LNP™ ELCRIN™ EXL9414PB

DESCRIPTION

ELCRIN EXL9414PB 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 @0.8mm), and in combination with excellent processability and release with opportunities for shorter IM cycle times compared to standard PC. ELCRIN EXL9414PB copolymer resin is a product available in wide range of opaque colors and may be an excellent candidate for a wide variety of applications, especially the housing of fast-charging mobile phones.

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 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	55	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.3	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	89	%	ASTM D638
Tensile Modulus, 50 mm/min	2117	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	90	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2200	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	56	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	4.9	%	ISO 527
Tensile Strain, break, 50 mm/min	63	%	ISO 527
Tensile Modulus, 1 mm/min	2109	MPa	ISO 527
Flexural Strength, 2 mm/min	86	MPa	ISO 178
Flexural Modulus, 2 mm/min	2184	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	962	J/m	ASTM D256
Izod Impact, notched, -30°C	670	J/m	ASTM D256
Izod Impact, notched 80*10*3 +23°C	77	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	51	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	81	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	48	kJ/m²	ISO 179/1eA
THERMAL [1]			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
HDT, 0.45 MPa, 3.2 mm, unannealed	123	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	110	°C	ASTM D648
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	124	°C	ISO 75/Bf
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	111	°C	ISO 75/Af
CTE, -40°C to 40°C, flow	7.71E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	8.34E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	9.11E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	9.54E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	137	°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	13.5	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	12	cm³/10 min	ISO 1133
Mold Shrinkage, flow [3]	0.4 – 0.8	%	SABIC method
Mold Shrinkage, xflow [3]	0.4 – 0.8	%	SABIC method
ELECTRICAL [1]			
Dielectric Constant, 1.1 GHz	2.87	-	SABIC method
Dissipation Factor, 1.1 GHz	0.006	-	SABIC method
Dielectric Constant, 1.9 GHz	2.82	-	SABIC method
Dissipation Factor, 1.9 GHz	0.006	-	SABIC method
Dielectric Constant, 5 GHz	2.82	-	SABIC method
Dissipation Factor, 5 GHz	0.006	-	SABIC method
Dielectric Constant, 10 GHz	2.83	-	SABIC method
Dissipation Factor, 10 GHz	0.006	-	SABIC method
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-104263177	-	-
UL Recognized, 94V-0 Flame Class Rating	0.8	mm	UL 94
Glow Wire Ignitability Temperature, 1.0 mm [1]	825	°C	IEC 60695-2-13
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	270 – 295	°C	
Mold Temperature	70 – 95	°C	
Back Pressure	0.3 – 0.7	MPa	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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