LNP™ ELCRIN™ EXL9330B

DESCRIPTION

ELCRIN EXL9330B polycarbonate (PC) siloxane copolymer resin is a UV stabilized high flow opaque injection molding (IM) grade with major component synthesized from Bio source. This resin offers UL94 V0 @1.5mm flame retardancy based on non-bromine, non-chlorine FR systems, extreme low temperature ductility (-60°C) characteristics and excellent processability with opportunities for shorter IM cycle times compared to standard PC. ELCRIN EXL9330B resin is a product available in a wide range of opaque colors and may be an excellent candidate for a wide range of applications.

GENERAL INFORMATION	
Features	Flame Retardant, Good Processability, Non Cl/Br flame retardant, Low temperature impact
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Consumer	Personal Accessory, Home Appliances
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20241022

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	58	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	61	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	130	%	ASTM D638
Tensile Modulus, 50 mm/min	2100	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	88	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2060	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	55	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	125	%	ISO 527
Tensile Modulus, 1 mm/min	2100	MPa	ISO 527
Flexural Strength, 2 mm/min	85	MPa	ISO 178
Flexural Modulus, 2 mm/min	2200	MPa	ISO 178
Ball Indentation Hardness, H358/30	90	MPa	ISO 2039-1
IMPACT [1]			
Izod Impact, notched, 23°C	801	J/m	ASTM D256
Izod Impact, notched, 23°C, 6.4mm	640	J/m	ASTM D256
Izod Impact, notched, -30°C	678	J/m	ASTM D256
Izod Impact, notched, -50°C	587	J/m	ASTM D256
Izod Impact, notched 80*10*3 +23°C	70	kJ/m²	ISO 180/1A

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched 80*10*3 +23°C	NB	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*3 -30°C	55	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*3 -30°C	NB	kJ/m²	ISO 180/1U
Izod Impact, notched 63.5*12.7*3.2, 23°C	80	kJ/m²	ISO 180/4A
Izod Impact, notched 63.5*12.7*3.2, -30°C	65	kJ/m²	ISO 180/4A
Izod Impact, double-gated, 23°C	1068	J/m	SABIC method
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	75	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m²	ISO 179/1eU
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	60	kJ/m²	ISO 179/1eA
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m²	ISO 179/1eU
Instrumented Dart Impact Total Energy, 23°C	52	J	ASTM D3763
THERMAL (1)			
HDT, 0.45 MPa, 3.2 mm, unannealed	134	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	120	°C	ASTM D648
HDT, 1.82 MPa, 6.4 mm, unannealed	124	°C	ASTM D648
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	135	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	124	°C	ISO 75/Ae
CTE, -40°C to 40°C, flow	6.66E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.66E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	7.2E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.7E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	142	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	140	°C	ISO 306
Vicat Softening Temp, Rate B/120	142	°C	ISO 306
Relative Temp Index, Elec (2)	125	°C	UL 746B
Relative Temp Index, Mech w/impact (2)	115	°C	UL 746B
Relative Temp Index, Mech w/o impact (2)	125	°C	UL 746B
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
PHYSICAL (1)			
Specific Gravity	1.18	-	ASTM D792
Density	1.19	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.15	%	ISO 62
Water Absorption, (23°C/saturated)	0.35	%	ISO 62-1
Melt Flow Rate, 300°C/1.2 kgf	10	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	9	cm³/10 min	ISO 1133
Mold Shrinkage, flow, 3.2 mm (3)	0.4 – 0.8	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm (3)	0.4 – 0.8	%	SABIC method
ELECTRICAL (1)			
Surface Resistivity, ROA	>1.E+15	Ω	IEC 60093
Volume Resistivity	>1.E+15	Ω.cm	IEC 60093
Dielectric Strength, in oil, 3.2 mm	17	kV/mm	ASTM D149
Dielectric Strength, in oil, 3.2 mm	16	kV/mm	IEC 60243-1
Dielectric Constant, 1.1 GHz	2.84	-	SABIC method
Dissipation Factor, 1.1 GHz	0.0059	-	SABIC method
Dielectric Constant, 1.9 GHz	2.85	-	SABIC method

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Dissipation Factor, 1.9 GHz	0.0059	-	SABIC method
Dielectric Constant, 5 GHz	2.82	-	SABIC method
Dissipation Factor, 5 GHz	0.0059	-	SABIC method
Hot-Wire Ignition (HWI), PLC 1 (2)	≥3	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 2 (2)	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 3 (2)	≥0.6	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 0 (2)	≥2.3	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 1 (2)	≥0.6	mm	UL 746A
Comparative Tracking Index (UL) {PLC} (2)	3	PLC Code	UL 746A
Comparative Tracking Index	225	V	IEC 60112
FLAME CHARACTERISTICS (2)			
UL Yellow Card Link	E207780-102516601	-	-
UL Yellow Card Link 2	E207780-228378	-	-
UL Recognized, 94-5VA Flame Class Rating	≥3	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥0.8	mm	UL 94
UL Recognized, 94HB Flame Class Rating	≥0.6	mm	UL 94
Glow Wire Ignitability Temperature, 1.0 mm (1)	825	°C	IEC 60695-2-13
Glow Wire Flammability Index, 1.0 mm (1)	960	°C	IEC 60695-2-12
Oxygen Index (LOI) (1)	35	%	ISO 4589
UV-light, water exposure/immersion	f1	-	UL 746C
INJECTION MOLDING (4)			
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	275 – 295	°C	
Mold Temperature	70 – 95	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	

(1) The information stated on Technical Datasheets should be used as indicative only for material selection purposes and not be utilized as specification or used for part or tool design.
(2) 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.
(3) 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.
(4) Injection Molding parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations such as low shot sizes, large part molding, thin wall molding and gas-assist molding.

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