

## Lexan\* Resin EXL1414

### Asia Pacific: COMMERCIAL

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.

TYPICAL PROPERTIES <sup>1</sup>	TYPICAL VALUE	UNIT	STANDARD
<b>MECHANICAL</b>			
Tensile Stress, yld, Type I, 50 mm/min	55	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	50	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	98	%	ASTM D 638
Tensile Modulus, 50 mm/min	2020	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	92	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2230	MPa	ASTM D 790
Hardness, Rockwell L	89	-	ASTM D 785
Hardness, Rockwell R	121	-	ASTM D 785
Tensile Stress, yield, 50 mm/min	57	MPa	ISO 527
Tensile Stress, break, 50 mm/min	60	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	120	%	ISO 527
Tensile Modulus, 1 mm/min	2150	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	85	MPa	ISO 178
Flexural Modulus, 2 mm/min	2250	MPa	ISO 178
<b>IMPACT</b>			
Izod Impact, notched, 23°C	865	J/m	ASTM D 256
Izod Impact, notched, -30°C	774	J/m	ASTM D 256
Instrumented Impact Total Energy, 23°C	70	J	ASTM D 3763
Izod Impact, unnotched 80*10*3 +23°C	NB	kJ/m <sup>2</sup>	ISO 180/1U
Izod Impact, unnotched 80*10*3 -30°C	NB	kJ/m <sup>2</sup>	ISO 180/1U

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2) Only typical data for material selection purpose. Not to be used for part or tool design.

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Source, GMD, Last Update:

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<b>IMPACT</b>			
Izod Impact, notched 80*10*3 +23°C	70	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	60	kJ/m <sup>2</sup>	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	70	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	65	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m <sup>2</sup>	ISO 179/1eU
<b>THERMAL</b>			
Vicat Softening Temp, Rate B/50	145	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	139	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	124	°C	ASTM D 648
CTE, -40°C to 40°C, flow	6.96E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	7.47E-05	1/°C	ASTM E 831
CTE, 23°C to 80°C, flow	7.2E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.2E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	145	°C	ISO 306
Vicat Softening Temp, Rate B/120	146	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	140	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	128	°C	ISO 75/Ae
Relative Temp Index, Elec	130	°C	UL 746B
Relative Temp Index, Mech w/impact	120	°C	UL 746B
Relative Temp Index, Mech w/o impact	125	°C	UL 746B
<b>PHYSICAL</b>			
Specific Gravity	1.18	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm	0.4 - 0.8	%	SABIC Method

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<b>PHYSICAL</b>			
Mold Shrinkage, xflow, 3.2 mm	0.4 - 0.8	%	SABIC Method
Melt Flow Rate, 300°C/1.2 kgf	10	g/10 min	ASTM D 1238
Density	1.19	g/cm <sup>3</sup>	ISO 1183
Water Absorption, (23°C/sat)	0.35	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.15	%	ISO 62
Melt Volume Rate, MVR at 300°C/1.2 kg	9	cm <sup>3</sup> /10 min	ISO 1133
<b>ELECTRICAL</b>			
Volume Resistivity	>1.E+15	Ohm-cm	ASTM D 257
Surface Resistivity	>1.E+15	Ohm	ASTM D 257
Dielectric Strength, in oil, 0.8 mm	16.2	kV/mm	ASTM D 149
Relative Permittivity, 100 Hz	2.68	-	ASTM D 150
Relative Permittivity, 1 MHz	2.64	-	ASTM D 150
Dissipation Factor, 100 Hz	0.0012	-	ASTM D 150
Dissipation Factor, 1 MHz	0.0093	-	ASTM D 150
<b>FLAME CHARACTERISTICS</b>			
UL Recognized, 94HB Flame Class Rating (3)	0.4	mm	UL 94
Glow Wire Flammability Index 850°C, passes at	0.8	mm	IEC 60695-2-12
Glow Wire Flammability Index 960°C, passes at	1	mm	IEC 60695-2-12
Glow Wire Ignitability Temperature, 1.0 mm	875	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 3.0 mm	875	°C	IEC 60695-2-13

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PROCESSING PARAMETERS	TYPICAL VALUE	UNIT
<b>Injection Molding</b>		
Drying Temperature	120	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	48	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	295 - 315	°C
Nozzle Temperature	290 - 310	°C
Front - Zone 3 Temperature	295 - 315	°C
Middle - Zone 2 Temperature	280 - 305	°C
Rear - Zone 1 Temperature	270 - 295	°C
Mold Temperature	70 - 95	°C
Back Pressure	0.3 - 0.7	MPa
Screw Speed	40 - 70	rpm
Shot to Cylinder Size	40 - 60	%
Vent Depth	0.025 - 0.076	mm

• NOTE: Back Pressure, Screw Speed, Shot to Cylinder Size and Vent Depth are only mentioned as general guidelines. These may not apply or need adjustment in specific situations such as low shot sizes, thin wall molding and gas-assist molding.

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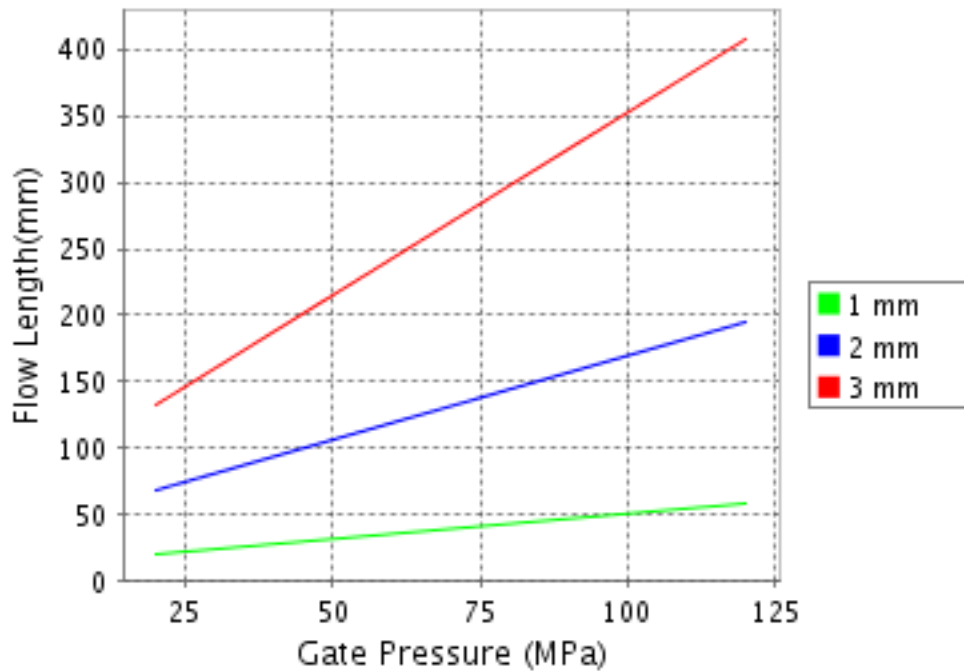
**CALCULATED FLOW LENGTH INDICATION**

**Moldflow® Radial Flow Analysis**

**Lexan® EXL1414**

**Melt Temperature : 305°C**

**Mold Temperature : 85°C**



**Note: Technical support is recommended if Gate Pressure is greater than 80 MPa. Contact your local representative.**

**® Moldflow is a registered trademark of the Moldflow Corporation.**

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