

LEXAN™ EXL1444 resin

Polycarbonate

SABIC Innovative Plastics

Message:

Lexan® EXL1444 polycarbonate (PC) siloxane copolymer resin is a medium flow opaque injection molding (IM) grade suitable for FDA compliant applications. This resin offers extreme low temperature (-40°C) ductility, exhibits excellent processability and release with opportunities for shorter IM cycle times compared to standard PC. Lexan EXL1444 resin is a product available in wide range of opaque colors and may be an excellent candidate for a wide variety of food contact applications.

General Information			
Features	Copolymer		
	Workability, good		
	Fast molding cycle		
	Medium liquidity		
	Compliance of Food Exposure		
	Good demoulding performance		
	ductility		
Agency Ratings	FDA Food Exposure, Not Rated		
Appearance	Opacity		
	Available colors		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.18	g/cm³	ASTM D792
--	1.19	g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	10	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	9.00	cm³/10min	ISO 1133
Molding Shrinkage			Internal method
Flow ¹	0.40 - 0.80	%	Internal method
Flow: 3.20mm	0.40 - 0.80	%	Internal method
Transverse flow: 3.20mm	0.40 - 0.80	%	Internal method
Water Absorption			ISO 62
Saturated, 23°C	0.35	%	ISO 62
Equilibrium, 23°C, 50% RH	0.15	%	ISO 62
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
L scale	89		ASTM D785
Class r	121		ASTM D785

Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus			
-- ²	2020	MPa	ASTM D638
--	2150	MPa	ISO 527-2/1
Tensile Strength			
Yield ³	55.0	MPa	ASTM D638
Yield	57.0	MPa	ISO 527-2/50
Fracture ⁴	50.0	MPa	ASTM D638
Fracture	60.0	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁵	6.0	%	ASTM D638
Yield	6.0	%	ISO 527-2/50
Fracture ⁶	98	%	ASTM D638
Fracture	120	%	ISO 527-2/50
Flexural Modulus			
50.0mm span ⁷	2240	MPa	ASTM D790
-- ⁸	2250	MPa	ISO 178
Flexural Stress			
--	85.0	MPa	ISO 178
Yield, 50.0mm span ⁹	92.0	MPa	ASTM D790
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength ¹⁰			ISO 179/1eA
-30°C	65	kJ/m ²	ISO 179/1eA
23°C	70	kJ/m ²	ISO 179/1eA
Charpy Unnotched Impact Strength ¹¹			ISO 179/1eU
-30°C	No Break		ISO 179/1eU
23°C	No Break		ISO 179/1eU
Notched Izod Impact			
-30°C	780	J/m	ASTM D256
23°C	870	J/m	ASTM D256
-30°C ¹²	60	kJ/m ²	ISO 180/1A
23°C ¹³	70	kJ/m ²	ISO 180/1A
Unnotched Izod Impact Strength ¹⁴			ISO 180/1U
-30°C	No Break		ISO 180/1U
23°C	No Break		ISO 180/1U
Instrumented Dart Impact (23°C, Total Energy)	70.0	J	ASTM D3763
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 3.20mm	140	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ¹⁵	140	°C	ISO 75-2/Be
1.8 MPa, unannealed, 3.20mm	124	°C	ASTM D648

1.8 MPa, unannealed, 100 mm span ¹⁶	128	°C	ISO 75-2/Ae
Vicat Softening Temperature			
--	145	°C	ASTM D1525, ISO 306/B50 12 ¹⁷
--	146	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
Linear thermal expansion coefficient			
Flow: -40 to 40°C	7.0E-5	cm/cm/°C	ASTM E831
Flow: 23 to 80°C	7.2E-5	cm/cm/°C	ISO 11359-2
Lateral: -40 to 40°C	7.5E-5	cm/cm/°C	ASTM E831
Lateral: 23 to 80°C	7.2E-5	cm/cm/°C	ISO 11359-2
RTI Elec	130	°C	UL 746
RTI Imp	110	°C	UL 746
RTI	120	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	ASTM D257
Volume Resistivity	> 1.0E+15	ohms·cm	ASTM D257
Dielectric Strength (0.800 mm, in Oil)	16	kV/mm	ASTM D149
Dielectric Constant			ASTM D150
100 Hz	2.68		ASTM D150
1 MHz	2.64		ASTM D150
Dissipation Factor			ASTM D150
100 Hz	1.2E-3		ASTM D150
1 MHz	9.3E-3		ASTM D150
Flammability	Nominal Value	Unit	Test Method
Glow Wire Flammability Index (1.00 mm)	960	°C	IEC 60695-2-12
Glow Wire Ignition Temperature (1.00 mm)	850	°C	IEC 60695-2-13
Oxygen Index	37	%	ISO 4589-2
Injection	Nominal Value	Unit	
Drying Temperature	121	°C	
Drying Time	3.0 - 4.0	hr	
Drying Time, Maximum	48	hr	
Suggested Max Moisture	0.020	%	
Suggested Shot Size	40 - 60	%	
Rear Temperature	217 - 293	°C	
Middle Temperature	282 - 304	°C	
Front Temperature	293 - 316	°C	
Nozzle Temperature	288 - 310	°C	
Processing (Melt) Temp	293 - 316	°C	
Mold Temperature	71.0 - 93.0	°C	
Back Pressure	0.345 - 0.689	MPa	
Screw Speed	40 - 70	rpm	

Vent Depth	0.025 - 0.076	mm
NOTE		
1.	Tensile Bar	
2.	50 mm/min	
3.	Type 1, 50mm/min	
4.	Type 1, 50mm/min	
5.	Type 1, 50mm/min	
6.	Type 1, 50mm/min	
7.	1.3 mm/min	
8.	2.0 mm/min	
9.	1.3 mm/min	
10.	80*10*3 sp=62mm	
11.	80*10*3 sp=62mm	
12.	80*10*3	
13.	80*10*3	
14.	80*10*3	
15.	120*10*4 mm	
16.	120*10*4 mm	
17.	标准 B (120°C/h), 载荷2 (50N)	

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