

Premium amorphous thermoplastic combining high heat resistance, exceptional strength, and inherent flame retardancy. Ultem® PEI is the material of choice for demanding applications in aerospace, medical, and electronics where consistent performance at elevated temperatures is critical.

STOCK AVAILABILITY

Sheets, rods, and tubes in Ultem 1000 (unfilled) and Ultem 2300 (30% glass-filled). Custom shapes and machined parts available.

KEY HIGHLIGHTS

340°F continuous service
Inherently flame retardant (V-0)
Transparent amber color
Steam & autoclave sterilizable
FDA & USP Class VI compliant
Excellent dimensional stability

✓ Autoclavable & gamma-sterilizable — ideal for medical devices

COMMON APPLICATIONS

Aerospace structural parts
Medical & surgical instruments
Electrical connectors
Semiconductor fixtures
Printed circuit boards
Automotive under-hood
Sterilization trays

GRADES AVAILABLE

1000 (unfilled, amber)
2300 (30% glass-filled)
2200 (20% glass-filled)
2100 (10% glass-filled)
HU1004 (FDA food contact)
ATX200 (aircraft grade)

MATERIAL PROPERTIES — TYPICAL VALUES (ULTEM 1000)

PROPERTY	ASTM	TYPICAL VALUE	UNITS
PHYSICAL			
Specific Gravity	D792	1.27	—
Water Absorption, 24h	D570	0.25	%
MECHANICAL			
Tensile Strength, Ultimate	D638	15,200	psi (105 MPa)
Tensile Modulus	D638	430,000	psi (2,960 MPa)
Elongation at Break	D638	60	%
Flexural Strength	D790	21,000	psi (145 MPa)
Flexural Modulus	D790	480,000	psi (3,310 MPa)
Compressive Strength	D695	20,300	psi (140 MPa)
Impact, Izod Notched	D256	1.0	ft-lb/in (53 J/m)
Hardness, Rockwell	D785	M109	—
THERMAL			
Heat Deflection @ 264 psi	D648	392	°F (200°C)
Max Continuous Service	—	340	°F (171°C)
Glass Transition (Tg)	D3418	423	°F (217°C)
CTE (Linear)	D696	3.1 × 10 ⁻⁵	in/in/°F
Thermal Conductivity	C177	1.5	BTU·in/hr·ft²·°F
ELECTRICAL			
Volume Resistivity	D257	6.7 × 10 ¹⁷	ohm·cm
Dielectric Strength	D149	830	V/mil (33 kV/mm)
Dielectric Constant, 1MHz	D150	3.15	—
Dissipation Factor, 1MHz	D150	0.0015	—
FLAMMABILITY			
UL Flammability Rating	UL 94	V-0	@ 0.040"
Limiting Oxygen Index	D2863	47	%

PROCESSING / FABRICATION NOTES: Excellent machinability with standard tooling | Pre-dry 4–6h at 300°F before processing | Transparent amber — useful for visual inspection applications | Weldable by ultrasonic, vibration & hot plate methods

CHEMICAL RESISTANCE: Good resistance to automotive fluids, hydrocarbons, dilute acids, and aqueous solutions. **AVOID:** chlorinated solvents (methylene chloride), MEK, acetone, and other strong polar solvents — may cause stress cracking.

Typical values; not to be used as specifications. Actual values may vary by grade, manufacturer, and processing conditions. Contact Plastic-Craft for grade-specific data.