LNP™ ELCRIN™ EXL9414B

DESCRIPTION

ELCRIN EXL9414B polycarbonate (PC) siloxane copolymer resin is a medium flow, non-chlorinated, non-brominated flame retardant opaque injection molding (IM) grade with major component synthesized from Bio source. This resin offers low temperature ductility (-30°C), thin wall flame retardant capability (UL94 V0 @1.0mm), and in combination with excellent processability and release with opportunities for shorter IM cycle times compared to standard. PC. ELCRIN EXL9414B copolymer resin is a product available in wide range of opaque colors and may be an excellent candidate for a wide variety of applications.

GENERAL INFORMATION	
Features	Flame Retardant, Good Processability, Non Cl/Br flame retardant, Low temperature impact
Fillers	Unreinforced
Brands	LNP™ ELCRIN™
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 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	56	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	62	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.8	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	107	%	ASTM D638
Tensile Modulus, 50 mm/min	2110	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	2190	MPa	ASTM D790
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	5.6	%	ISO 527
Tensile Strain, break, 50 mm/min	106	%	ISO 527
Tensile Modulus, 1 mm/min	2140	MPa	ISO 527
Flexural Strength, 2 mm/min	86	MPa	ISO 178
Flexural Modulus, 2 mm/min	2180	MPa	ISO 178
Hardness, Rockwell R	117	-	ASTM D785
Hardness, Rockwell L	83	-	ASTM D785
IMPACT [1]			
Izod Impact, notched, 23°C	880	J/m	ASTM D256
Izod Impact, notched, -30°C	660	J/m	ASTM D256

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*3 +23°C	69	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	46	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	75	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	29	kJ/m²	ISO 179/1eA
Instrumented Dart Impact Total Energy, 23°C	67	J	ASTM D3763
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	134	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	118	°C	ASTM D648
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	131	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	117	°C	ISO 75/Ae
CTE, -40°C to 40°C, flow	6.91E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.27E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	7.42E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.64E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	136	°C	ISO 306
Vicat Softening Temp, Rate B/120	138	°C	ISO 306
Relative Temp Index, Elec [2]	80	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	80	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	80	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.19	-	ASTM D792
Density	1.19	g/cm³	ISO 1183
Melt Flow Rate, 300°C/1.2 kgf	11.5	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	10	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	>1.E+16	Ω	ASTM D257
Volume Resistivity	>1.E+16	Ω.cm	ASTM D257
Dielectric Constant (Dk), 1.1 GHz	2.78	-	ASTM ES 7-83
Dissipation Factor (Df), 1.1 GHz	0.006	-	ASTM ES 7-83
Dielectric Strength, in oil, 3.2 mm	13	kV/mm	ASTM D149
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-102896543	-	-
UL Recognized, 94-5VA Flame Class Rating	≥3.1	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.0	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥0.8	mm	UL 94
UL Recognized, 94V-2 Flame Class Rating	≥0.50	mm	UL 94
Glow Wire Flammability Index 960°C, passes at [1]	1	mm	IEC 60695-2-12
Oxygen Index (LOI) [1]	39	%	ISO 4589
INJECTION MOLDING [4]			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	48	Hrs	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

(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.

DISCLAIMER