

ULTEM

Ultem® PolyEtherImide (PEI) is an amber transparent high performance polymer which combines high strength and rigidity at elevated temperatures with long term heat resistance. Ultem® offers excellent dimensional stability combined with broad chemical resistance. Ultem® is also inherently flame resistant and low smoke generating. It excels in medical reusable applications requiring repeated sterilization and is available in FDA compliant colors.

Ultem® 1000 - unfilled

Unfilled Ultem® excels in hot air and water environments. It's hydrolytically stable -- it retains 85% of tensile strength after 10,000 hour boiling water immersion and 100% of tensile strength after 2,000 steam autoclave cycles at 270°F. It is also UV and gamma radiation resistant.

Ultem® 2100 - 10% glass filled, Ultem® 2200 - 20% glass filled, Ultem® 2300 - 30% glass filled

Glass reinforced Ultem® provides even greater rigidity and dimensional stability while maintaining many of the useful characteristics of basic Ultem®. The glass reinforcement yields a product with an exceptional strength-to-weight ratio and increased tensile strength.

TYPICAL PROPERTIES of ULTEM®

ASTM or UL test	Property	Ultem® 1000 unfilled	Ultem® 2300 30% glass
PHYSICAL			
	Density (lb/in ³)	0.046	0.055
D792	(g/cm ³)	1.28	1.51
D570	Water Absorption, 24 hrs (%)	0.25	0.18
MECHANICAL			
D638	Tensile Strength (psi)	16,500	17,000
D638	Tensile Modulus (psi)	475,000	800,000
D638	Tensile Elongation at Break (%)	80	3
D790	Flexural Strength (psi)	20,000	30,000
D790	Flexural Modulus (psi)	500,000	900,000
D695	Compressive Strength (psi)	22,000	32,000
D695	Compressive Modulus (psi)	480,000	620,000
D785	Hardness, Rockwell	M112 / R125	M114 / R127
D256	IZOD Notched Impact (ft-lb/in)	0.5	1
THERMAL			
D696	Coefficient of Linear Thermal Expansion (x 10 ⁻⁶ in./in./°F)	3.1	1.1
D648	Heat Deflection Temp (°F / °C) at 264 psi	392 / 200	410 / 210
D3418	Glass Transition Temp (°F / °C)	419 / 215	419 / 215
-	Max Operating Temp (°F / °C)	340 / 171	340 / 171
	Thermal Conductivity (BTU-in/ft ² -hr-°F)	0.9	0.9
C177	(x 10 ⁻⁴ cal/cm-sec-°C)	3.1	3.1
UL94	Flammability Rating	V-O	V-O
ELECTRICAL			
D149	Dielectric Strength (V/mil) short time, 1/8" thick	830	770
D150	Dielectric Constant at 1 MHz	3.15	3.7
D150	Dissipation Factor at 1 MHz	0.0013	0.0015
D257	Volume Resistivity (ohm-cm) at 50% RH	6.7 x 10 ¹⁷	3.0 x 10 ¹⁶

NOTE: The information contained herein are typical values intended for reference and comparison purposes only. They should NOT be used as a basis for design specifications or quality control. Contact us for manufacturers' complete material property datasheets.

All values at 73°F (23°C) unless otherwise noted. ULTEM is a registered trademark of General Electric Company