

# LNPT<sup>™</sup> ELCREST<sup>™</sup> EXL9818

## DESCRIPTION

LNP ELCRES EXL9818 is opaque Copolymer Polycarbonate resin with added features of good Processability, good Modulus and heat resistance. It is non-chlorine and non-bromine flame retardant material with UL-94 FR rating of 5VA/2.5mm, V0/1.5mm.

GENERAL INFORMATION	
Features	Flame Retardant, Good Processability
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

  

INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Electrical

## TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>MECHANICAL <sup>(1)</sup></b>			
Tensile Stress, yld, Type I, 50 mm/min	61	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	60	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.5	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	92	%	ASTM D638
Tensile Modulus, 50 mm/min	2520	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	2410	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	61	MPa	ISO 527
Tensile Stress, break, 50 mm/min	58	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5.5	%	ISO 527
Tensile Strain, break, 50 mm/min	92	%	ISO 527
Tensile Modulus, 1 mm/min	2480	MPa	ISO 527
Flexural Strength, 2 mm/min	92	MPa	ISO 178
Flexural Modulus, 2 mm/min	2450	MPa	ISO 178
<b>IMPACT <sup>(1)</sup></b>			
Izod Impact, notched, 23°C	765	J/m	ASTM D256
Izod Impact, notched, -30°C	132	J/m	ASTM D256
Izod Impact, unnotched, 23°C	2130	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	2130	J/m	ASTM D4812
Izod Impact, notched 80*10*3 +23°C	64	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	16	kJ/m <sup>2</sup>	ISO 180/1A
Izod Impact, unnotched 80*10*3 +23°C	181	kJ/m <sup>2</sup>	ISO 180/1U

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched 80*10*3 -30°C	180	kJ/m <sup>2</sup>	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	62	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	16	kJ/m <sup>2</sup>	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	133	kJ/m <sup>2</sup>	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	132	kJ/m <sup>2</sup>	ISO 179/1eU
Instrumented Dart Impact Total Energy, 23°C	62	J	ASTM D3763
<b>THERMAL <sup>(1)</sup></b>			
HDT, 0.45 MPa, 3.2 mm, unannealed	131	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	119	°C	ASTM D648
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	132	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	120	°C	ISO 75/Ae
CTE, -40°C to 40°C, flow	6.4E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.8E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	6.7E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.4E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	138	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	138	°C	ISO 306
Vicat Softening Temp, Rate B/120	141	°C	ISO 306
Relative Temp Index, Elec <sup>(2)</sup>	125	°C	UL 746B
Relative Temp Index, Mech w/impact <sup>(2)</sup>	110	°C	UL 746B
Relative Temp Index, Mech w/o impact <sup>(2)</sup>	120	°C	UL 746B
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
<b>PHYSICAL <sup>(1)</sup></b>			
Specific Gravity	1.22	-	ASTM D792
Density	1.21	g/cm <sup>3</sup>	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.17	%	ISO 62
Water Absorption, (23°C/saturated)	0.36	%	ISO 62-1
Melt Flow Rate, 300°C/1.2 kgf	21	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	20	cm <sup>3</sup> /10 min	ISO 1133
Mold Shrinkage, flow, 3.2 mm <sup>(3)</sup>	0.6 – 0.8	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm <sup>(3)</sup>	0.6 – 0.8	%	SABIC method
<b>ELECTRICAL <sup>(1)</sup></b>			
Surface Resistivity	1.E+15 – 1.E+16	Ω	ASTM D257
Volume Resistivity	1.E+15 – 1.E+16	Ω.cm	ASTM D257
Comparative Tracking Index (UL) {PLC} <sup>(2)</sup>	3	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 0 <sup>(2)</sup>	≥1.5	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 1 <sup>(2)</sup>	≥1.5	mm	UL 746A
<b>FLAME CHARACTERISTICS <sup>(2)</sup></b>			
UL Yellow Card Link	<a href="#">E207780-104560205</a>	-	-
UL Recognized, 94-5VA Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94-5VB Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
Glow Wire Ignitability Temperature, 2.5 mm	825	°C	IEC 60695-2-13
Glow Wire Flammability Index, 2.5 mm	960	°C	IEC 60695-2-12
UV-light, water exposure/immersion	f1	-	UL 746C

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
<b>INJECTION MOLDING <sup>(4)</sup></b>			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	48	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	290 – 310	°C	
Nozzle Temperature	280 – 305	°C	
Front - Zone 3 Temperature	290 – 310	°C	
Middle - Zone 2 Temperature	275 – 300	°C	
Rear - Zone 1 Temperature	265 – 290	°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) 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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