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

Chemical Designation
PEI (Polyetherimide)

Colour
amber 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	470,000	psi	ASTM D 638		(1) Extruded data thickness > 0.25" (2) Extruded data thickness > 0.25" (3) Extruded data thickness > 0.25" (4) Extruded data thickness > 0.25"
Tensile strength at yield	@ 73 °F	16,200	psi	ASTM D 638		
Elongation at break (tensile test)	@ 73 °F	40	%	ASTM D 638		
Flexural strength	@ 73 °F	28,000	psi	ASTM D 790		
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)	(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 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	1.0×10^{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)	
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)	(1) injection molded data (2) Injection molded data (3) Injection molded data (0.75 mm (0.030") minimum thickness) (4) Injection molded data thickness >=0.40 mm (0.016") less than 0.075 mm (0.030")
Moisture absorption	@ saturation, 73 °F	1.25	%	ASTM D 570	2)	
Flammability (UL94)		V0		-	3)	
Flammability (UL94)		V-2		-	4)	

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