

Ultem[®]1000/Polyetherimide (PEI) Unfilled

KEY FEATURES

- Excellent Mechanical Strength
- High Dielectrical Strength
- Outstanding Heat Resistance
- Low Dissipation Factor over a Wide Range of Frequencies
- Exceptional Resistance to Environmental Forces
- Inherent Flame Resistance with Low Smoke Evolution
- Excellent Machinability and Finishing Characteristics

DESCRIPTION

ULTEM[®] is a polyetherimide based polymer ,also known as PEI, and is an amorphous thermoplastic with high mechanical strength and rigidity. Unfilled PEI thermoplastic is translucent and amber in color, and combines exceptional mechanical, thermal and electrical properties. Often referred to as ULTEM[®], polyetherimides are very similar in their physical characteristics to the polyarylsulphones, while simultaneously offering significant advantages. This material has a remarkably high creep resistance over a wide range of temperatures and furthermore, polyetherimides have a high permanent operating temperature. Very good resistance to hydrolysis, along with dimensional stability rounds out the portfolio of typical polyetherimide properties.

TYPICAL PROPERTY VALUES

Physical	Properties	Condition	Units	Value	ASTM Test
	Density		g/cm ³	1.27	D792
	Chemical Designation			PEI	
	Filler				

Mechanical	Properties	Condition	Units	Value	ASTM Test
	Tensile Modulus	@ 73 °F	PSI	430,000	D638
	Tensile Strength	@ 73 °F	PSI	17,500	D638
	Shear Strength	@ 73 °F	PSI	14,000	D732
	Elongation @ Yld	@ 73 °F	%	7-8	D638
	Elongation @ Brk	@ 73 °F	%	40	D638
	Flexural Modulus	@ 73 °F	PSI	480,000	D790
	Flexural Strength	@ 73 °F	PSI	28,000	D790
	Compressive Modulus	@ 73 °F	PSI	480,000	D695
	Compressive Strength	@ 73 °F, 10% strain	PSI	21,500	D695
	Izod (Charpy) Impact Strength	@ 73 °F	ft-lbs/in	0.6	D256
	Rockwell Hardness	@ 73 °F	M (R) Scale	111	D785
	Coefficient of Friction	Static			
	Coefficient of Friction	Dynamic, 40PSI		0.42	
Wear (K) Factor		in ³ -min/ft-lbs-hr	2,900		

Thermal	Properties	Condition	Units	Value	ASTM Test
	Heat Deflection Temperature	@ 66 PSI	°F	410	D648
	Heat Deflection Temperature	@ 264 PSI	°F	394	D648
	Service Temperature	Long Term	°F	338	
	Service Temperature	Intermittent	°F	392	
	Thermal Expansion (CLTE)		in/in/°F	3.1*10 ⁻⁵	D696
	Specific Heat		BTU/lb-°F		
Thermal Conductivity		BTU-in/hr-ft ² -°F	1.5	D2214	

Electrical	Properties	Condition	Units	Value	ASTM Test
	Surface Resistivity		ohms/square	10 ¹³	ANSI/ESD STM 11.11
	Volume Resistivity		ohm-cm	1.0*10 ¹⁷	D257
	Dielectric Constant	50% RH		3.15	D150
	Dielectric Strength	@ 60 Hz, 73 °F	V/mil	830	D149
Dissipation Factor	@ 60 Hz, 73 °F		0.0013	D150	

Other	Properties	Condition	Units	Value	ASTM Test
	Moisture Absorption	@ 24 hrs, 73 °F	%	0.25	D570
	Moisture Absorption	@ Saturation, 73 °F	%	1.25	D570
	Flammability	UL 94		V-0	
	Food Grade			Y	
Relative Cost			\$\$\$		

• The data stated above are typical values intended for reference and comparison purposes only.
• The data should not be used as a basis for design specifications or quality control.

• The information is provided as a guide to the best of our knowledge and given without obligation or liability.
• Testing under individual application circumstances is recommended