

ULTEM™ HU1010 resin

Polyether Imide
SABIC Innovative Plastics

Message:
Transparent, enhanced flow Polyetherimide (Tg 217C). ECO Conforming. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO 10993 or USP Class VI), food contact compliant. EtO and steam sterilizable.

General Information			
UL YellowCard	E121562-100044748		
Features	Biocompatible		
	ECO Compliant		
	Ethylene Oxide Sterilizable		
	Food Contact Acceptable		
	High Flow		
	Steam Sterilizable		
Uses	Medical/Healthcare Applications		
	Pharmaceuticals		
Agency Ratings	EU Eco		
	ISO 10993		
	USP Class VI		
Appearance	Clear/Transparent		
Processing Method	Injection Molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.27	g/cm ³	ASTM D792, ISO 1183
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	18	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (360°C/5.0 kg)	25.0	cm ³ /10min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 to 0.70	%	Internal Method
Water Absorption			
Saturation, 23°C	1.3	%	ISO 62
Equilibrium, 23°C	1.3	%	ASTM D570
Equilibrium, 23°C, 50% RH	0.70	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness (M-Scale)	109		ASTM D785
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ¹	3580	MPa	ASTM D638
--	3200	MPa	ISO 527-2/1

Tensile Strength			
Yield ²	110	MPa	ASTM D638
Yield	105	MPa	ISO 527-2/5
Break ³	105	MPa	ASTM D638
Tensile Elongation			
Yield ⁴	7.0	%	ASTM D638
Yield	6.0	%	ISO 527-2/5
Break ⁵	60	%	ASTM D638
Break	60	%	ISO 527-2/5
Flexural Modulus			
100 mm Span ⁶	3520	MPa	ASTM D790
50.0 mm Span ⁷	3420	MPa	ASTM D790
-- ⁸	3300	MPa	ISO 178
Flexural Stress			
--	160	MPa	ISO 178
Yield, 50.0 mm Span ⁹	174	MPa	ASTM D790
Yield, 100 mm Span ¹⁰	165	MPa	ASTM D790
Taber Abrasion Resistance (1000 Cycles, 1000 g, CS-17 Wheel)	10.0	mg	ASTM D1044
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ¹¹ (23°C)	3.0	kJ/m ²	ISO 179/1eA
Notched Izod Impact			
-30°C	35	J/m	ASTM D256
23°C	32	J/m	ASTM D256
-30°C ¹²	5.0	kJ/m ²	ISO 180/1A
23°C ¹³	5.0	kJ/m ²	ISO 180/1A
Unnotched Izod Impact (23°C)	1300	J/m	ASTM D4812
Reverse Notch Izod Impact (3.20 mm)	1200	J/m	ASTM D256
Instrumented Dart Impact (23°C, Total Energy)	33.0	J	ASTM D3763
Gardner Impact (23°C)	33.9	J	ASTM D3029
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, Unannealed, 6.40 mm	207	°C	ASTM D648
1.8 MPa, Unannealed, 6.40 mm	199	°C	ASTM D648
1.8 MPa, Unannealed, 64.0 mm Span ¹⁴	193	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	219	°C	ASTM D1525 ¹⁵
--	211	°C	ISO 306/B50
--	212	°C	ISO 306/B120
CLTE			
Flow : -20 to 150°C	5.6E-5	cm/cm/°C	ASTM E831
Flow : -40 to 40°C	5.0E-5	cm/cm/°C	ISO 11359-2

Transverse : -40 to 40°C	5.0E-5	cm/cm/°C	ASTM E831, ISO 11359-2
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 ¹⁶	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
0.710 mm	V-2		
0.750 mm	V-0		
3.00 mm	5VA		
Oxygen Index	44	%	ASTM D2863
NBS Smoke Density - Flaming, Ds, 4 min	2.00		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.	Type I, 5.0 mm/min
5.	Type I, 5.0 mm/min
6.	2.6 mm/min
7.	1.3 mm/min
8.	2.0 mm/min
9.	1.3 mm/min
10.	2.6 mm/min
11.	80*10*4 sp=62mm
12.	80*10*4
13.	80*10*4
14.	80*10*4 mm
15.	Rate B (120°C/h), Loading 2 (50 N)
16.	Tungsten Electrode

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