

LEXANTM COPOLYMER EXL1444

REGION ASIA

DESCRIPTION

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.

TYPICAL PROPERTY VALUES

Revision 20190618

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
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
IMPACT			
Izod Impact, notched, 23°C	865	J/m	ASTM D 256
Izod Impact, notched, -30°C	775	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/m²	ISO 180/1U
Izod Impact, unnotched 80*10*3 -30°C	NB	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*3 +23°C	70	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	60	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	70	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	65	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m²	ISO 179/1eU
THERMAL			
Vicat Softening Temp, Rate B/50	145	°C	ASTM D 1525
HDT, 0.45 MPa, 3.2 mm, unannealed	140	°C	ASTM D 648
HDT, 1.82 MPa, 3.2mm, unannealed	124	°C	ASTM D 648

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
CTE, -40°C to 40°C, flow	6.97E-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 ⁽¹⁾	130	°C	UL 746B
Relative Temp Index, Mech w/impact ⁽¹⁾	120	°C	UL 746B
Relative Temp Index, Mech w/o impact ⁽¹⁾	130	°C	UL 746B
PHYSICAL			
Specific Gravity	1.18	-	ASTM D 792
Mold Shrinkage on Tensile Bar, flow	0.4 – 0.8	%	SABIC method
Mold Shrinkage, flow, 3.2 mm	0.4 – 0.8	%	SABIC method
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/cm³	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	cm³/10 min	ISO 1133
ELECTRICAL			
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	16.3	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
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥0.7	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 1	≥0.7	mm	UL 746A
FLAME CHARACTERISTICS ⁽¹⁾			
UL Yellow Card Link	E207780-100079876	-	-
UL Yellow Card Link 2	E207780-462650	-	-
UL Recognized, 94HB Flame Class Rating	≥0.7	mm	UL 94
Glow Wire Flammability Index 960°C, passes at ⁽²⁾	1	mm	IEC 60695-2-12
UV-light, water exposure/immersion	F1	-	UL 746C
Oxygen Index (LOI)	37	%	ISO 4589
INJECTION MOLDING			
Drying Temperature	120	°C	
Drying Time	3 – 4	hrs	
Drying Time (Cumulative)	48	hrs	
Maximum Moisture Content	0.02	%	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

(1) UL Ratings shown on the technical datasheet might not cover the full range of thicknesses and colors. For details, please see the UL Yellow Card.

(2) Value shown here is based on internal measurement.

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