SABIC Innovative Plastics Lexan® 505R PC

Category : Polymer , Thermoplastic , Polycarbonate (PC)

Material Notes:

Lexan* 505R Polycarbonate (PC) resin is a 10% glass fiber filled, injection moldable grade. Lexan 505R contains non-chlorinated, non-brominated flame retardant systems with UL-94 V0 rating at 1.5mm. It is available in various opaque color options for high stiffness applications.

Order this product through the following link:
http://www.lookpolymers.com/polymer_SABIC-Innovative-Plastics-Lexan-505R-PC.php

Physical Properties	Metric	English	Comments
Specific Gravity	1.26 g/cc	1.26 g/cc	ASTM D792
Density	1.25 g/cc	0.0452 lb/in³	ISO 1183
Moisture Absorption	0.130 %	0.130 %	23°C / 50% RH; ISO 62
Water Absorption at Saturation	0.31 %	0.31 %	ISO 62
Linear Mold Shrinkage, Flow	0.0020 - 0.0060 cm/cm	0.0020 - 0.0060 in/in	on Tensile Bar; SABIC Method
	0.0050 - 0.0070 cm/cm @Thickness 3.20 mm	0.0050 - 0.0070 in/in @Thickness 0.126 in	SABIC Method
Melt Flow	7.0 g/10 min @Load 1.20 kg, Temperature 300 °C	7.0 g/10 min @Load 2.65 lb, Temperature 572 °F	ASTM D1238
Melt Index of Compound	7.0 g/10 min @Load 1.20 kg, Temperature 300 °C	7.0 g/10 min @Load 2.65 lb, Temperature 572 °F	MVR [cm^3/10 min]; ISO 1133

Mechanical Properties	Metric	English	Comments
Hardness, H358/30	115 MPa	16700 psi	ISO 2039-1
Tensile Strength at Break	45.0 MPa	6530 psi	5 mm/min; ISO 527
	48.0 MPa	6960 psi	Type I, 5 mm/min; ASTM D638
Tensile Strength, Yield	60.0 MPa	8700 psi	5 mm/min; ISO 527
	63.0 MPa	9140 psi	Type I, 5 mm/min; ASTM D638
Elongation at Break	7.0 %	7.0 %	5 mm/min; ISO 527
	12 %	12 %	Type I, 5 mm/min; ASTM D638
Elongation at Yield	3.0 %	3.0 %	Type I, 5 mm/min; ASTM D638

Mechanical Properties	Metric	English	Comments
	5.0 %	5.0 %	5 mm/min; ISO 527
Tensile Modulus	3.30 GPa	479 ksi	1 mm/min; ISO 527
	3.93 GPa	570 ksi	5 mm/min; ASTM D638
Flexural Strength	108 MPa	15700 psi	1.3 mm/min, 50 mm span; ASTM D790
Flexural Yield Strength	95.0 MPa	13800 psi	2 mm/min; ISO 178
Flexural Modulus	3.40 GPa	493 ksi	2 mm/min; ISO 178
	3.53 GPa	512 ksi	1.3 mm/min, 50 mm span; ASTM D790
Izod Impact, Notched	1.07 J/cm	2.00 ft-lb/in	ASTM D256
	0.800 J/cm @Temperature -30.0 °C	1.50 ft-lb/in @Temperature -22.0 °F	ASTM D256
Izod Impact, Unnotched	16.02 J/cm	30.01 ft-lb/in	ASTM D4812
Izod Impact, Notched (ISO)	8.00 kJ/m²	3.81 ft-lb/in²	80*10*4; ISO 180/1A
	10.0 kJ/m²	4.76 ft-lb/in²	80*10*3; ISO 180/1A
	8.00 kJ/m² @Temperature -30.0 °C	3.81 ft-lb/in² @Temperature -22.0 °F	80*10*3; ISO 180/1A
	8.00 kJ/m² @Temperature -30.0 °C	3.81 ft-lb/in² @Temperature -22.0 °F	80*10*4; ISO 180/1A
Izod Impact, Unnotched (ISO)	NB	NB	80*10*3; ISO 180/1U
	NB	NB	80*10*4; ISO 180/1U
	130 kJ/m² @Temperature -30.0 °C	61.9 ft-lb/in² @Temperature -22.0 °F	80*10*3; 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	NB	Edgew 80*10*3 sp=62mm; ISO 179/1eU
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	Edgew 80*10*3 sp=62mm; ISO 179/1eU

Mechanical Properties	Metric	English	Comments
NB	NB	Edgew 80*10*4 sp=62mm; ISO 179/1eU
	@Temperature -30.0 °C	@Temperature -22.0 °F	
Charpy Impact, Notched	0.900 J/cm²	4.28 ft-lb/in²	Edgew 80*10*4 sp=62mm; ISO 179/1eA
	1.00 J/cm²	4.76 ft-lb/in²	Edgew 80*10*3 sp=62mm; ISO 179/1eA
	1.50 J/cm²	7.14 ft-lb/in²	ISO 179/2C
	0.900 J/cm² @Temperature -30.0 °C	4.28 ft-lb/in² @Temperature -22.0 °F	Edgew 80*10*3 sp=62mm; ISO 179/1eA
Dart Drop, Total Energy	61.0 J @Temperature 23.0 °C	45.0 ft-lb @Temperature 73.4 °F	ASTM D3763
Taber Abrasion, mg/1000 Cycles	11	11	CS-17, 1 kg; SABIC Method

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	40.0 µm/m-°C @Temperature 23.0 - 80.0 °C	22.2 µin/in-°F @Temperature 73.4 - 176 °F	ISO 11359-2
	46.8 µm/m-°C @Temperature -40.0 - 40.0 °C	26.0 µin/in-°F @Temperature -40.0 - 104 °F	ASTM E 831
CTE, linear, Transverse to Flow	70.0 µm/m-°C @Temperature 23.0 - 80.0 °C	38.9 µin/in-°F @Temperature 73.4 - 176 °F	ISO 11359-2
	84.6 µm/m-°C @Temperature -40.0 - 40.0 °C	47.0 µin/in-°F @Temperature -40.0 - 104 °F	ASTM E 831
Thermal Conductivity	0.210 W/m-K	1.46 BTU-in/hr-ft²-°F	ISO 8302
Deflection Temperature at 0.46 MPa (66 psi)	144 °C	291 °F	Edgew 120*10*4 sp=100mm; ISO 75/Be
	143 °C @Thickness 3.20 mm	289 °F @Thickness 0.126 in	unannealed; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	136 °C	277 °F	Edgew 120*10*4 sp=100mm; ISO 75/Ae
	136 °C	277 °F	Annealed 120°C, 2hrs; ISO 75/Ae
	138 °C @Thickness 3.20 mm	280 °F @Thickness 0.126 in	unannealed; ASTM D648

Thermal Properties	Metric	English	Comments
Vicat Softening Point	141 °C	286 °F	Rate B/50; ISO 306
	143 °C	289 °F	Rate B/120; ISO 306
	149 °C	300 °F	Rate B/50; ASTM D1525
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-0 @Thickness 1.50 mm	V-0 @Thickness 0.0591 in	UL 94
	5VA @Thickness 3.00 mm	5VA @Thickness 0.118 in	UL 94
Oxygen Index	37 %	37 %	ISO 4589

Electrical Properties	Metric	English	Comments
Volume Resistivity	>= 1.00e+15 ohm-cm	>= 1.00e+15 ohm-cm	IEC 60093
Surface Resistance	>= 1.00e+15 ohm	>= 1.00e+15 ohm	ROA; IEC 60093
Dielectric Constant	2.8 @Frequency 1.00e+6 Hz	2.8 @Frequency 1.00e+6 Hz	IEC 60250
	2.9 @Frequency 50.0 - 60.0 Hz	2.9 @Frequency 50.0 - 60.0 Hz	IEC 60250
Dielectric Strength	16.0 kV/mm @Thickness 3.20 mm	406 kV/in @Thickness 0.126 in	in oil; IEC 60243-1
	25.0 kV/mm @Thickness 1.60 mm	635 kV/in @Thickness 0.0630 in	in oil; IEC 60243-1
	33.0 kV/mm @Thickness 0.800 mm	838 kV/in @Thickness 0.0315 in	in oil; IEC 60243-1
Dissipation Factor	0.0010 @Frequency 50.0 - 60.0 Hz	0.0010 @Frequency 50.0 - 60.0 Hz	IEC 60250
	0.010 @Frequency 1.00e+6	0.010 @Frequency 1.00e+6	IEC 60250

Electrical Properties	Metric	English	Comments
Comparative Tracking Index	150 V	150 V	IEC 60112

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