LEXAN™ EXL1414 resin

Monday, March 09, 2015

General Information

Product Description

LEXAN EXL1414 polycarbonate (PC) siloxane copolymer resin is a medium flow opaque injection molding (IM) grade. This resin offers extreme low temperature (-40 C) ductility in combination with excellent processability and release with opportunities for shorter IM cycle times compared to standard PC. LEXAN EXL1414 resin is a product available in wide range of opaque colors and may be an excellent candidate for a wide variety of applications.

General			
Material Status	• Commercial: Active		
Availability	• Asia Pacific		
Features	• Copolymer • Ductile • Fast Molding Cycle	• General Purpose • Good Mold Release • Good Processability	• Medium Flow
Uses	• General Purpose		
Appearance	• Colors Available	• Opaque	
Processing Method	• Injection Molding		

ASTM & ISO Properties [1]

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.18		ASTM D792
Density	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)	0.549	in³/10min	ISO 1133
Molding Shrinkage - Flow (0.126 in)	4.0E-3 to 8.0E-3	in/in	Internal Method
Molding Shrinkage - Across Flow (0.126 in)	4.0E-3 to 8.0E-3	in/in	Internal Method
Water Absorption (Saturation, 73°F)	0.35	%	ISO 62
Water Absorption (Equilibrium, 73°F, 50% RH)	0.15	%	ISO 62
Mechanical	**Nominal Value**	**Unit**	**Test Method**
Tensile Modulus [2]	293000	psi	ASTM D638
Tensile Modulus	312000	psi	ISO 527-2/1
Tensile Strength [3] (Yield)	8050	psi	ASTM D638
Tensile Stress (Yield)	8270	psi	ISO 527-2/50
Tensile Strength [3] (Break)	7300	psi	ASTM D638
Tensile Stress (Break)	8700	psi	ISO 527-2/50
Tensile Elongation [3] (Yield)	6.0	%	ASTM D638
Tensile Strain (Yield)	6.0	%	ISO 527-2/50
Tensile Elongation [3] (Break)	98	%	ASTM D638
Tensile Strain (Break)	120	%	ISO 527-2/50
Flexural Modulus [4] (1.97 in Span)	324000	psi	ASTM D790

LEXAN™ EXL1414 resin

SABIC Innovative Plastics Asia Pacific - Polycarbonate

Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus [5]	326000	psi	ISO 178
Flexural Stress [5, 6]	12300	psi	ISO 178
Flexural Strength [4] (Yield, 1.97 in Span)	13400	psi	ASTM D790
Impact	**Nominal Value**	**Unit**	**Test Method**
Charpy Notched Impact Strength [7]			ISO 179/1eA
-22°F	31	ft·lb/in²	
73°F	33	ft·lb/in²	
Charpy Unnotched Impact Strength [7]			ISO 179/1eU
-22°F	No Break		
73°F	No Break		
Notched Izod Impact			ASTM D256
-22°F	15	ft·lb/in	
73°F	16	ft·lb/in	
Notched Izod Impact Strength [8]			ISO 180/1A
-22°F	29	ft·lb/in²	
73°F	33	ft·lb/in²	
Unnotched Izod Impact Strength [8]			ISO 180/1U
-22°F	No Break		
73°F	No Break		
Instrumented Dart Impact (73°F, Total Energy)	620	in·lb	ASTM D3763
Hardness	**Nominal Value**	**Unit**	**Test Method**
Rockwell Hardness			ASTM D785
L-Scale	89		
R-Scale	121		
Thermal	**Nominal Value**	**Unit**	**Test Method**
Deflection Temperature Under Load			ASTM D648
66 psi, Unannealed, 0.126 in	283	°F	
Heat Deflection Temperature [9]			ISO 75-2/Be
66 psi, Unannealed, 3.94 in Span	284	°F	
Deflection Temperature Under Load			ASTM D648
264 psi, Unannealed, 0.126 in	256	°F	
Heat Deflection Temperature [9]			ISO 75-2/Ae
264 psi, Unannealed, 3.94 in Span	262	°F	
Vicat Softening Temperature	293	°F	ASTM D1525 [10]
Vicat Softening Temperature			
--	293	°F	ISO 306/B50
--	295	°F	ISO 306/B120
Ball Pressure Test (257°F)	Pass		IEC 60695-10-2
CLTE - Flow (-40 to 104°F)	3.9E-5	in/in/°F	ASTM E831
CLTE - Flow (73 to 176°F)	4.0E-5	in/in/°F	ISO 11359-2
CLTE - Transverse (-40 to 104°F)	4.2E-5	in/in/°F	ASTM E831
CLTE - Transverse (73 to 176°F)	4.0E-5	in/in/°F	ISO 11359-2
RTI Elec	266	°F	UL 746

LEXAN™ EXL1414 resin

SABIC Innovative Plastics Asia Pacific - Polycarbonate

Thermal	Nominal Value	Unit	Test Method
RTI Imp	248	°F	UL 746
RTI Str	257	°F	UL 746
Electrical	**Nominal Value**	**Unit**	**Test Method**
Surface Resistivity	> 1.0E+15	ohm	ASTM D257
Volume Resistivity	> 1.0E+15	ohm·cm	ASTM D257
Dielectric Strength (0.0315 in, in Oil)	410	V/mil	ASTM D149
Dielectric Constant			ASTM D150
100 Hz	2.68		
1 MHz	2.64		
Dissipation Factor			ASTM D150
100 Hz	1.2E-3		
1 MHz	9.3E-3		
Flammability	**Nominal Value**	**Unit**	**Test Method**
Flame Rating (0.0157 in)	HB		UL 94
Glow Wire Flammability Index			IEC 60695-2-12
0.0315 in	1560	°F	
0.0394 in	1760	°F	
Glow Wire Ignition Temperature			IEC 60695-2-13
0.0394 in	1610	°F	
0.118 in	1610	°F	

Processing Information

Injection	Nominal Value	Unit
Drying Temperature	248	°F
Drying Time	3.0 to 4.0	hr
Drying Time, Maximum	48	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 to 60	%
Rear Temperature	518 to 563	°F
Middle Temperature	536 to 581	°F
Front Temperature	563 to 599	°F
Nozzle Temperature	554 to 590	°F
Processing (Melt) Temp	563 to 599	°F
Mold Temperature	158 to 203	°F
Back Pressure	43.5 to 102	psi
Screw Speed	40 to 70	rpm
Vent Depth	9.8E-4 to 3.0E-3	in

LEXAN™ EXL1414 resin

SABIC Innovative Plastics Asia Pacific - Polycarbonate

Notes

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

[2] 2.0 in/min

[3] Type I, 2.0 in/min

[4] 0.051 in/min

[5] 0.079 in/min

[6] Yield

[7] 80*10*3 sp=62mm

[8] 80*10*3

[9] 120*10*4 mm

[10] Rate B (120°C/h), Loading 2 (50 N)