

ULTEM™ HU1004 resin

Polyether Imide

SABIC Innovative Plastics

Message:

High Temperature, Transparent, Polyetherimide Blend with Improved Ductility and Enhanced Hydrostability. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI) and FDA and EUFC food approved.

General Information			
Features	Heat resistance, high		
	Biocompatibility		
	Compliance of Food Exposure		
	Hydrolysis stability		
	ductility		
Uses	Medical/nursing supplies		
Agency Ratings	FDA Food Exposure, Not Rated		
	ISO 10993		
	USP Class VI		
	European food contact, not rated		
Appearance	Clear/transparent		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.28	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	10	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (360°C/5.0 kg)	14.0	cm ³ /10min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 - 0.70	%	Internal method
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus ¹	2900	MPa	ASTM D638
Tensile Strength			
Yield ²	95.0	MPa	ASTM D638
Yield	97.0	MPa	ISO 527-2/50
Fracture ³	90.0	MPa	ASTM D638
Fracture	80.0	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁴	7.0	%	ASTM D638
Yield	7.0	%	ISO 527-2/50
Fracture ⁵	85	%	ASTM D638
Fracture	80	%	ISO 527-2/50
Flexural Modulus			

50.0mm span ⁶	3000	MPa	ASTM D790
-- ⁷	2800	MPa	ISO 178
Flexural Stress			
--	136	MPa	ISO 178
Yield, 50.0mm span ⁸	140	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	11	kJ/m ²	ISO 179/2C
Notched Izod Impact			
23°C	70	J/m	ASTM D256
-30°C ⁹	6.0	kJ/m ²	ISO 180/1A
23°C ¹⁰	6.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact Strength ¹¹			ISO 180/1U
-30°C	No Break		ISO 180/1U
23°C	No Break		ISO 180/1U
Reverse Notch Izod Impact (3.20 mm)	3300	J/m	ASTM D256
Instrumented Dart Impact			ASTM D3763
-20°C, Total Energy	93.0	J	ASTM D3763
0°C, Total Energy	99.0	J	ASTM D3763
23°C, Total Energy	93.0	J	ASTM D3763
Instrumented Impact, Ductility			ASTM D3763
-20°C	90	%	ASTM D3763
0°C	100	%	ASTM D3763
23°C	100	%	ASTM D3763
NBS Smoke Density - Flaming, Ds, 4 min	0.700		ASTM E662
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 6.40mm	214	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ¹²	205	°C	ISO 75-2/Be
1.8 MPa, unannealed, 6.40mm	204	°C	ASTM D648
1.8 MPa, unannealed, 100 mm span ¹³	190	°C	ISO 75-2/Ae
Vicat Softening Temperature			
--	219	°C	ISO 306/A50
--	212	°C	ISO 306/B50, ISO 306/B120
Linear thermal expansion coefficient			
Flow: -20 to 150°C	5.6E-5	cm/cm/°C	ASTM E831
Flow: 23 to 150°C	5.0E-5	cm/cm/°C	ISO 11359-2
Lateral: -20 to 150°C	5.5E-5	cm/cm/°C	ASTM E831
Horizontal: 23 to 150°C	5.0E-5	cm/cm/°C	ISO 11359-2
Thermal Conductivity	0.19	W/m/K	ASTM C177
Flammability	Nominal Value	Unit	Test Method
Flame Rating (0.750 mm)	V-0		UL 94
Oxygen Index	46	%	ASTM D2863

Injection	Nominal Value	Unit
Drying Temperature	150	°C
Drying Time	6.0 - 8.0	hr
Drying Time, Maximum	24	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 - 60	%
Rear Temperature	330 - 390	°C
Middle Temperature	335 - 390	°C
Front Temperature	345 - 390	°C
Nozzle Temperature	345 - 390	°C
Processing (Melt) Temp	355 - 390	°C
Mold Temperature	130 - 160	°C
Back Pressure	0.300 - 0.700	MPa
Screw Speed	40 - 70	rpm
Vent Depth	0.025 - 0.076	mm

NOTE

1. 5.0 mm/min
2. Type 1, 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. 1.3 mm/min
7. 2.0 mm/min
8. 1.3 mm/min
9. 80*10*4
10. 80*10*4
11. 80*10*4
12. 120*10*4 mm
13. 120*10*4 mm

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