

ULTEM™ Resin 1000 - Europe

Polyether Imide
SABIC

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Technical Data

Product Description

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.

General

Material Status	• Commercial: Active
Availability	• Europe
Features	• Amorphous • Chemical Resistant • Flame Retardant • General Purpose • High Heat Resistance • High Strength
Uses	• Additive Manufacturing (3D Printing) • Aerospace Applications • Appliances • Automotive Applications • Automotive Exterior Parts • Automotive Interior Parts • Automotive Lighting • Automotive Under the Hood • Construction Applications • Electrical/Electronic Applications • Electronic Displays • Fluid Handling • Industrial Applications • Lawn and Garden Equipment • Lenses • Lighting Applications • Medical/Healthcare Applications • Non-specific Food Applications • Oil/Gas Applications • Outdoor Applications • Pharmaceuticals • Rail Applications
RoHS Compliance	• RoHS Compliant
Appearance	• Clear/Transparent
Processing Method	• Injection Molding
Also Available In	• Asia Pacific • Latin America • North America

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Density	1.27 g/cm ³	1.27 g/cm ³	ISO 1183
Melt Volume-Flow Rate (MVR) (360°C/5.0 kg)	0.793 in ³ /10min	13.0 cm ³ /10min	ISO 1133
Molding Shrinkage - Flow ²	5.0E-3 to 7.0E-3 in/in	0.50 to 0.70 %	Internal Method
Water Absorption			ISO 62
Saturation, 73°F (23°C)	1.3 %	1.3 %	
Equilibrium, 73°F (23°C), 50% RH	0.70 %	0.70 %	

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus	464000 psi	3200 MPa	ISO 527-2/1
Tensile Stress			ISO 527-2/50
Yield	15200 psi	105 MPa	
Break	12300 psi	85.0 MPa	
Tensile Strain			ISO 527-2/50
Yield	6.0 %	6.0 %	
Break	60 %	60 %	
Flexural Modulus ³	479000 psi	3300 MPa	ISO 178
Flexural Stress ^{3, 4}	23200 psi	160 MPa	ISO 178
Taber Abrasion Resistance			Internal Method
1000 Cycles, 1000 g, CS-17 Wheel	10.0 mg	10.0 mg	



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Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Charpy Notched Impact Strength			
-22°F (-30°C) ⁵	1.9 ft·lb/in ²	4.0 kJ/m ²	ISO 179/1eA
73°F (23°C) ⁵	1.9 ft·lb/in ²	4.0 kJ/m ²	ISO 179/1eA
73°F (23°C)	4.8 ft·lb/in ²	10 kJ/m ²	ISO 179/2C
Notched Izod Impact Strength ⁶			ISO 180/1A
-22°F (-30°C)	2.9 ft·lb/in ²	6.0 kJ/m ²	
73°F (23°C)	2.9 ft·lb/in ²	6.0 kJ/m ²	
Unnotched Izod Impact Strength ⁶			ISO 180/1U
-22°F (-30°C)	No Break	No Break	
73°F (23°C)	No Break	No Break	
Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Ball Indentation Hardness (H 358/30)	20300 psi	140 MPa	ISO 2039-1
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Heat Deflection Temperature ⁷			
66 psi (0.45 MPa), Unannealed, 0.157 in (4.00 mm), 3.94 in (100 mm) Span	392 °F	200 °C	ISO 75-2/Be
264 psi (1.8 MPa), Unannealed, 0.157 in (4.00 mm), 3.94 in (100 mm) Span	374 °F	190 °C	ISO 75-2/Ae
Vicat Softening Temperature			
--	419 °F	215 °C	ISO 306/A50
--	412 °F	211 °C	ISO 306/B50
--	414 °F	212 °C	ISO 306/B120
Ball Pressure Test			IEC 60695-10-2
253 to 261°F (123 to 127°C)	Pass	Pass	
CLTE			ISO 11359-2
Flow : 73 to 302°F (23 to 150°C)	2.8E-5 in/in/°F	5.0E-5 cm/cm/°C	
Transverse : 73 to 302°F (23 to 150°C)	2.8E-5 in/in/°F	5.0E-5 cm/cm/°C	
Thermal Conductivity	1.7 Btu·in/hr/ft ² /°F	0.24 W/m/K	ISO 8302
RTI Elec	338 °F	170 °C	UL 746
RTI Imp	338 °F	170 °C	UL 746
RTI Str	338 °F	170 °C	UL 746
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Surface Resistivity	> 1.0E+15 ohms	> 1.0E+15 ohms	IEC 60093
Volume Resistivity	1.0E+15 ohms·cm	1.0E+15 ohms·cm	IEC 60093
Electric Strength			IEC 60243-1
0.0315 in (0.800 mm), in Oil	840 V/mil	33 kV/mm	
0.0630 in (1.60 mm), in Oil	640 V/mil	25 kV/mm	
0.126 in (3.20 mm), in Oil	410 V/mil	16 kV/mm	
Relative Permittivity			IEC 60250
50 Hz	2.90	2.90	
60 Hz	2.90	2.90	
1 MHz	2.90	2.90	
Dissipation Factor			IEC 60250
50 Hz	5.0E-4	5.0E-4	
60 Hz	5.0E-4	5.0E-4	
1 MHz	6.0E-3	6.0E-3	
2.45 GHz	2.5E-3	2.5E-3	
Comparative Tracking Index			IEC 60112
--	150 V	150 V	
Solution B	100 V	100 V	



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Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating			UL 94
0.016 in (0.40 mm)	V-2	V-2	
0.030 in (0.75 mm)	V-0	V-0	
0.12 in (3.0 mm)	5VA	5VA	
Glow Wire Flammability Index			IEC 60695-2-12
0.13 in (3.2 mm)	1760 °F	960 °C	
Oxygen Index	47 %	47 %	ISO 4589-2

Injection	Nominal Value (English)	Nominal Value (SI)
Drying Temperature	302 °F	150 °C
Drying Time	4.0 to 6.0 hr	4.0 to 6.0 hr
Suggested Max Moisture	0.020 %	0.020 %
Hopper Temperature	176 to 248 °F	80 to 120 °C
Rear Temperature	644 to 743 °F	340 to 395 °C
Middle Temperature	662 to 761 °F	350 to 405 °C
Front Temperature	680 to 779 °F	360 to 415 °C
Nozzle Temperature	662 to 761 °F	350 to 405 °C
Processing (Melt) Temp	698 to 770 °F	370 to 410 °C
Mold Temperature	284 to 356 °F	140 to 180 °C

Notes

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

² Tensile Bar

³ 0.079 in/min (2.0 mm/min)

⁴ at Yield

⁵ 80*10*4 sp=62mm

⁶ 80*10*4 mm

⁷ 120*10*4 mm



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Where to Buy

Supplier

SABIC

Web: <http://www.sabic.com/>

Distributor

Erteco Rubber & Plastics AB

Telephone: +46-8-587-517-00

Web: <http://www.erteco.se/>

Availability: Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, Sweden

POLY MIX

Telephone: +33-3-8920-1380

Web: <http://www.polymix.eu/>

Availability: France

RESINEX Group

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