

ULTEM™ 1000F resin

Polyether Imide

SABIC Innovative Plastics

Message:

ULTEM™ 1000F 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, US FDA and EU Food Contact compliant, with NSF 51 listing. ULTEM™ 1000F resin is an unreinforced general purpose grade offering high heat resistance, high strength and modulus and broad chemical resistance up to high temperatures.

General Information			
UL YellowCard	E121562-101048254		
Features	Amorphous		
	Flame Retardant		
	Food Contact Acceptable		
	General Purpose		
	Good Chemical Resistance		
	High Heat Resistance		
	High Strength		
Uses	General Purpose		
Agency Ratings	EU Food Contact, Unspecified Rating		
	FDA Food Contact, Unspecified Rating		
	NSF 51		
Appearance	Clear/Transparent		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.27	g/cm³	ASTM D792
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	9.0	g/10 min	ASTM D1238
Molding Shrinkage - Flow (3.20 mm)	0.50 to 0.70	%	Internal Method
Water Absorption			ASTM D570
24 hr	0.25	%	
Equilibrium, 23°C	1.3	%	
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale)	109		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ¹	3590	MPa	ASTM D638
Tensile Strength ² (Yield)	110	MPa	ASTM D638
Tensile Elongation ³			ASTM D638
Yield	7.0	%	
Break	60	%	
Flexural Modulus ⁴ (100 mm Span)	3520	MPa	ASTM D790

Flexural Strength ⁵ (Yield, 100 mm Span)	165	MPa	ASTM D790
Poisson's Ratio	0.36		ASTM D638
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	10.0	mg	ASTM D1044
Impact	Nominal Value	Unit	Test Method
Notched Izod Impact (23°C)	53	J/m	ASTM D256
Unnotched Izod Impact (23°C)	1300	J/m	ASTM D4812
Reverse Notch Izod Impact (3.20 mm)	1300	J/m	ASTM D256
Gardner Impact (23°C)	36.6	J	ASTM D3029
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, Unannealed, 6.40 mm	210	°C	
1.8 MPa, Unannealed, 6.40 mm	201	°C	
Vicat Softening Temperature	219	°C	ASTM D1525 ⁶
CLTE			ASTM E831
Flow : -20 to 150°C	5.6E-5	cm/cm/°C	
Transverse : -20 to 150°C	5.4E-5	cm/cm/°C	
Thermal Conductivity	0.22	W/m/K	ASTM C177
RTI Elec	170	°C	UL 746
RTI Imp	170	°C	UL 746
RTI Str	170	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	1.0E+17	ohms · cm	ASTM D257
Dielectric Strength			ASTM D149
1.60 mm, in Air	33	kV/mm	
1.60 mm, in Oil	28	kV/mm	
Dielectric Constant (1 kHz)	3.15		ASTM D150
Dissipation Factor			ASTM D150
1 kHz	1.3E-3		
2.45 GHz	2.5E-3		
Arc Resistance ⁷	PLC 5		ASTM D495
Comparative Tracking Index (CTI)	PLC 4		UL 746
High Amp Arc Ignition (HAI)	PLC 3		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 2		UL 746
Hot-wire Ignition (HWI)	PLC 1		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.400 mm	V-2		
0.750 mm	V-0		
3.00 mm	5VA		
Oxygen Index	47	%	ASTM D2863
NBS Smoke Density - Flaming, Ds, 4 min	0.700		ASTM E662

Injection	Nominal Value	Unit
Drying Temperature	149	°C
Drying Time	4.0 to 6.0	hr
Drying Time, Maximum	24	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 to 60	%
Rear Temperature	332 to 399	°C
Middle Temperature	338 to 399	°C
Front Temperature	343 to 399	°C
Nozzle Temperature	343 to 399	°C
Processing (Melt) Temp	349 to 399	°C
Mold Temperature	135 to 163	°C
Back Pressure	0.345 to 0.689	MPa
Screw Speed	40 to 70	rpm
Vent Depth	0.025 to 0.076	mm

NOTE

1. 5.0 mm/min
2. Type I, 5.0 mm/min
3. Type I, 5.0 mm/min
4. 2.6 mm/min
5. 2.6 mm/min
6. Rate B (120°C/h), Loading 2 (50 N)
7. Tungsten Electrode

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Recommended distributors for this material

Susheng Import & Export Trading Co.,Ltd.

Tel: +86 21 5895 8519

Phone: +86 13424755533

Email: sales@su-jiao.com

No. 215, Lianhe North Road, Fengxian District, Shanghai, China



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