other properties	condition	value	unit	test method	comment
Moisture absorption	@ 24 hrs, 73 °F	0.25	%	ASTM D 570	1)
Moisture absorption	@ saturation, 73 °F	1.25	%	ASTM D 570	2)
Flammability (UL94)		V0		-	3)

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