



ULTEM® PEI

Characteristics

- * High Strength
- * Performs in Continuous Use to 340° F (170° C)
- * High Dielectric Strength
- * UL 94-V-O Rated with Low Smoke
- * Available in Glass-Reinforced Grades

Description

ULTEM 1000 polyetherimide (PEI) is an amorphous polymer offering high strength and excellent flame and heat resistance. It is ideal for high strength / high heat applications, and those requiring consistent dielectric properties over a wide frequency range. It is hydrolysis resistant, highly resistant to acidic solutions and capable of withstanding repeated autoclaving cycles.

ULTEM 2100, 2200, and 2300 are glass-reinforced versions (10, 20, and 30% respectively) of Ultem 1000 which provide greater rigidity and improved dimensional stability while maintaining many of the useful characteristics of basic Ultem.

Ultem commonly is machined into parts for reusable medical devices, analytical instrumentation, electrical / electronic insulators and a variety of structural components requiring high strength and rigidity at elevated temperatures.

Forms Available

ROD .062 to 8.00 " diameter, Lengths to 12 feet
 TUBE Custom produced as requested
 PLATE .125" to 4.000" thick, Widths to 48", Lengths to 10 feet
 COLOR(s) Amber Semi-Transparent or Black

Typical Property Values

		Ultem® 1000	Ultem® 2300
MECHANICAL @ 73°F			
Specific Gravity		1.28	1.51
Tensile Strength	psi	16,500	17,000
Tensile Modulus of Elasticity	psi	500,000	800,000
Tensile Elongation (at Break)	%	80	3
Flexural Strength	psi	20,000	27,000
Flexural Modulus of Elasticity	psi	500,000	850,000
Shear Strength	psi	15,000	
Compressive Strength, 10% Deformation	psi	22,000	32,000
Compressive Modulus of Elasticity	psi	480,000	625,000
Rockwell Hardness	M Scale	112	114
Izod Impact Strength, Notched	ft-lbs/in. of notch	0.50	1.00
Coefficient of Friction, Dynamic (Dry vs. Steel)		0.42	
Limiting PV (4 :1 Safety Factor Applied)	ft.lbs/in. ² min	1,875	
Wear Factor	in ³ -min/ft.lbs. hr.	2,900	
Water Absorption 24 hrs	% by wt.	0.25	0.18
THERMAL			
Coefficient of Linear Expansion (-40°F to 300°F)	in./in.°F	3.1 x 10 ⁻⁵	1.1 x 10 ⁻⁵
Heat Deflection Temperature @264 psi	°F	400	410
Tg-Glass Transition (amorphus)	°F	410	410
Continuous Service Temperature in Air	°F	340	340
Thermal Conductivity	°F	0.85	1.56
ELECTRICAL			
Dielectric Strength, Short Term	Volts/mil	830	770
Surface Resistivity	Ohms/Sq.	>10 ¹³	>10 ¹³
Dielectric Constant	1 MHz	3.15	3.70
Dissipation Factor	1 MHz	0.0013	0.0015

(Properties listed above are provided for reference only, they should not be used for design specifications or quality control . Ultem is a registered Trademark of General Electric Co.)