

Material Data Sheet

Material: Ultem® Polyetherimide

Ultem is an amorphous thermoplastic polyetherimide (PEI) material which combines exceptional mechanical, thermal, and electrical properties. Natural Ultem® 1000 (unreinforced) is a translucent amber material. This material offers excellent mechanical strength, outstanding heat resistance, and works well in steam applications. Ultem is used in many applications such as medical, electronic, microwave, automotive and aerospace applications. Natural Ultem® is FDA, NSF and USP Class VI compliant.

Mechanical Properties	ASTM Test Method	Value	Units
Density	D792		lbs/in ³
Specific Gravity	D792	1.27	g/cc
Water Absorption @ 24 hours, 73°F	D570	0.25	%
@ Saturation, 73°F	D570		%
Tensile Strength, 73°F	D638	15,200	psi
Tensile Modulus	D639	430,000	psi
Elongation (at break), 73°F	D638	40	%
Flexural Strength, 73°F	D790	22,000	psi
Flexural Modulus of Elasticity, 73°F	D790	480,000	psi
Compressive Strength	D695	21,900	psi
Izod Impact Strength, 73°F	D256	1.0	ft-lb/in of notch
Rockwell Hardness, 73°F	D785	M - 109	M or R Scale
Shure Hardness			D Scale
Wear Factor Against Steel, 40 psi, 50 fpm	D3702		in. ³ -min/ft.lbs.hr
Static Coefficient of Friction	D3702		
Dynamic Coefficient of Friction, 40 pcs, 50 fpm	D3702		
Thermal Properties			
Heat Deflection Temperature @ 66 psi	D648	410	°F
@ 264 psi	D648	394	°F
Coefficient of Linear Thermal Expansion	D696	3.1 X 10 ⁻⁵	in/in./°F
Continuous Servicing Temperature, Intermittent			°F
Long Term	UL746B		°F
Specific Heat			BTU/lb -°F
Thermal Conductivity		1.5	
Melting Point	D2133		°F
Flammability	UL94	V-0	(mm)
Electrical Properties			
Dielectric Strength, In Oil	D149	710	Volts/mil
In Air		830	
Dielectric Constant, 1 kHz, 50% RH (73°F)	D150	3.15	
Dissipation Factor, 1 kHz, 50% RH (73°F)	D150	0.0013	
Volume Resistivity, 1/16"	D257	1.0 x 10 ¹⁷	ohm-cm

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