

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			
Features	High strength		
	Good chemical resistance		
	Heat resistance, high		
	Compliance of Food Exposure		
	General		
	amorphous		
	Flame retardancy		
Uses	General		
Agency Ratings	FDA Food Exposure, Not Rated		
	NSF 51		
	European food contact, not rated		
RoHS Compliance	RoHS compliance		
Appearance	Clear/transparent		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Density	1.27	g/cm ³	ISO 1183
Melt Volume-Flow Rate (MVR) (360°C/5.0 kg)	13.0	cm ³ /10min	ISO 1133
Molding Shrinkage - Flow ¹	0.50 - 0.70	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	1.3	%	ISO 62
Equilibrium, 23°C, 50% RH	0.70	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Ball Indentation Hardness (H 358/30)	140	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus	3200	MPa	ISO 527-2/1
Tensile Stress			ISO 527-2/50
Yield	105	MPa	ISO 527-2/50
Fracture	85.0	MPa	ISO 527-2/50
Tensile Strain			ISO 527-2/50

Yield	6.0	%	ISO 527-2/50
Fracture	60	%	ISO 527-2/50
Flexural Modulus ²	3300	MPa	ISO 178
Flexural Stress	160	MPa	ISO 178
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	10.0	mg	Internal method
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength			
-30°C ³	4.0	kJ/m ²	ISO 179/1eA
23°C ⁴	4.0	kJ/m ²	ISO 179/1eA
23°C	10	kJ/m ²	ISO 179/2C
Notched Izod Impact ⁵			ISO 180/1A
-30°C	6.0	kJ/m ²	ISO 180/1A
23°C	6.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact Strength ⁶			ISO 180/1U
-30°C	No Break		ISO 180/1U
23°C	No Break		ISO 180/1U
Thermal	Nominal Value	Unit	Test Method
Heat Deflection Temperature ⁷			
0.45 MPa, unannealed, 100 mm span	200	°C	ISO 75-2/Be
1.8 MPa, unannealed, 100 mm span	190	°C	ISO 75-2/Ae
Vicat Softening Temperature			
--	215	°C	ISO 306/A50, ISO 306/B120
--	211	°C	ISO 306/B50
Linear thermal expansion coefficient			ISO 11359-2
Flow: 23 to 150°C	5.0E-5	cm/cm/°C	ISO 11359-2
Horizontal: 23 to 150°C	5.0E-5	cm/cm/°C	ISO 11359-2
Thermal Conductivity	0.24	W/m/K	ISO 8302
RTI Elec	170	°C	UL 746
RTI Imp	170	°C	UL 746
RTI	170	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity	1.0E+15	ohms · cm	IEC 60093
Dielectric Strength			IEC 60243-1
0.800mm, in oil	33	kV/mm	IEC 60243-1
1.60mm, in oil	25	kV/mm	IEC 60243-1
3.20mm, in oil	16	kV/mm	IEC 60243-1
Relative Permittivity			IEC 60250
50 Hz	2.90		IEC 60250
60 Hz	2.90		IEC 60250
1 MHz	2.90		IEC 60250

Dissipation Factor			IEC 60250
50 Hz	5.0E-4		IEC 60250
60 Hz	5.0E-4		IEC 60250
1 MHz	6.0E-3		IEC 60250
2.45 GHz	2.5E-3		IEC 60250
Comparative Tracking Index			IEC 60112
--	150	V	IEC 60112
Solution B	100	V	IEC 60112
Flammability	Nominal Value	Unit	Test Method
Flame Rating			UL 94
0.400 mm	V-2		UL 94
0.750 mm	V-0		UL 94
3.00 mm	5VA		UL 94
Glow Wire Flammability Index (3.20 mm)	960	°C	IEC 60695-2-12
Oxygen Index	47	%	ISO 4589-2
Injection	Nominal Value	Unit	
Drying Temperature	150	°C	
Drying Time	4.0 - 6.0	hr	
Suggested Max Moisture	0.020	%	
Hopper Temperature	80.0 - 120	°C	
Rear Temperature	340 - 395	°C	
Middle Temperature	350 - 405	°C	
Front Temperature	360 - 415	°C	
Nozzle Temperature	350 - 405	°C	
Processing (Melt) Temp	370 - 410	°C	
Mold Temperature	140 - 180	°C	
NOTE			
1.	Tensile Bar		
2.	2.0 mm/min		
3.	80*10*4 sp=62mm		
4.	80*10*4 sp=62mm		
5.	80*10*4		
6.	80*10*4		
7.	120*10*4 mm		

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