

SABIC Innovative Plastics Lexan® HF1140R PC

Category : Polymer , Thermoplastic , Polycarbonate (PC)

Material Notes:

High flow grade. Heat stabilized. Enhanced level of mold release. FDA food contact compliant in limited colors. Effective January 15th, 2007 this grade will no longer be supported with biocompatibility information and should not be used for medical applications which require biocompatibility. Alternative grade HP1R.

Order this product through the following link:

http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Lexan-HF1140R-PC.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.20 g/cc	1.20 g/cc	ASTM D792
Density	1.19 g/cc	0.0430 lb/in ³	ASTM D792
Water Absorption	0.15 %	0.15 %	ASTM D570
	@Time 86400 sec	@Time 24.0 hour	
Moisture Absorption at Equilibrium	0.35 %	0.35 %	ASTM D570
	0.58 %	0.58 %	ASTM D570
	@Temperature 100 °C	@Temperature 212 °F	
Linear Mold Shrinkage, Flow	0.0050 - 0.0070 cm/cm	0.0050 - 0.0070 in/in	SABIC Method
	@Thickness 3.20 mm	@Thickness 0.126 in	
Melt Flow	25 g/10 min	25 g/10 min	ASTM D1238
	@Load 1.20 kg, Temperature 300 °C	@Load 2.65 lb, Temperature 572 °F	
Melt Index of Compound	23 g/10 min	23 g/10 min	MVR [cm ³ /10 min]; ISO 1133
	@Load 1.20 kg, Temperature 300 °C	@Load 2.65 lb, Temperature 572 °F	

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	70	70	ASTM D785
Hardness, Rockwell R	118	118	ASTM D785
Tensile Strength at Break	50.0 MPa	7250 psi	50 mm/min; ISO 527
	65.0 MPa	9430 psi	Type I, 50 mm/min; ASTM D638
Tensile Strength, Yield	62.0 MPa	8990 psi	Type I, 50 mm/min; ASTM D638
	63.0 MPa	9140 psi	50 mm/min; ISO 527

Mechanical Properties	70 % Metric	70 % English	50 mm/min; ISO 527 Comments
	120 %	120 %	Type I, 50 mm/min; ASTM D638
Elongation at Yield	6.0 %	6.0 %	Type I, 50 mm/min; ASTM D638
	6.0 %	6.0 %	50 mm/min; ISO 527
Tensile Modulus	2.35 GPa	341 ksi	1 mm/min; ISO 527
	2.37 GPa	344 ksi	50 mm/min; ASTM D638
Flexural Yield Strength	90.0 MPa	13100 psi	2 mm/min; ISO 178
	93.0 MPa	13500 psi	1.3 mm/min, 50 mm span; ASTM D790
Flexural Modulus	2.30 GPa	334 ksi	1.3 mm/min, 50 mm span; ASTM D790
	2.30 GPa	334 ksi	2 mm/min; ISO 178
Izod Impact, Notched	6.40 J/cm	12.0 ft-lb/in	ASTM D256
	6.40 J/cm	12.0 ft-lb/in	natural, tints; ASTM D256
Izod Impact, Unnotched	32.04 J/cm	60.02 ft-lb/in	ASTM D4812
Izod Impact, Notched (ISO)	12.0 kJ/m ²	5.71 ft-lb/in ²	80*10*4; ISO 180/1A
	10.0 kJ/m ² @Temperature -30.0 °C	4.76 ft-lb/in ² @Temperature -22.0 °F	80*10*4; ISO 180/1A
Charpy Impact, Notched	1.20 J/cm ²	5.71 ft-lb/in ²	Edgew 80*10*4 sp=62mm; ISO 179/1eA
	1.00 J/cm ² @Temperature -30.0 °C	4.76 ft-lb/in ² @Temperature -22.0 °F	Edgew 80*10*4 sp=62mm; ISO 179/1eA
Tensile Impact Strength	378 kJ/m ²	180 ft-lb/in ²	Type S; ASTM D1822
Dart Drop, Total Energy	54.0 J	39.8 ft-lb	Instrumented Impact Energy @ peak; ASTM D3763
	169 J	125 ft-lb	ASTM D3029
Taber Abrasion, mg/1000 Cycles	10	10	CS-17, 1 kg; ASTM D1044

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	68.4 µm/m-°C @Temperature -40.0 - 95.0 °C	38.0 µin/in-°F @Temperature -40.0 - 203 °F	ASTM E 831
	70.0 µm/m-°C	38.9 µin/in-°F	

Thermal Properties	Metric @ Temperature 23.0 - 80.0 °C	English @ Temperature 73.4 - 176 °F	Comments
Specific Heat Capacity	1.25 J/g-°C	0.299 BTU/lb-°F	ASTM C351
Thermal Conductivity	0.190 W/m-K	1.32 BTU-in/hr-ft²-°F	ASTM C177
	0.200 W/m-K	1.39 BTU-in/hr-ft²-°F	ISO 8302
Deflection Temperature at 0.46 MPa (66 psi)	133 °C	271 °F	Edgew 120*10*4 sp=100mm; ISO 75/Be
	137 °C	279 °F	unannealed; ASTM D648
	@Thickness 6.40 mm	@Thickness 0.252 in	
Deflection Temperature at 1.8 MPa (264 psi)	121 °C	250 °F	Edgew 120*10*4 sp=100mm; ISO 75/Ae
	126 °C	259 °F	unannealed; ASTM D648
	@Thickness 3.20 mm	@Thickness 0.126 in	
	126 °C	259 °F	unannealed; ASTM D648
	@Thickness 6.40 mm	@Thickness 0.252 in	
Vicat Softening Point	139 °C	282 °F	Rate B/50; ISO 306
	140 °C	284 °F	Rate B/120; ISO 306
	145 °C	293 °F	Rate A/50; ISO 306
UL RTI, Electrical	130 °C	266 °F	UL 746B
UL RTI, Mechanical with Impact	130 °C	266 °F	UL 746B
UL RTI, Mechanical without Impact	130 °C	266 °F	UL 746B
Flammability, UL94	V-2	V-2	UL 94
	@Thickness 1.09 mm	@Thickness 0.0429 in	
Oxygen Index	25 %	25 %	ISO 4589

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+15 ohm-cm	>= 1.00e+15 ohm-cm	IEC 60093
	>= 1.00e+17 ohm-cm	>= 1.00e+17 ohm-cm	ASTM D257
Surface Resistance	>= 1.00e+15 ohm	>= 1.00e+15 ohm	ROA; IEC 60093
Dielectric Constant	2.7	2.7	IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	

Electrical Properties	Metric	English	Comments
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	IEC 60250
	2.96	2.96	
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	ASTM D150
	3.17	3.17	
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	ASTM D150
Dielectric Strength	14.9 kV/mm	378 kV/in	in air; ASTM D149
	@Thickness 3.20 mm	@Thickness 0.126 in	
	17.0 kV/mm	432 kV/in	in oil; IEC 60243-1
	@Thickness 3.20 mm	@Thickness 0.126 in	
	27.0 kV/mm	686 kV/in	in oil; IEC 60243-1
	@Thickness 1.60 mm	@Thickness 0.0630 in	
	35.0 kV/mm	889 kV/in	in oil; IEC 60243-1
	@Thickness 0.800 mm	@Thickness 0.0315 in	
Dissipation Factor	0.00090	0.00090	ASTM D150
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	
	0.0010	0.0010	IEC 60250
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	
	0.010	0.010	IEC 60250
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	0.010	0.010	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
Comparative Tracking Index	250 - 400 V	250 - 400 V	UL 746A
Hot Wire Ignition, HWI	30 - 60 sec	30 - 60 sec	UL 746A
High Amp Arc Ignition, HAI	60 - 120 arcs	60 - 120 arcs	UL 746A
High Voltage Arc-Tracking Rate, HVTR	25.4 - 80.0 mm/min	1.00 - 3.15 in/min	UL 746A

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