

ULTEM™ 1010 resin

Polyether Imide

SABIC Innovative Plastics

Message:

ULTEM™ 1010 resin is an amorphous, transparent polyetherimide (PEI) plastic offering enhanced flow and a glass transition temperature (Tg) of 217°C. This inherently flame retardant resin has UL94 V0 and 5VA ratings. ULTEM™ 1010 resin is US FDA and EU Food Contact compliant and has NSF 51 listing. For Healthcare applications which require biocompatibility we recommend ULTEM™ HU1010 resin as an alternative. ULTEM™ 1010 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 liquidity		
	Good chemical resistance		
	Heat resistance, high		
	Compliance of Food Exposure		
	amorphous		
	Flame retardancy		
Uses	General		
Agency Ratings	FDA Food Exposure, Not Rated		
	NSF 51		
	European food contact, not rated		
Appearance	Clear/transparent		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.27	g/cm ³	ASTM D792
Melt Mass-Flow Rate (MFR) (337°C/6.6 kg)	18	g/10 min	ASTM D1238
Molding Shrinkage - Flow (3.20 mm)	0.50 - 0.70	%	Internal method
Water Absorption			ASTM D570
24 hr	0.25	%	ASTM D570
Equilibrium, 23°C	1.3	%	ASTM D570
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
Tensile Strength ² (Yield)	110	MPa	ASTM D638
Tensile Elongation ³			ASTM D638
Yield	7.0	%	ASTM D638
Fracture	60	%	ASTM D638
Flexural Modulus ⁴ (100 mm Span)	3520	MPa	ASTM D790

Flexural Strength ⁵ (Yield, 100 mm Span)	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
Notched Izod Impact (23°C)	32	J/m	ASTM D256
Unnotched Izod Impact (23°C)	1300	J/m	ASTM D4812
Reverse Notch Izod Impact (3.20 mm)	1200	J/m	ASTM D256
Dart Drop Impact (23°C)	33.9	J	ASTM D3029
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			ASTM D648
0.45 MPa, unannealed, 6.40mm	207	°C	ASTM D648
1.8 MPa, unannealed, 6.40mm	199	°C	ASTM D648
Vicat Softening Temperature	219	°C	ASTM D1525 ⁶
CLTE - Flow (-20 to 150°C)	5.6E-5	cm/cm/°C	ASTM E831
Thermal Conductivity	0.22	W/m/K	ASTM C177
RTI Elec	170	°C	UL 746
RTI Imp	170	°C	UL 746
RTI	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	ASTM D149
1.60 mm, in Oil	28	kV/mm	ASTM D149
Dielectric Constant (1 kHz)	3.15		ASTM D150
Dissipation Factor			ASTM D150
1 kHz	1.3E-3		ASTM D150
2.45 GHz	2.5E-3		ASTM D150
Arc Resistance ⁷	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
0.750 mm	V-0		UL 94
3.00 mm	5VA		UL 94
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 - 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. 5.0 mm/min
2. Type 1, 5.0 mm/min
3. Type 1, 5.0 mm/min
4. 2.6 mm/min
5. 2.6 mm/min
6. 标准 B (120°C/h), 载荷2 (50N)
7. Tungsten electrode

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