

### General Information

**Chemical Designation:** *Ultem® 1000 is a high performance engineering thermoplastic polymer that provides superior strength and stiffness. It has excellent chemical resistance and has a continuous service temperature of 340 degrees F. It is easily machined with conventional metal working equipment and can be machined to very close tolerances. Both sheet and rod are available in many thicknesses and diameters. Rod stock comes ground to diameter to accommodate through spindle turning. Standard colors are semi-transparent amber and black custom colors are available only as custom runs.*

**Polyetherimide (PEI)**

**Fillers:**

**Unfilled** *Ultem® 1000 is non hygroscopic, FDA, and USP Class VI compliant. It absorbs minimal amounts of moisture and can be cleaned easily. As a result, it finds applications in high moisture, electrical device, medical and surgical components.*

**Color:**

**Amber (Translucent)** *Although it has many benefits as an unfilled material, Ultem® 1000 can be filled with glass fibers to enhance its structural and thermal properties. Also, since it is an amorphous material, care needs to be taken if machined with coolant. If used, non aromatic coolants should be used to avoid crazing.*

**Specific Gravity:**

1.28

### Technical Information

Specification	Test	Value	Units
Specific Gravity, 73°F	D792	1.28	-
Tensile Strength @ Yield, 73°F	D638	17,000	psi
Tensile Modulus of Elasticity, 73°F	D638	500,000	psi
Tensile Elongation (at break), 73°F	D638	60	%
Flexural Strength, 73°F	D790	20,000	psi
Flexural Modulus of Elasticity	D790	500,000	psi
Shear Strength, 73°F	D732	15,000	psi
Compressive Strength – Ultimate		22,000	psi
Compressive Strength at 2% Deformation	D695		psi
Compressive Strength at 10% Deformation	D695		psi
Deformation Under Load		< 1	%
Compressive Modulus of Elasticity, 73°F	D695	480,000	
Compressive Strength to Laminate (Modulus)			psi
Compressive Strength to Laminate (Yield)			psi
Compressive Strength to Laminate (Ultimate)			psi
Hardness, Durometer (Shore "D" scale)	D2240	D86	
Hardness, Rockwell (Scale as noted)	D785	125	Rockwell R
Izod Impact, Notched @ 73°F	D256 Type A	0.5	ft.lbs/in. of notch
Coefficient of Friction (Dry vs Steel) Static	PTM 55007	0.5	
Coefficient of Friction (Dry vs Steel) Dynamic	PTM 55007	0.42	
Maximum Static Bearing Load (P)	PTM 55007	1,000	psi
Maximum Unlubricated No Load Bearing Velocity (V)	PTM 55007	10	ft/minute
Maximum Limiting PV (Unlubricated)	PTM 55007	1,900	psi x ft/min.
Wear Factor "K" x 10-10	PTM 55010	2,900	Cubic in.-min/ft.lbs.hr
Sand Wheel Wear/Abrasion Test		70	UHMW=100
Minimum Mating Surface Hardness		30	Rockwell (Brinnell)
Coefficient of Linear Thermal Expansion	E-831 (TMA)	3.1	in/in/°F x 10-5
Coefficient of Thermal Expansion // to Laminates	E-831 (TMA)	3.1	in/in/°F x 10-5
Coefficient of Thermal Expansion I to Laminates	E-831 (TMA)	3.1	in/in/°F x 10-5
Softening Point		392	°F
Heat Deflection Temperature 264 psi	D648	400	°F
Embrittlement Temperature			°F Min.
Continuous Service Temperature in Air		340	°F Max.
Short Term Service Temperature		360	°F Max.
Tg-Glass Transition (Amorphous)	D3418	410	°F
Melting Point (Crystalline) Peak	D3418		°F
Thermal Conductivity	F433	0.9	BTU-in/(hr/ft2°F)
Dielectric Strength Short Term	D149	830	Volts/mil
Volume Resistivity	D257	>1013	ohm/cm
Surface Resistivity	D257		ohm/cm
Dielectric Constant, 106 Hz	D150	3.15	
Dissipation Factor, 106 Hz	D150	0.0013	
Flammability @ 3.1mm(1/8 in.) UL94	UL94	V-0	
Arc Resistance			seconds
Water Absorption, Immersion 24 Hours	D570 (2)	0.25	%
Water Absorption, Immersion Saturation	D570 (2)	1.25	%
Machinability Rating		1	1=easy, 10=difficult
Rod Diameter Availability (Off the Shelf)	.50	6.0	inches
Sheet Thickness Availability (Off the Shelf)	.25	3.0	inches
Characteristics / Attributes	Superior Chemical Resistance / 340F Cont. Service Temp		

Thank you for your interest in our materials. All statements, technical information and recommendations presented are in good faith, based upon tests believed to be reliable and practical field experience. Poly-Tech is not responsible for its accuracy or completeness. It is our recommendation and the customer's responsibility to determine the suitability of any material for any given application.