SABIC Innovative Plastics Ultem 1010RV PEI

Category : Polymer , Thermoplastic , Polyetherimide (PEI)

Material Notes:

Enhanced flow Polyetherimide (Tg 217C) with internal mold release. ECO Conforming, UL94 V0 and 5VA listing; color dependant, see UL Yellow Card.This data was supplied by SABIC-IP for the Americas region.

Order this product through the following link:
http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Ultem-1010RV-PEI.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.27 g/cc	1.27 g/cc	ASTM D 792
Density	1.27 g/cc	0.0459 lb/inÂ³	ISO 1183
Moisture Absorption at Equilibrium	0.70 %	0.70 %	23Â°C / 50% RH; ISO 62
Water Absorption at Saturation	1.25 % @Temperature 23.0 Â°C	1.25 % @Temperature 73.4 Â°F	ISO 62
Linear Mold Shrinkage, Flow	0.0050 - 0.0070 cm/cm @Thickness 3.20 mm	0.0050 - 0.0070 in/in @Thickness 0.126 in	SABIC Method
Melt Flow	17.8 g/10 min @Load 6.60 kg, Temperature 337 Â°C	17.8 g/10 min @Load 14.6 lb, Temperature 639 Â°F	ASTM D 1238
	25 g/10 min @Load 5.00 kg, Temperature 220 Â°C	25 g/10 min @Load 11.0 lb, Temperature 428 Â°F	[cm^3/10 min] Melt Volume Rate; ISO 1133

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	85.0 MPa	12300 psi	5 mm/min; ISO 527
	105 MPa	15200 psi	Type I, 5 mm/min; ASTM D 638
Tensile Strength, Yield	105 MPa	15200 psi	5 mm/min; ISO 527
	110 MPa	16000 psi	Type I, 5 mm/min; ASTM D 638
Elongation at Break	60 %	60 %	Type I, 5 mm/min; ASTM D 638
	60 %	60 %	5 mm/min; ISO 527
Elongation at Yield	6.0 %	6.0 %	5 mm/min; ISO 527
	7.0 %	7.0 %	Type I, 5 mm/min; ASTM D 638

Mechanical Properties	Metric	English	Comments
Tensile Modulus	3.20 GPa	464 ksi	1 mm/min; ISO 527
	3.58 GPa	519 ksi	5 mm/min; ASTM D 638
Flexural Yield Strength	160 MPa	23200 psi	2 mm/min; ISO 178
	174 MPa	25200 psi	1.3 mm/min, 50 mm span; ASTM D 790
Flexural Modulus	3.30 GPa	479 ksi	2 mm/min; ISO 178
	3.42 GPa	496 ksi	1.3 mm/min, 50 mm span; ASTM D 790
Izod Impact, Notched	0.320 J/cm @Temperature 23.0 Â°C	0.599 ft-lb/in @Temperature 73.4 Â°F	ASTM D 256
	0.350 J/cm @Temperature -30.0 Â°C	0.656 ft-lb/in @Temperature -22.0 Â°F	ASTM D 256
Izod Impact, Unnotched	13.35 J/cm @Temperature 23.0 Â°C	25.01 ft-lb/in @Temperature 73.4 Â°F	ASTM D 4812
Izod Impact, Notched (ISO)	5.00 kJ/mÂ² @Temperature 23.0 Â°C	2.38 ft-lb/inÂ² @Temperature 73.4 Â°F	80*10*4; ISO 180/1A
	5.00 kJ/mÂ² @Temperature -30.0 Â°C	2.38 ft-lb/inÂ² @Temperature -22.0 Â°F	80*10*4; ISO 180/1A
Charpy Impact, Notched	0.300 J/cmÂ² @Temperature 23.0 Â°C	1.43 ft-lb/inÂ² @Temperature 73.4 Â°F	V-notch Edgew 80*10*4 sp=62mm; ISO 179/1eA
Impact Test	33.0 J @Temperature 23.0 Â°C	24.3 ft-lb @Temperature 73.4 Â°F	Instrumented Impact Total Energy; ASTM D 3763

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	50.0 Âµm/m-Â°C @Temperature -40.0 - 40.0 Â°C	27.8 Âµin/in-Â°F @Temperature -40.0 - 104 Â°F	ISO 11359-2
	55.8 Âµm/m-Â°C @Temperature -20.0 - 150 Â°C	31.0 Âµin/in-Â°F @Temperature -4.00 - 302 Â°F	ASTM E 831

Thermal Properties	Metric	English	Comments
CTE, linear, Transverse to Flow	50.0 Âµm/m-Â°C	27.8 Âµin/in-Â°F	ASTM E 831
	@Temperature -40.0 - 40.0 Â°C	@Temperature -40.0 - 104 Â°F	
	50.0 Âµm/m-Â°C @Temperature -40.0 - 40.0 Â°C	27.8 Âµin/in-Â°F @Temperature -40.0 - 104 Â°F	ISO 11359-2
Thermal Conductivity	0.220 W/m-K	1.53 BTU-in/hr-ftÂ²-Â°F	ASTM C 177
Deflection Temperature at 1.8 MPa (264 psi)	193 Â°C	379 Â°F	Flatw 80*10*4 sp=64mm; ISO 75/Af
	198 Â°C @Thickness 6.40 mm	388 Â°F @Thickness 0.252 in	unannealed; ASTM D 648
Vicat Softening Point	211 Â°C	412 Â°F	Rate B/50; ISO 306
	212 Â°C	414 Â°F	Rate B/120; ISO 306
	218 Â°C	424 Â°F	Rate B/50; ASTM D 1525
Glass Transition Temp, Tg	217 Â°C	423 Â°F	
UL RTI, Electrical	170 Â°C	338 Â°F	UL 746B
UL RTI, Mechanical with Impact	170 Â°C	338 Â°F	UL 746B
UL RTI, Mechanical without Impact	170 Â°C	338 Â°F	UL 746B
Flammability, UL94	V-1 @Thickness 0.750 mm	V-1 @Thickness 0.0295 in	UL 94
	V-0 @Thickness 0.750 mm	V-0 @Thickness 0.0295 in	UL 94
	5VA @Thickness 3.00 mm	5VA @Thickness 0.118 in	UL 94
NBS Smoke Density	2.0 @Time 240 sec	2.0 @Time 0.0667 hour	Flaming, Ds; ASTM E 662
Oxygen Index	44 %	44 %	LOI; ASTM D 2863

Electrical Properties	Metric	English	Comments
Volume Resistivity	1.00e+17 ohm-cm	1.00e+17 ohm-cm	ASTM D 257
Dielectric Constant	3.15 @Frequency 1000 Hz	3.15 @Frequency 1000 Hz	ASTM D 150

Electrical Properties	Metric	English	Comments
Dielectric Strength	27.9 kV/mm @Thickness 1.60 mm	709 kV/in @Thickness 0.0630 in	in oil; ASTM D 149
	32.6 kV/mm @Thickness 1.60 mm	828 kV/in @Thickness 0.0630 in	in air; ASTM D 149
Dissipation Factor	0.0013 @Frequency 1000 Hz	0.0013 @Frequency 1000 Hz	ASTM D 150
	0.0025 @Frequency 2.45e+9 Hz	0.0025 @Frequency 2.45e+9 Hz	ASTM D 150
Arc Resistance	120 - 180 sec	120 - 180 sec	Tungsten, PLC code 5; ASTM D 495
Comparative Tracking Index	100 - 175 V	100 - 175 V	PLC code 4; UL 746A
Hot Wire Ignition, HWI	60 - 120 sec	60 - 120 sec	PLC code 1; UL 746A
High Amp Arc Ignition, HAI	15 - 30 arcs	15 - 30 arcs	surface, PLC code 3; UL 746A
High Voltage Arc-Tracking Rate, HVTR	25.4 - 80.0 mm/min	1.00 - 3.15 in/min	PLC code 2; UL 746A

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