

LEXAN* 121 Resin

Polycarbonate

SABIC Innovative Plastics



Prospector

Product Description

UL rated HB as of 10/97. 200 series recommended when V-2 rating required. Nonhalogenated. 17.5 MFR, for small intricate parts.

General

Material Status	• Commercial: Active
Availability	• North America
Features	• Halogen Free
Processing Method	• Injection Molding
Multi-Point Data	<ul style="list-style-type: none"> • Coefficient of Thermal Expansion vs. Temperature (ASTM E831) • Elastic Modulus vs Temperature (ASTM D4065) • Flexural DMA (ASTM D4065) • Instrumented Impact (Energy) (ASTM D3763) • Instrumented Impact (Load) (ASTM D3763) • Shear DMA (ASTM D4065) • Specific Heat vs. Temperature (ASTM D3417) • Tensile Creep (ASTM D2990) • Tensile Fatigue • Tensile Stress vs. Strain (ASTM D638) • Thermal Conductivity vs. Temperature (ASTM E1530) • Viscosity vs. Shear Rate (ASTM D3835)

Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity			ASTM D792
--	1.20	1.20 g/cm ³	
--	1.19 g/cm ³	1.19 g/cm ³	
Specific Volume	23.1 in ³ /lb	0.835 cm ³ /g	ASTM D792
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	18 g/10 min	18 g/10 min	ASTM D1238
Molding Shrinkage - Flow (0.126 in (3.20 mm))	0.0050 to 0.0070 in/in	0.50 to 0.70 %	Internal Method
Water Absorption			ASTM D570
24 hr	0.15 %	0.15 %	
Equilibrium, 73°F (23°C)	0.35 %	0.35 %	
Equilibrium, 212°F (100°C)	0.58 %	0.58 %	

Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Strength ²			ASTM D638
Yield	9000 psi	62.1 MPa	
Break	10000 psi	68.9 MPa	
Tensile Elongation ²			ASTM D638
Yield	7.0 %	7.0 %	
Break	130 %	130 %	
Flexural Modulus ³ (1.97 in (50.0 mm) Span)	340000 psi	2340 MPa	ASTM D790
Flexural Strength ³			ASTM D790
Yield, 1.97 in (50.0 mm) Span	14000 psi	96.5 MPa	
Taber Abrasion Resistance			ASTM D1044
1000 Cycles, 1000 g, CS-17 Wheel	10.0 mg	10.0 mg	

Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact (73°F (23°C))	13 ft-lb/in	690 J/m	ASTM D256
Unnotched Izod Impact (73°F (23°C))	60 ft-lb/in	3200 J/m	ASTM D4812
Instrumented Dart Impact			ASTM D3763
73°F (23°C), Energy at Peak Load	550 in-lb	62.1 J	
Gardner Impact (73°F (23°C))	1500 in-lb	169 J	ASTM D3029
Tensile Impact Strength ⁴	260 ft-lb/in ²	546 kJ/m ²	ASTM D1822

Hardness	Nominal Value (English)	Nominal Value (SI)	Test Method
Rockwell Hardness			ASTM D785
M-Scale	70	70	
R-Scale	118	118	

LEXAN* 121 Resin
Polycarbonate
SABIC Innovative Plastics

Thursday, August 25, 2011

Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			ASTM D648
66 psi (0.45 MPa), Unannealed, 0.252 in (6.40 mm)	280 °F	138 °C	
264 psi (1.8 MPa), Unannealed, 0.252 in (6.40 mm)	265 °F	129 °C	
Vicat Softening Temperature	310 °F	154 °C	ASTM D1525 ⁵
CLTE - Flow (-40 to 203°F (-40 to 95°C))	0.000038 in/in/°F	0.000068 cm/cm/°C	ASTM E831
Specific Heat	0.300 Btu/lb°F	1260 J/kg°C	ASTM C351
Thermal Conductivity	1.7 Btu·in/hr/ft²°F	0.25 W/m/K	ASTM C177
Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity	> 1.0E+17 ohm·cm	> 1.0E+17 ohm·cm	ASTM D257
Dielectric Strength			ASTM D149
0.126 in (3.20 mm), in Air	380 V/mil	15 kV/mm	
Dielectric Constant			ASTM D150
50 Hz	3.17	3.17	
60 Hz	3.17	3.17	
1 MHz	2.96	2.96	
Dissipation Factor			ASTM D150
50 Hz	0.00090	0.00090	
60 Hz	0.00090	0.00090	
1 MHz	0.010	0.010	
Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL (0.0280 in (0.711 mm))	HB	HB	UL 94
Radiant Panel Listing (UL)	YES	YES	
UL	Nominal Value (English)	Nominal Value (SI)	Test Method
RTI Str	266 °F	130 °C	UL 746
RTI Imp	266 °F	130 °C	UL 746
RTI Elec	266 °F	130 °C	UL 746
Comparative Tracking Index (CTI) (PLC)	PLC 2	PLC 2	UL 746
High Voltage Arc Tracking Rate (HVTR) (PLC)			UL 746
--	PLC 2	PLC 2	
Hot-wire Ignition (HWI) (PLC)	PLC 2	PLC 2	UL 746
High Amp Arc Ignition (HAI) (PLC)	PLC 1	PLC 1	UL 746
Outdoor Suitability	f2	f2	UL 746C
Optical	Nominal Value (English)	Nominal Value (SI)	Test Method
Refractive Index	1.586	1.586	ASTM D542
Transmittance (100 mil (2540 µm))	88.0 %	88.0 %	ASTM D1003
Haze (100 mil (2540 µm))	1.0 %	1.0 %	ASTM D1003
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	250 °F	121 °C	
Drying Time	3.0 to 4.0 hr	3.0 to 4.0 hr	
Drying Time, Maximum	48 hr	48 hr	
Suggested Max Moisture	0.020 %	0.020 %	
Suggested Shot Size	40 to 60 %	40 to 60 %	
Rear Temperature	500 to 540 °F	260 to 282 °C	
Middle Temperature	520 to 560 °F	271 to 293 °C	
Front Temperature	540 to 580 °F	282 to 304 °C	
Nozzle Temperature	530 to 570 °F	277 to 299 °C	
Processing (Melt) Temp	540 to 580 °F	282 to 304 °C	
Mold Temperature	160 to 200 °F	71.1 to 93.3 °C	
Back Pressure	50.0 to 100 psi	0.345 to 0.689 MPa	
Screw Speed	40 to 70 rpm	40 to 70 rpm	
Vent Depth	0.0010 to 0.0030 in	0.025 to 0.076 mm	

LEXAN* 121 Resin
Polycarbonate
SABIC Innovative Plastics

Thursday, August 25, 2011

Notes

¹ Typical properties: these are not to be construed as specifications.

² Type I, 2.0 in/min (50 mm/min)

³ 0.051 in/min (1.3 mm/min)

⁴ Type S

⁵ Rate B (120°C/h), Loading 2 (50 N)

Revision History

Document Created: Thursday, August 25, 2011
Added to Prospector: November, 1995
Last Updated: 7/7/2011