

Tempalux[®]

(polyetherimide)

An amorphous thermoplastic polyetherimide, stock shapes from ULTEM[®] resin possess a combination of useful characteristics, including high strength at elevated temperatures, high modulus, and broad chemical resistance. Tempalux stock shapes are inherently flame resistant with low smoke emission. Tempalux stock shapes display property retention and resistance to environmental stress cracking when exposed to a wide variety of chemicals. The standard color of Tempalux stock shapes is light amber. Glass filled grades appear tan or greenish in color. Tempalux rod, slab, and tubular bar are air annealed for stress relief.

The following physical property information is based on typical values of the base polyetherimide resin (PEI).



	Units	ASTM Test	Unfilled	20% GF	30% GF
Mechanical					
Tensile Strength @yield	psi	D638	15,200	20,100	24,500
Tensile Strength @break	psi	D638	—	19,000	23,000
Tensile Modulus	psi	D638	430,000	1,000,000	1,300,000
Tensile Elongation @yield	%	D638	7.0	—	—
Tensile Elongation @break	%	D638	60.0	4.0	3.0
Flexural Strength @yield	psi	D790	22,000	30,000	33,000
Flexural Modulus	psi	D790	480,000	1,000,000	1,300,000
Compressive Strength @yield	psi	D695	21,900	28,700	30,700
Compressive Modulus	psi	D695	480,000	809,000	938,000
Izod Impact Strength					
Un-Notched	ft•lbs/in	D256	25.0	9.0	8.0
Notched @73°F	ft•lbs/in	D256	1.0	1.6	2.0
Hardness (R, M, L or D)	—	D7852 D2240	M109	M114	M114

Thermal					
Heat Deflection Temperature					
@66 psi	°F	D648	410	410	414
@264 psi	°F	D648	392	408	410
Coefficient of Thermal Expansion in/in/°F					
		D696	3.1x10 ⁻⁵	1.4x10 ⁻⁵	1.1x10 ⁻⁵
Flammability Rating-UL94					
		—	@.075" 5VA	@.016" V-0	@.016" V-0
Thermal Conductivity	(BTU•in)/(hr•ft ² •°F)	C177	1.53	1.70	1.80
Limiting Oxygen Index	%	D2863	47.0	50.0	50.0

Electrical					
Dielectric Strength	V/mil	D149	831	670	770
Dielectric Constant @1kHz	—	D150	3.15	3.50	3.70
Dissipation Factor @1kHz	—	D150	0.0013	0.0015	0.0015
Volume Resistivity	ohm•cm	D257	1.0x10 ¹⁷	7x10 ¹⁶	3x10 ¹⁶

Optical					
Haze	%	D1746	—	—	—
Transparency	%	D1746	—	—	—

Other					
Specific Gravity	—	D792	1.27	1.42	1.51
Water Absorption @24 hours	%	D570	0.25	0.19	0.16

Applications Include:

- Burn-in test sockets
- Connectors
- Automotive components
- Valves, electrical fittings

Advantages of Tempalux:

- Inherent flame resistance
- Extremely low NBS smoke evolution
- Superior limiting oxygen index
- Exceptional tensile and flexural strength
- Broad chemical resistance
- UV stable
- FDA compliant

Manufacturing Capabilities:

- Rod:** 1/4" to 8" diameter
- Sheet:** .035" to 1/4" thick
- Film(unfilled):** .001" to .029" thick
- Slab:** 3/8" to 4" thick

Colors/Grades:

- Amber – unfilled
- Tan/Green – glass filled
- (custom colors available)

*In addition to our standard capabilities, Westlake also has the ability to process custom resins in various sizes and colors with some exceptions.



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