

SABIC Innovative Plastics ULTEM 1000 PEI

Category : Polymer , Thermoplastic , Polyetherimide (PEI)

Material Notes:

Transparent, standard flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0, V2 and 5VA listing. US FDA and EU Food Contact compliant, NSF 51 listing, compliant in natural color. Effective June, 2007 this grade will no longer be supported with biocompatibility information and should not be used for medical applications which require biocompatibility. Alternative grade HU1000.

Order this product through the following link:

http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-ULTEM-1000-PEI.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.27 g/cc	1.27 g/cc	ASTM D792
Water Absorption	0.25 % @Time 86400 sec	0.25 % @Time 24.0 hour	ASTM D570
Moisture Absorption at Equilibrium	1.25 %	1.25 %	ASTM D570
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 D1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	109	109	ASTM D785
Tensile Strength, Yield	110 MPa	16000 psi	Type I, 5 mm/min; ASTM D638
Elongation at Break	60 %	60 %	Type I, 5 mm/min; ASTM D638
Elongation at Yield	7.0 %	7.0 %	Type I, 5 mm/min; ASTM D638
Tensile Modulus	3.58 GPa	519 ksi	5 mm/min; ASTM D638
Flexural Yield Strength	165 MPa	23900 psi	2.6 mm/min, 100 mm span; ASTM D790
Flexural Modulus	3.51 GPa	509 ksi	2.6 mm/min, 100 mm span; ASTM D790
Poissons Ratio	0.36	0.36	ASTM E 132
Izod Impact, Notched	0.530 J/cm	0.993 ft-lb/in	ASTM D256
	13.35 J/cm @Thickness 3.20 mm	25.01 ft-lb/in @Thickness 0.126 in	ASTM D256

Mechanical Properties	Metric	English	Comments
Izod Impact, Unnotched	13.35 J/cm	25.01 ft-lb/in	ASTM D4812
Gardner Impact	36.0 J	26.6 ft-lb	ASTM D3029
Taber Abrasion, mg/1000 Cycles	10	10	CS-17, 1 kg; ASTM D1044

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	55.8 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature -20.0 - 150 $^{\circ}\text{C}$	31.0 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature -4.00 - 302 $^{\circ}\text{F}$	ASTM E 831
CTE, linear, Transverse to Flow	54.0 $\mu\text{m}/\text{m}\cdot^{\circ}\text{C}$ @Temperature -20.0 - 150 $^{\circ}\text{C}$	30.0 $\mu\text{in}/\text{in}\cdot^{\circ}\text{F}$ @Temperature -4.00 - 302 $^{\circ}\text{F}$	ASTM E 831
Thermal Conductivity	0.220 W/m-K	1.53 BTU-in/hr-ft ² - $^{\circ}\text{F}$	ASTM C177
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 D648
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 D648
Vicat Softening Point	218 $^{\circ}\text{C}$	424 $^{\circ}\text{F}$	Rate B/50; ASTM D1525
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
Oxygen Index	47 %	47 %	ASTM D2863

Optical Properties	Metric	English	Comments
Transmission, Visible	90 %	90 %	transparent; thickness not quantified

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+17 ohm-cm	1.00e+17 ohm-cm	ASTM D257
Dielectric Constant	3.15	3.15	ASTM D150
	@Frequency 100 Hz	@Frequency 100 Hz	
	3.15	3.15	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
Dielectric Strength	19.6 kV/mm	498 kV/in	in oil; ASTM D149
	@Thickness 3.20 mm	@Thickness 0.126 in	
	27.9 kV/mm	709 kV/in	in oil; ASTM D149
	@Thickness 1.60 mm	@Thickness 0.0630 in	
	32.7 kV/mm	831 kV/in	in air; ASTM D149
	@Thickness 1.60 mm	@Thickness 0.0630 in	
Dissipation Factor	0.0012	0.0012	ASTM D150
	@Frequency 1000 Hz	@Frequency 1000 Hz	
	0.0015	0.0015	ASTM D150
	@Frequency 100 Hz	@Frequency 100 Hz	
	0.0025	0.0025	ASTM D150
	@Frequency 2.45e+9 Hz	@Frequency 2.45e+9 Hz	
Arc Resistance	120 - 180 sec	120 - 180 sec	Tungsten; ASTM D495
Comparative Tracking Index	100 - 175 V	100 - 175 V	UL 746A
Hot Wire Ignition, HWI	60 - 120 sec	60 - 120 sec	UL 746A
High Amp Arc Ignition, HAI	15 - 30 arcs	15 - 30 arcs	UL 746A
High Voltage Arc-Tracking Rate, HVTR	25.4 - 80.0 mm/min	1.00 - 3.15 in/min	UL 746A

Descriptive Properties	Value	Comments
NBS Smoke Density, Flaming, Ds 4 min	0.7	ASTM E 662

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