

ULTEM™ 1010TC resin

Polyether Imide
SABIC Innovative Plastics Asia Pacific

Message:
Transparent, enhanced flow Polyetherimide (Tg 217C). ECO Conforming, UL94 V0 and 5VA listing; color dependant, see UL Yellow Card. US FDA and EU Food Contact compliant, NSF 51 listing.

General Information			
UL YellowCard	E207780-100221357		
Features	ECO Compliant		
	Food Contact Acceptable		
	Good Flow		
Agency Ratings	EU Eco		
	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/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) (220°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			
24 hr	0.25	%	ASTM D570
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	3590	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

Break	85.0	MPa	ISO 527-2/5
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			
50.0 mm Span ⁶	3420	MPa	ASTM D790
-- ⁷	3300	MPa	ISO 178
Flexural Stress			
--	160	MPa	ISO 178
Yield, 50.0 mm Span ⁸	174	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 ⁹ (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 ¹⁰	5.0	kJ/m ²	ISO 180/1A
23°C ¹¹	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)	33.0	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	198	°C	ASTM D648
1.8 MPa, Unannealed, 64.0 mm Span ¹²	193	°C	ISO 75-2/Af
Vicat Softening Temperature			
--	218	°C	ASTM D1525 ¹³
--	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 ¹⁴	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
1.50 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.	1.3 mm/min		

7.	2.0 mm/min
8.	1.3 mm/min
9.	80*10*4 sp=62mm
10.	80*10*4
11.	80*10*4
12.	80*10*4 mm
13.	Rate B (120°C/h), Loading 2 (50 N)
14.	Tungsten Electrode

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