

**SABIC ULTEM 1000 PEI (Americas) (Unverified Data\*\*)**

Categories: [Polymer](#); [Thermoplastic](#); [Polyetherimide \(PEI\)](#)

**Material Notes:** ULTEM™ 1000 resin is an amorphous, transparent polyetherimide (PEI) plastic offering a glass transition temperature (Tg) of 217°C. This inherently flame retardant resin has UL94 V0, V2 and 5VA ratings and is RoHS compliant. ULTEM™ 1000 resin is an unreinforced general purpose grade offering high heat resistance, high strength and modulus and broad chemical resistance up to high temperatures.




Information provided by SABIC Innovative Plastics for the Americas.

**Vendors:** [Click here to view all available suppliers for this material.](#)


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Physical Properties	Metric	English	Comments
Specific Gravity	1.27 g/cc	1.27 g/cc	ASTM D 792
Water Absorption	0.25 % @ Time 86400 sec	0.25 % @ Time 24.0 hour	ASTM D 570
Water Absorption at Saturation	1.25 % @ Temperature 23.0 °C	1.25 % @ Temperature 73.4 °F	ASTM D 570
Linear Mold Shrinkage, Flow	0.0050 - 0.0070 cm/cm @ Thickness 3.20 mm	0.0050 - 0.0070 in/in @ Thickness 0.126 in	SABIC Method
Melt Flow	9.0 g/10 min @ Load 6.60 kg, Temperature 337 °C	9.0 g/10 min @ Load 14.6 lb, Temperature 639 °F	ASTM D 1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	109	109	ASTM D 785
Tensile Strength, Yield	110 MPa	16000 psi	Type I, 5 mm/min; ASTM D 638
Elongation at Break	60 %	60 %	Type I, 5 mm/min; ASTM D 638
Elongation at Yield	7.0 %	7.0 %	Type I, 5 mm/min; ASTM D 638
Tensile Modulus	3.58 GPa	519 ksi	5 mm/min; ASTM D 638
Flexural Yield Strength	165 MPa	23900 psi	2.6 mm/min, 100 mm span; ASTM D 790
Flexural Modulus	3.51 GPa	509 ksi	2.6 mm/min, 100 mm span; ASTM D 790
Poissons Ratio	0.36	0.36	ASTM E 132
Izod Impact, Notched	0.530 J/cm @ Temperature 23.0 °C	0.993 ft-lb/in @ Temperature 73.4 °F	ASTM D 256
	13.35 J/cm @ Thickness 3.20 mm	25.01 ft-lb/in @ Thickness 0.126 in	Reverse Notched; ASTM D 256
Izod Impact, Unnotched	13.35 J/cm @ Temperature 23.0 °C	25.01 ft-lb/in @ Temperature 73.4 °F	ASTM D 4812
Gardner Impact	36.0 J @ Temperature 23.0 °C	26.6 ft-lb @ Temperature 73.4 °F	ASTM D 3029
Taber Abrasion, mg/1000 Cycles	10 @ Load 1.00 kg	10 @ Load 2.20 lb	CS-17; ASTM D 1044

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+17 ohm-cm	1.00e+17 ohm-cm	ASTM D 257
Dielectric Constant 	3.15 @ Frequency 100 Hz	3.15 @ Frequency 100 Hz	ASTM D 150
	3.15 @ Frequency 1000 Hz	3.15 @ Frequency 1000 Hz	ASTM D 150
Dielectric Strength 	19.6 kV/mm @ Thickness 3.20 mm	498 kV/in @ Thickness 0.126 in	in oil; ASTM D 149
	27.9 kV/mm @ Thickness 1.60 mm	709 kV/in @ Thickness 0.0630 in	in oil; ASTM D 149
	32.7 kV/mm @ Thickness 1.60 mm	831 kV/in @ Thickness 0.0630 in	in air; ASTM D 149
Dissipation Factor 	0.0012 @ Frequency 1000 Hz	0.0012 @ Frequency 1000 Hz	ASTM D 150
	0.0015 @ Frequency 100 Hz	0.0015 @ Frequency 100 Hz	ASTM D 150
	0.0025 @ Frequency 2.45e+9 Hz	0.0025 @ Frequency 2.45e+9 Hz	ASTM D 150
Arc Resistance	120 - 180 sec	120 - 180 sec	PLC 5; ASTM D 495
Comparative Tracking Index	100 - 175 V	100 - 175 V	PLC 4; UL 746A
Hot Wire Ignition, HWI	60 - 120 sec	60 - 120 sec	PLC 1; UL 746A
High Amp Arc Ignition, HAI	15 - 30 arcs	15 - 30 arcs	PLC 3; UL 746A
High Voltage Arc-Tracking Rate, HVTR	25.4 - 80.0 mm/min	1.00 - 3.15 in/min	PLC 2; UL 746A

Thermal Properties	Metric	English	Comments
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CTE, linear, Parallel to Flow	55.8 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature -20.0 - 150 $^{\circ}\text{C}$	31.0 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature -4.00 - 302 $^{\circ}\text{F}$	ASTM E 831
CTE, linear, Transverse to Flow	54.0 $\mu\text{m}/\text{m}\cdot\text{C}$ @Temperature -20.0 - 150 $^{\circ}\text{C}$	30.0 $\mu\text{in}/\text{in}\cdot\text{F}$ @Temperature -4.00 - 302 $^{\circ}\text{F}$	ASTM E 831
Thermal Conductivity	0.220 W/m-K	1.53 BTU-in/hr-ft $^2\cdot\text{F}$	ASTM C 177
Deflection Temperature at 0.46 MPa (66 psi)	210 $^{\circ}\text{C}$ @Thickness 6.40 mm	410 $^{\circ}\text{F}$ @Thickness 0.252 in	unannealed; ASTM D 648
Deflection Temperature at 1.8 MPa (264 psi)	201 $^{\circ}\text{C}$ @Thickness 6.40 mm	394 $^{\circ}\text{F}$ @Thickness 0.252 in	unannealed; ASTM D 648
Vicat Softening Point	218 $^{\circ}\text{C}$	424 $^{\circ}\text{F}$	Rate B/50; ASTM D 1525
Glass Transition Temp, Tg	217 $^{\circ}\text{C}$	423 $^{\circ}\text{F}$	
UL RTI, Electrical	170 $^{\circ}\text{C}$	338 $^{\circ}\text{F}$	UL 746B
UL RTI, Mechanical with Impact	170 $^{\circ}\text{C}$	338 $^{\circ}\text{F}$	UL 746B
UL RTI, Mechanical without Impact	170 $^{\circ}\text{C}$	338 $^{\circ}\text{F}$	UL 746B
Flammability, UL94 	V-2 @Thickness 0.400 mm	V-2 @Thickness 0.0157 in	UL 94
	V-0 @Thickness 0.750 mm	V-0 @Thickness 0.0295 in	UL 94
	5VA @Thickness 3.00 mm	5VA @Thickness 0.118 in	UL 94
Smoke Density	0.70 @Time 360 sec	0.70 @Time 0.100 hour	NBS, Flaming, Ds; ASTM E 662
Oxygen Index	47 %	47 %	ASTM D 2863

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