

ULTEM™ 1000E resin

Polyether Imide

SABIC Innovative Plastics

Message:

ULTEM 1000E resin is an amorphous, transparent polyetherimide (PEI) plastic offering a glass transition temperature (Tg) of 217°C with added mold release. This inherently flame retardant resin is RoHS, US FDA and EU Food Contact compliant and has NSF 51 listing. For Healthcare applications which require biocompatibility we recommend ULTEMTM resin HU1000E as an alternative. ULTEMTM 1000E resin is an unreinforced general purpose grade offering high heat resistance, high strength and modulus, broad chemical resistance up to high temperatures and improved mold release vs ULTEM 1000.

General Information			
Additive	demoulding		
Features	High strength		
	Good chemical resistance		
	Heat resistance, high		
	Compliance of Food Exposure		
	General		
	Good demoulding performance		
	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
Specific Gravity	1.27	g/cm³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	12	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (360°C/5.0 kg)	17.0	cm³/10min	ISO 1133
Molding Shrinkage			Internal method
Flow ¹	0.50 - 0.70	%	Internal method
Flow: 3.20mm	0.50 - 0.70	%	Internal method
Transverse flow: 3.20mm	0.50 - 0.70	%	Internal method
Water Absorption			
24 hr	0.25	%	ASTM D570
Saturated, 23°C	1.3	%	ISO 62
Equilibrium, 23°C	1.3	%	ASTM D570

Equilibrium, 23°C, 50% RH	0.70	%	ISO 62
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ²	3590	MPa	ASTM D638
--	3200	MPa	ISO 527-2/1
Tensile Strength			
Yield ³	110	MPa	ASTM D638
Yield	105	MPa	ISO 527-2/5
Fracture ⁴	85.0	MPa	ASTM D638
Fracture	85.0	MPa	ISO 527-2/5
Tensile Elongation			
Yield ⁵	7.0	%	ASTM D638
Yield	6.0	%	ISO 527-2/5
Fracture ⁶	60	%	ASTM D638
Fracture	60	%	ISO 527-2/5
Flexural Modulus			
50.0mm span ⁷	3520	MPa	ASTM D790
-- ⁸	3300	MPa	ISO 178
Flexural Stress			
--	160	MPa	ISO 178
Yield, 50.0mm span ⁹	165	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ¹⁰			ISO 179/1eA
-30°C	4.0	kJ/m ²	ISO 179/1eA
23°C	4.0	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength ¹¹			ISO 179/1eU
-30°C	No Break		ISO 179/1eU
23°C	No Break		ISO 179/1eU
Notched Izod Impact			
-30°C	55	J/m	ASTM D256
23°C	53	J/m	ASTM D256
-30°C ¹²	6.0	kJ/m ²	ISO 180/1A
23°C ¹³	6.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
23°C	1300	J/m	ASTM D4812
-30°C ¹⁴	No Break		ISO 180/1U
23°C ¹⁵	No Break		ISO 180/1U
Reverse Notch Izod Impact (3.20 mm)	1300	J/m	ASTM D256
Instrumented Dart Impact (23°C, Total Energy)	38.0	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			

0.45 MPa, unannealed, 3.20mm	207	°C	ASTM D648
0.45 MPa, unannealed, 6.40mm	210	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ¹⁶	200	°C	ISO 75-2/Be
0.45 MPa, unannealed, 64.0mm span ¹⁷	198	°C	ISO 75-2/Bf
1.8 MPa, unannealed, 3.20mm	199	°C	ASTM D648
1.8 MPa, unannealed, 6.40mm	201	°C	ASTM D648
1.8 MPa, unannealed, 100 mm span ¹⁸	190	°C	ISO 75-2/Ae
1.8 MPa, unannealed, 64.0mm span ¹⁹	188	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	219	°C	ASTM D1525 ²⁰
--	215	°C	ISO 306/A50
--	211	°C	ISO 306/B50
--	212	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			
Flow: -40 to 150°C	5.5E-5	cm/cm/°C	ASTM E831
Flow: 23 to 150°C	5.5E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 150°C	5.5E-5	cm/cm/°C	ASTM E831
Horizontal: 23 to 150°C	5.5E-5	cm/cm/°C	ISO 11359-2
Thermal Conductivity			
--	0.22	W/m/K	ASTM C177
--	0.24	W/m/K	ISO 8302
Injection	Nominal Value	Unit	
Drying Temperature	149	°C	
Drying Time	4.0 - 6.0	hr	
Drying Time, Maximum	24	hr	
Suggested Max Moisture	0.020	%	
Suggested Shot Size	40 - 60	%	
Rear Temperature	332 - 399	°C	
Middle Temperature	338 - 399	°C	
Front Temperature	343 - 399	°C	
Nozzle Temperature	343 - 399	°C	
Processing (Melt) Temp	349 - 399	°C	
Mold Temperature	135 - 163	°C	
Back Pressure	0.345 - 0.689	MPa	
Screw Speed	40 - 70	rpm	
Vent Depth	0.025 - 0.076	mm	
NOTE			
1.	Tensile Bar		
2.	5.0 mm/min		
3.	Type 1, 5.0 mm/min		
4.	Type 1, 5.0 mm/min		

5.	Type 1, 5.0 mm/min
6.	Type 1, 5.0 mm/min
7.	1.3 mm/min
8.	2.0 mm/min
9.	1.3 mm/min
10.	80*10*4 sp=62mm
11.	80*10*4 sp=62mm
12.	80*10*4
13.	80*10*4
14.	80*10*4
15.	80*10*4
16.	120*10*4 mm
17.	80*10*4 mm
18.	120*10*4 mm
19.	80*10*4 mm
20.	标准 B (120°C/h), 载荷2 (50N)

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