



LEXAN™ Resin EXL1330
Asia Pacific: COMMERCIAL

LEXAN EXL1330 polycarbonate (PC) siloxane copolymer resin is a UV stabilized opaque injection molding (IM) and sheet extrusion grade. This resin offers extreme low temperature (-60 C) ductility in combination with medium flow characteristics and excellent processability with opportunities for shorter IM cycle times compared to standard PC. LEXAN EXL1330 resin is a general purpose product available in a wide range of opaque colors and is an excellent candidate for a broad range of applications.

TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	590	kgf/cm ²	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	620	kgf/cm ²	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	130	%	ASTM D 638
Tensile Modulus, 50 mm/min	21400	kgf/cm ²	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	900	kgf/cm ²	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	21000	kgf/cm ²	ASTM D 790
Tensile Stress, yield, 50 mm/min	55	MPa	ISO 527
Tensile Stress, break, 50 mm/min	56	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5	%	ISO 527
Tensile Strain, break, 50 mm/min	>100	%	ISO 527
Tensile Modulus, 1 mm/min	2100	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	85	MPa	ISO 178
Flexural Modulus, 2 mm/min	2100	MPa	ISO 178
Hardness, H358/30	90	MPa	ISO 2039-1
IMPACT			
Izod Impact, notched, 23°C	81	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -30°C	69	cm-kgf/cm	ASTM D 256
Izod Impact, notched, -50°C	59	cm-kgf/cm	ASTM D 256
Izod Impact, notched, 23°C, 6.4mm	65	cm-kgf/cm	ASTM D 256
Izod Impact, double-gated, 23°C	108	cm-kgf/cm	SABIC Method
Instrumented Impact Total Energy, 23°C	539	cm-kgf	ASTM D 3763

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

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

(3) This rating is not intended to reflect hazards presented by this or any other material under actual fire conditions.

(4) Internal measurements according to UL standards.

(5) Measurements made from laboratory test coupon. Actual shrinkage may vary outside of range due to differences in processing conditions, equipment, part geometry and tool design. It is recommended that mold shrinkage studies be performed with surrogate or legacy tooling prior to cutting tools for new molded article.

(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

Source GMD, last updated:

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
IMPACT			
Izod Impact, unnotched 80*10*3 +23°C	NB	kJ/m ²	ISO 180/1U
Izod Impact, unnotched 80*10*3 -30°C	NB	kJ/m ²	ISO 180/1U
Izod Impact, notched 80*10*3 +23°C	70	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	55	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	75	kJ/m ²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	60	kJ/m ²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m ²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m ²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate B/50	143	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	134	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	120	°C	ASTM D 648
HDT, 1.82 MPa, 6.4 mm, unannealed	124	°C	ASTM D 648
CTE, -40°C to 40°C, flow	6.66E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	6.66E-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	143	°C	ISO 306
Vicat Softening Temp, Rate B/120	145	°C	ISO 306
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	136	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	125	°C	ISO 75/Ae
Relative Temp Index, Elec	125	°C	UL 746B
Relative Temp Index, Mech w/impact	115	°C	UL 746B

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(6) Needs hard coat to consistently pass 60 sec Vertical Burn.

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TYPICAL PROPERTIES ¹	TYPICAL VALUE	Unit	Standard
THERMAL			
Relative Temp Index, Mech w/o impact	120	°C	UL 746B
PHYSICAL			
Specific Gravity	1.18	-	ASTM D 792
Mold Shrinkage, flow, 3.2 mm (5)	0.4 - 0.8	%	SABIC Method
Mold Shrinkage, xflow, 3.2 mm (5)	0.4 - 0.8	%	SABIC Method
Melt Flow Rate, 300°C/1.2 kgf	10	g/10 min	ASTM D 1238
Density	1.18	g/cm ³	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 ³ /10 min	ISO 1133
FLAME CHARACTERISTICS			
UL Recognized, 94HB Flame Class Rating (3)	0.8	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
Oxygen Index (LOI)	35	%	ISO 4589

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PROCESSING PARAMETERS	TYPICAL VALUE	Unit
Injection Molding		
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	215 - 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
Sheet Extrusion		
Drying Temperature	110 - 120	°C
Drying Time	3 - 4	hrs
Drying Time (Cumulative)	48	hrs
Maximum Moisture Content	0.02	%
Melt Temperature	245 - 260	°C
Barrel - Zone 1 Temperature	250 - 290	°C
Barrel - Zone 2 Temperature	245 - 270	°C
Barrel - Zone 3 Temperature	225 - 255	°C
Adapter Temperature	225 - 255	°C
Die Temperature	240 - 260	°C
Roll Stack Temp - Top	75 - 115	°C
Roll Stack Temp - Middle	80 - 125	°C
Roll Stack Temp - Bottom	120 - 145	°C

Regrind: Levels of regrind up to about 25% do not adversely affect extrusion or thermoforming in small scale tests. Regrind may be used as long as acceptable sheet aesthetics and performance can be obtained. If regrind is to be used, parts formed from sheet should be tested to assure that they will perform adequately in their intended end-use environment. Efforts should be made to avoid using contaminated regrind.

• **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.**

• **PLEASE NOTE:** Conditions were established using a down stack configuration (about 100 mm stack). Internal measurements according to UL standards. **Drying:** LEXAN EXL resin must be dried before processing, even if vented barrels are used in order to avoid material degradation during the extrusion process.

• **Screw Design:** LEXAN EXL resins have been successfully extruded using either general purpose or barrier type screws with compression ratios in the range of 2.5-9. This is a typical value. Operating the extruder with higher gear ratios can have significant impact on the extrusion process. Screws with ratios of 2.5 or greater are suggested.

• **Temperature:** Do not overheat resin. Temperature profile for the extruder should be optimized for the resin used. The extruder should be operated at the lowest possible temperature to avoid degradation of the resin. Statements by Seller concerning a possible use of any material, product, service or design do not, are not intended to, and should not be construed to grant any license under any patent or other intellectual property right of Seller.

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