

SABIC Innovative Plastics Lexan® 241R PC

Category : Polymer , Thermoplastic , Polycarbonate (PC)

Material Notes:

General purpose polycarbonate with 10.5 MFR and internal mold release.

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 % @Time 86400 sec	0.15 % @Time 24.0 hour	ASTM D570
Moisture Absorption at Equilibrium	0.35 %	0.35 %	ASTM D570
	0.58 % @Temperature 100 °C	0.58 % @Temperature 212 °F	ASTM D570
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	10.5 g/10 min @Load 1.20 kg, Temperature 300 °C	10.5 g/10 min @Load 2.65 lb, Temperature 572 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Hardness, Rockwell M	70	70	ASTM D785
Hardness, Rockwell R	118	118	ASTM D785
Tensile Strength at Break	68.0 MPa	9860 psi	Type I, 50 mm/min; ASTM D638
Tensile Strength, Yield	62.0 MPa	8990 psi	Type I, 50 mm/min; ASTM D638
Elongation at Break	130 %	130% 7.0	Type I, 50 mm/min; ASTM D638
Elongation at Yield	7.0 %	%	Type I, 50 mm/min; ASTM D638
Flexural Yield Strength	96.0 MPa	13900 psi	1.3 mm/min, 50 mm span; ASTM D790
Flexural Modulus	2.34 GPa	339 ksi	1.3 mm/min, 50 mm span; ASTM D790
Izod Impact, Notched	8.01 J/cm	15.0 ft-lb/in	ASTM D256

Metric	English	Comments	
Tensile Impact Strength	577 kJ/m²	275 ft-lb/in²	
Dart Drop, Total Energy	63.0 J	46.5 ft-lb	
	169 J	125 ft-lb	
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	38.0 µin/in-°F	
	@Temperature -40.0 - 95.0 °C	@Temperature -40.0 - 203 °F	ASTM E 831
Specific Heat Capacity	1.25 J/g-°C	0.299 BTU/lb-°F	ASTM C351
Thermal Conductivity	0.270 W/m-K	1.87 BTU-in/hr-ft²-°F	ASTM C177
Deflection Temperature at 0.46 MPa (66 psi)	137 °C	279 °F	
	@Thickness 6.40 mm	@Thickness 0.252 in	unannealed; ASTM D648
Deflection Temperature at 1.8 MPa (264 psi)	132 °C	270 °F	
	@Thickness 6.40 mm	@Thickness 0.252 in	unannealed; ASTM D648
Vicat Softening Point	154 °C	309 °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-2	V-2	
	@Thickness 1.09 mm	@Thickness 0.0429 in	UL 94
	V-0	V-0	
	@Thickness 5.99 mm	@Thickness 0.236 in	UL 94
Optical Properties	Metric	English	Comments
Refractive Index	1.586	1.586	ASTM D542
Haze	1.0 %	1.0 %	
	@Thickness 2.54 mm	@Thickness 0.100 in	ASTM D1003
Transmission, Visible	88 %	88 %	2.54 mm; ASTM D1003

Electrical Properties	Metric $\geq 1.00\text{e}+17$ ohm-	English $\geq 1.00\text{e}+17$	Comments
Volume Resistivity	cm	ohm-cm	ASTM D257
Dielectric Constant	2.96	2.96	ASTM D150
	@Frequency 1.00e+6 Hz	@Frequency 1.00e+6 Hz	
	3.17	3.17	ASTM D150
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 Hz	
Dielectric Strength	14.9 kV/mm @Thickness 3.20 mm	378 kV/in @Thickness 0.126 in	in air; ASTM D149
Dissipation Factor	0.00090	0.00090	ASTM D150
	@Frequency 50.0 - 60.0 Hz	@Frequency 50.0 - 60.0 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

Descriptive Properties	Value	Comments
Specific Volume	0.83cm ³ /g	ASTM D792
UV-light, water exposure/immersion	F2	UL 746C