

SABIC Innovative Plastics ULTEM CRS5011R PEI

Category : Polymer , Thermoplastic , Polyetherimide (PEI)

Material Notes:

Enhanced flow Polyetherimide copolymer (Tg 225°C) with internal mold release and enhanced chemical resistance to strong acids, bases, aromatics and ketones. ECO Conforming.

Order this product through the following link:

http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-ULTEM-CRS5011R-PEI.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.28 g/cc	1.28 g/cc	ASTM D792
Density	1.28 g/cc	0.0462 lb/in ³	ISO 1183
Moisture Absorption	0.200 %	0.200 %	23Â°C / 50% RH; ISO 62
Water Absorption at Saturation	1.2 %	1.2 %	ISO 62
Linear Mold Shrinkage, Flow	0.0040 - 0.0070 cm/cm	0.0040 - 0.0070 in/in	on Tensile Bar; SABIC Method
	0.0040 - 0.0070 cm/cm @Thickness 3.20 mm	0.0040 - 0.0070 in/in @Thickness 0.126 in	SABIC Method
Linear Mold Shrinkage, Transverse	0.0040 - 0.0070 cm/cm @Thickness 3.20 mm	0.0040 - 0.0070 in/in @Thickness 0.126 in	SABIC Method
Melt Flow	11 g/10 min @Load 6.60 kg, Temperature 337 Â°C	11 g/10 min @Load 14.6 lb, Temperature 639 Â°F	ASTM D1238
Melt Index of Compound	20 g/10 min @Load 5.00 kg, Temperature 360 Â°C	20 g/10 min @Load 11.0 lb, Temperature 680 Â°F	MVR [cm ³ /10 min]; ISO 1133

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	75.0 MPa	10900 psi	Type I, 5 mm/min; ASTM D638
	85.0 MPa	12300 psi	5 mm/min; ISO 527
Tensile Strength, Yield	100 MPa	14500 psi	Type I, 5 mm/min; ASTM D638
	100 MPa	14500 psi	5 mm/min; ISO 527
Elongation at Break	50 %	50 %	5 mm/min; ISO 527
	60 %	60 %	Type I, 5 mm/min; ASTM D638
Elongation at Yield	8.0 %	8.0 %	Type I, 5 mm/min; ASTM D638

Mechanical Properties	Metric SI Unit	English SI Unit	Comments 5 mm/min; ISO 527
Tensile Modulus	2.90 GPa	421 ksi	5 mm/min; ASTM D638
	2.90 GPa	421 ksi	1 mm/min; ISO 527
Flexural Yield Strength	110 MPa	16000 psi	2 mm/min; ISO 178
	138 MPa	20000 psi	1.3 mm/min, 50 mm span; ASTM D790
Flexural Modulus	2.90 GPa	421 ksi	2 mm/min; ISO 178
	3.10 GPa	450 ksi	1.3 mm/min, 50 mm span; ASTM D790
Izod Impact, Notched	0.590 J/cm	1.11 ft-lb/in	ASTM D256
	20.8 J/cm @Thickness 3.20 mm	39.0 ft-lb/in @Thickness 0.126 in	ASTM D256
Izod Impact, Unnotched	21.0 J/cm	39.3 ft-lb/in	ASTM D4812
Izod Impact, Notched (ISO)	5.00 kJ/m ²	2.38 ft-lb/in ²	80*10*4; ISO 180/1A
	5.00 kJ/m ² @Temperature -30.0 °C	2.38 ft-lb/in ² @Temperature -22.0 °F	80*10*4; ISO 180/1A
Izod Impact, Unnotched (ISO)	NB	NB	80*10*4; ISO 180/1U
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	80*10*4; ISO 180/1U
Charpy Impact Unnotched	NB	NB	Edgew 80*10*4 sp=62mm; ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	Edgew 80*10*4 sp=62mm; ISO 179/1eU
Charpy Impact, Notched	0.700 J/cm ²	3.33 ft-lb/in ²	Edgew 80*10*4 sp=62mm; ISO 179/1eA
	0.700 J/cm ² @Temperature -30.0 °C	3.33 ft-lb/in ² @Temperature -22.0 °F	Edgew 80*10*4 sp=62mm; ISO 179/1eA
Dart Drop, Total Energy	30.0 J @Temperature 23.0 °C	22.1 ft-lb @Temperature 73.4 °F	ASTM D3763

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	55.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	30.6 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	ASTM E 831
	@Temperature -40.0 - 150 $\text{Å}^\circ\text{C}$	@Temperature -40.0 - 302 $\text{Å}^\circ\text{F}$	
	55.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	30.6 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	ISO 11359-2
	@Temperature 23.0 - 150 $\text{Å}^\circ\text{C}$	@Temperature 73.4 - 302 $\text{Å}^\circ\text{F}$	
CTE, linear, Transverse to Flow	55.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	30.6 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	ASTM E 831
	@Temperature -40.0 - 150 $\text{Å}^\circ\text{C}$	@Temperature -40.0 - 302 $\text{Å}^\circ\text{F}$	
	55.0 $\mu\text{m}/\text{m}\cdot\text{Å}^\circ\text{C}$	30.6 $\mu\text{in}/\text{in}\cdot\text{Å}^\circ\text{F}$	ISO 11359-2
	@Temperature 23.0 - 150 $\text{Å}^\circ\text{C}$	@Temperature 73.4 - 302 $\text{Å}^\circ\text{F}$	
Thermal Conductivity	0.310 W/m-K	2.15 BTU-in/hr-ft $\text{Å}^2\cdot\text{Å}^\circ\text{F}$	ASTM C177
Deflection Temperature at 0.46 MPa (66 psi)	208 $\text{Å}^\circ\text{C}$	406 $\text{Å}^\circ\text{F}$	Flatw 80*10*4 sp=64mm; ISO 75/Bf
	210 $\text{Å}^\circ\text{C}$	410 $\text{Å}^\circ\text{F}$	Edgew 120*10*4 sp=100mm; ISO 75/Be
	213 $\text{Å}^\circ\text{C}$	415 $\text{Å}^\circ\text{F}$	unannealed; ASTM D648
	@Thickness 3.20 mm	@Thickness 0.126 in	
	216 $\text{Å}^\circ\text{C}$	421 $\text{Å}^\circ\text{F}$	unannealed; ASTM D648
	@Thickness 6.40 mm	@Thickness 0.252 in	
Deflection Temperature at 1.8 MPa (264 psi)	198 $\text{Å}^\circ\text{C}$	388 $\text{Å}^\circ\text{F}$	Flatw 80*10*4 sp=64mm; ISO 75/Af
	200 $\text{Å}^\circ\text{C}$	392 $\text{Å}^\circ\text{F}$	Edgew 120*10*4 sp=100mm; ISO 75/Ae
	201 $\text{Å}^\circ\text{C}$	394 $\text{Å}^\circ\text{F}$	unannealed; ASTM D648
	@Thickness 3.20 mm	@Thickness 0.126 in	
	204 $\text{Å}^\circ\text{C}$	399 $\text{Å}^\circ\text{F}$	unannealed; ASTM D648
	@Thickness 6.40 mm	@Thickness 0.252 in	
Vicat Softening Point	215 $\text{Å}^\circ\text{C}$	419 $\text{Å}^\circ\text{F}$	Rate B/50; ISO 306
	215 $\text{Å}^\circ\text{C}$	419 $\text{Å}^\circ\text{F}$	Rate B/120; ISO 306
	220 $\text{Å}^\circ\text{C}$	428 $\text{Å}^\circ\text{F}$	Rate A/50; ISO 306
	227 $\text{Å}^\circ\text{C}$	441 $\text{Å}^\circ\text{F}$	Rate B/50; ASTM D1525

Glass Transition Temp, Tg Thermal Properties	225 Â°C Metric	437 Â°F English	Comments
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Electrical Properties	Metric	English	Comments
Volume Resistivity	2.50e+15 ohm-cm	2.50e+15 ohm-cm	IEC 60093
Surface Resistance	>= 1.00e+15 ohm	>= 1.00e+15 ohm	ROA; IEC 60093
Dielectric Constant	3.2	3.2	ASTM D150
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	
Dielectric Strength	18.0 kV/mm	457 kV/in	in oil; ASTM D149
	@Thickness 3.20 mm	@Thickness 0.126 in	
	18.1 kV/mm	460 kV/in	in oil; IEC 60243-1
	@Thickness 3.20 mm	@Thickness 0.126 in	
Dissipation Factor	0.0021	0.0021	ASTM D150
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	
	0.0021	0.0021	IEC 60250
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	
Comparative Tracking Index	>= 100 V	>= 100 V	IEC 60112
	150 V	150 V	

Descriptive Properties	Value	Comments
Ball Pressure Test, 125Â°C +/- 2Â°C	Passes	IEC 60695-10-2

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