ULTEM* 1000 Resin

Polyether Imide

SABIC Innovative Plastics Asia Pacific

IDES | Prospector

Product Description
Transparent, standard flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0 and 5VA listing. US FDA and EU Food Contact compliant, NSF 51 listing. 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.

General		
Material Status	• Commercial: Active	
Availability	• Asia Pacific	
Features	• ECO Compliant	• Food Contact Acceptable
Agency Ratings	• EU Eco • EU Food Contact, Unspecified Rating	• FDA Food Contact, Unspecified Rating • NSF 51
Appearance	• Clear/Transparent	
Processing Method	• Extrusion Blow Molding	• Injection Molding

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity	1.27	1.27 g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	9.0 g/10 min	9.0 g/10 min	ASTM D1238
Molding Shrinkage - Flow (0.126 in (3.20 mm))	0.0050 to 0.0070 in/in	0.50 to 0.70 %	Internal Method
Water Absorption			ASTM D570
24 hr	0.25 %	0.25 %	
Equilibrium, 73°F (23°C)	1.3 %	1.3 %	
Mechanical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Tensile Modulus [2]	520000 psi	3590 MPa	ASTM D638
Tensile Strength [3] (Yield)	16000 psi	110 MPa	ASTM D638
Tensile Elongation [3]			ASTM D638
Yield	7.0 %	7.0 %	
Break	60 %	60 %	
Flexural Modulus [4] (3.94 in (100 mm) Span)	510000 psi	3520 MPa	ASTM D790
Flexural Strength [4]			ASTM D790
Yield, 3.94 in (100 mm) Span	24000 psi	165 MPa	
Poisson's Ratio	0.36	0.36	ASTM D638
Taber Abrasion Resistance			ASTM D1044
1000 Cycles, 1000 g, CS-17 Wheel	10.0 mg	10.0 mg	
Impact	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Notched Izod Impact (73°F (23°C))	1.0 ft·lb/in	53 J/m	ASTM D256
Unnotched Izod Impact (73°F (23°C))	25 ft·lb/in	1300 J/m	ASTM D4812
Reverse Notch Izod Impact			ASTM D256
0.126 in (3.20 mm)	25 ft·lb/in	1300 J/m	
Gardner Impact (73°F (23°C))	324 in·lb	36.6 J	ASTM D3029
Hardness	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Rockwell Hardness (M-Scale)	109	109	ASTM D785
Thermal	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed, 0.252 in (6.40 mm)	410 °F	210 °C	
264 psi (1.8 MPa), Unannealed, 0.252 in (6.40 mm)	394 °F	201 °C	
Vicat Softening Temperature	426 °F	219 °C	ASTM D1525 [5]
CLTE			ASTM E831
Flow: -4 to 302°F (-20 to 150°C)	0.000031 in/in/°F	0.000056 cm/cm/°C	
Transverse: -4 to 302°F (-20 to 150°C)	0.000030 in/in/°F	0.000054 cm/cm/°C	
Thermal Conductivity	1.5 Btu·in/hr/ft²/°F	0.22 W/m/K	ASTM C177
Electrical	**Nominal Value (English)**	**Nominal Value (SI)**	**Test Method**
Volume Resistivity	1.0E+17 ohm·cm	1.0E+17 ohm·cm	ASTM D257

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Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Dielectric Strength			ASTM D149
0.0630 in (1.60 mm), in Air	830 V/mil	33 kV/mm	
0.0630 in (1.60 mm), in Oil	710 V/mil	28 kV/mm	
0.126 in (3.20 mm), in Oil	500 V/mil	20 kV/mm	
Dielectric Constant			ASTM D150
100 Hz	3.15	3.15	
1 kHz	3.15	3.15	
Dissipation Factor			ASTM D150
100 Hz	0.0015	0.0015	
1 kHz	0.0012	0.0012	
2.45 GHz	0.0025	0.0025	
Arc Resistance (PLC) [6]	PLC 5	PLC 5	ASTM D495

Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Oxygen Index	47 %	47 %	ASTM D2863
NBS Smoke Density - Flaming, Ds, 4 min	0.700	0.700	ASTM E662

UL	Nominal Value (English)	Nominal Value (SI)	Test Method
RTI Str	338 °F	170 °C	UL 746
RTI Imp	338 °F	170 °C	UL 746
RTI Elec	338 °F	170 °C	UL 746
Comparative Tracking Index (CTI) (PLC)	PLC 4	PLC 4	UL 746
High Voltage Arc Tracking Rate (HVTR) (PLC)			UL 746
--	PLC 2	PLC 2	
Hot-wire Ignition (HWI) (PLC)	PLC 1	PLC 1	UL 746
High Amp Arc Ignition (HAI) (PLC)	PLC 3	PLC 3	UL 746

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	300 °F	149 °C
Drying Time	4.0 to 6.0 hr	4.0 to 6.0 hr
Drying Time, Maximum	24 hr	24 hr
Suggested Max Moisture	0.020 %	0.020 %
Suggested Shot Size	40 to 60 %	40 to 60 %
Rear Temperature	630 to 750 °F	332 to 399 °C
Middle Temperature	640 to 750 °F	338 to 399 °C
Front Temperature	650 to 750 °F	343 to 399 °C
Nozzle Temperature	650 to 750 °F	343 to 399 °C
Processing (Melt) Temp	660 to 750 °F	349 to 399 °C
Mold Temperature	275 to 325 °F	135 to 163 °C
Back Pressure	50.0 to 100 psi	0.345 to 0.689 MPa
Screw Speed	40 to 70 rpm	40 to 70 rpm
Vent Depth	0.0010 to 0.0030 in	0.025 to 0.076 mm

Extrusion	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	280 to 300 °F	138 to 149 °C
Drying Time	4.0 to 6.0 hr	4.0 to 6.0 hr
Suggested Max Moisture	0.010 to 0.020 %	0.010 to 0.020 %
Cylinder Zone 1 Temp.	615 to 660 °F	324 to 349 °C
Cylinder Zone 2 Temp.	625 to 675 °F	329 to 357 °C
Cylinder Zone 3 Temp.	625 to 675 °F	329 to 357 °C
Cylinder Zone 4 Temp.	625 to 675 °F	329 to 357 °C
Cylinder Zone 5 Temp.	625 to 675 °F	329 to 357 °C
Adapter Temperature	625 to 675 °F	329 to 357 °C
Die Temperature	620 to 675 °F	327 to 357 °C

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Extrusion Notes

Drying Time (Cumulative): 24 hrs
Head - Zone 6 - Top Temperature: 329 - 357 °C
Head - Zone 7 - Bottom Temperature: 329 - 357 °C
Melt Temperature (Parison): 321 - 357 °C
Mold Temperature: 66 - 177 °C
Screw Speed: 10 - 70 rpm

Notes

[1] Typical properties: these are not to be construed as specifications.

[2] 0.20 in/min (5.0 mm/min)

[3] Type I, 0.20 in/min (5.0 mm/min)

[4] 0.10 in/min (2.6 mm/min)

[5] Rate B (120°C/h), Loading 2 (50 N)

[6] Tungsten Electrode

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