

LEXAN* ML6411 Resin

SABIC Innovative Plastics Europe - Polycarbonate

General Information			
Product Description			
Lexan* ML6411 polycarbonate (PC) siloxane resin, is a high flow opaque injection molding (IM) grade with very low temperature ductility characteristics. This grade offers UL94 V0 @ 1.5mm and 5VA @ 3.0mm flame retardancy based on non-chlorine, non-bromine FR systems. Lexan ML6411 resin offers excellent processing characteristics with opportunity for shorter IM cycle times compared to standard PC. This product is available in a wide range of opaque colors and is an excellent candidate for a wide range of electrical applications.			
General			
Additive	• Ignition Resistant		
Features	• Bromine Free • Chlorine Free • Ductile	• Fast Production Cycle • Flame Retardant • Good Processability	• High Flow
Uses	• Electrical/Electronic Applications		
RoHS Compliance	• RoHS Compliant		
Appearance	• Opaque		
Forms	• Pellets		
Processing Method	• Injection Molding		
ASTM and ISO Properties ¹			
Physical	Nominal Value (English)	Nominal Value (SI)	Test Method
Specific Gravity			
--	1.19	1.19	ASTM D792
--	1.20 g/cm³	1.20 g/cm³	ISO 1183
Melt Mass-Flow Rate (MFR) (260°C/2.16 kg)	7.0 g/10 min	7.0 g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (260°C/5.0 kg)	1.10 in³/10min	18.0 cm³/10min	ISO 1133
Molding Shrinkage - Flow (0.126 in (3.20 mm))	0.0040 to 0.0080 in/in	0.40 to 0.80 %	ASTM D955
Water Absorption			ISO 62
Saturation, 73°F (23°C)	0.30 %	0.30 %	
Equilibrium, 73°F (23°C), 50% RH	0.10 %	0.10 %	

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Mechanical	Nominal Value (English)	Nominal Value (SI)	Test Method
Tensile Modulus			
-- ²	363000 psi	2500 MPa	ASTM D638
--	341000 psi	2350 MPa	ISO 527-2/1
Tensile Strength			
Yield ³	8990 psi	62.0 MPa	ASTM D638
Yield	8990 psi	62.0 MPa	ISO 527-2/50
Break ³	7830 psi	54.0 MPa	ASTM D638
Break	8410 psi	58.0 MPa	ISO 527-2/50
Tensile Elongation			
Yield ³	5.0 %	5.0 %	ASTM D638
Yield	5.0 %	5.0 %	ISO 527-2/50
Break ³	100 %	100 %	ASTM D638
Break	100 %	100 %	ISO 527-2/50
Flexural Modulus			
1.97 in (50.0 mm) Span ⁴	377000 psi	2600 MPa	ASTM D790
-- ⁵	341000 psi	2350 MPa	ISO 178
Flexural Strength			
-- ^{5, 6}	13100 psi	90.0 MPa	ISO 178
Yield, 1.97 in (50.0 mm) Span ⁴	13800 psi	95.0 MPa	ASTM D790
Impact	Nominal Value (English)	Nominal Value (SI)	Test Method
Notched Izod Impact			
-22°F (-30°C)	2.81 ft-lb/in	150 J/m	ASTM D256
73°F (23°C)	16.9 ft-lb/in	900 J/m	ASTM D256
-22°F (-30°C) ⁷	7.14 ft-lb/in ²	15.0 kJ/m ²	ISO 180/1A
73°F (23°C) ⁷	28.6 ft-lb/in ²	60.0 kJ/m ²	ISO 180/1A
Instrumented Dart Impact			ASTM D3763
73°F (23°C), Total Energy	637 in-lb	72.0 J	
Thermal	Nominal Value (English)	Nominal Value (SI)	Test Method
Deflection Temperature Under Load			
66 psi (0.45 MPa), Unannealed, 0.252 in (6.40 mm)	262 °F	128 °C	ASTM D648
66 psi (0.45 MPa), Unannealed, 3.94 (100) Span ⁸	257 °F	125 °C	ISO 75-2/Be
264 psi (1.8 MPa), Unannealed, 0.126 in (3.20 mm)	237 °F	114 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 0.252 in (6.40 mm)	246 °F	119 °C	ASTM D648
264 psi (1.8 MPa), Unannealed, 3.94 in (100 mm) Span ⁸	239 °F	115 °C	ISO 75-2/Ae
Vicat Softening Temperature			
--	273 °F	134 °C	ASTM D1525 ⁹ ISO 306/B50
--	275 °F	135 °C	ISO 306/B120
CLTE			
Flow: -40 to 104°F (-40 to 40°C)	0.000043 in/in/°F	0.000077 cm/cm/°C	ASTM E831
Flow: -40 to 104°F (-40 to 40°C)	0.000039 in/in/°F	0.000070 cm/cm/°C	ISO 11359-2
Transverse: -40 to 104°F (-40 to 40°C)	0.000033 in/in/°F	0.000059 cm/cm/°C	ASTM E831
Transverse: -40 to 104°F (-40 to 40°C)	0.000039 in/in/°F	0.000070 cm/cm/°C	ISO 11359-2
Ball Pressure Test (257°F (125°C))	Pass	Pass	IEC 60695-10-2

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Electrical	Nominal Value (English)	Nominal Value (SI)	Test Method
Volume Resistivity	1.0E+15 ohm·cm	1.0E+15 ohm·cm	IEC 60093
Dielectric Strength			ASTM D149
0.126 in (3.20 mm), in Oil	673 V/mil	26.5 kV/mm	
Comparative Tracking Index	250 V	250 V	IEC 60112

Flammability	Nominal Value (English)	Nominal Value (SI)	Test Method
Flame Rating - UL			UL 94
0.0591 in (1.50 mm)	V-0	V-0	
0.0787 in (2.00 mm)	5VB	5VB	
0.118 in (3.00 mm)	5VA	5VA	
0.118 in (3.00 mm), Testing by SABIC	5VA	5VA	
Glow Wire Flammability Index			IEC 60695-2-12
0.0394 in (1.000 mm)	1760 °F	960 °C	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.0394 in (1.000 mm)	1470 °F	800 °C	
0.0787 in (2.00 mm)	1470 °F	800 °C	
0.118 in (3.00 mm)	1470 °F	800 °C	

UL 746	Nominal Value (English)	Nominal Value (SI)	Test Method
RTI Str	212 °F	100 °C	UL 746
RTI Imp	212 °F	100 °C	UL 746
RTI Elec	212 °F	100 °C	UL 746
Comparative Tracking Index (CTI) (PLC)	PLC 2	PLC 2	UL 746
Hot-wire Ignition (HWI) (PLC)	PLC 3	PLC 3	UL 746
High Amp Arc Ignition (HAI) (PLC)	PLC 1	PLC 1	UL 746

Processing Information			
Injection	Nominal Value (English)	Nominal Value (SI)	
Drying Temperature	194 to 212 °F	90.0 to 100 °C	
Drying Time	2.0 to 4.0 hr	2.0 to 4.0 hr	
Suggested Max Moisture	0.020 %	0.020 %	
Hopper Temperature	140 to 176 °F	60.0 to 80.0 °C	
Rear Temperature	446 to 500 °F	230 to 260 °C	
Middle Temperature	482 to 554 °F	250 to 290 °C	
Front Temperature	500 to 572 °F	260 to 300 °C	
Nozzle Temperature	482 to 554 °F	250 to 290 °C	
Processing (Melt) Temp	518 to 572 °F	270 to 300 °C	
Mold Temperature	140 to 194 °F	60.0 to 90.0 °C	