LNP™ ELCRES™ EXL9533

DESCRIPTION

LNP ELCRES EXL9533 is based on Polycarbonate (PC) copolymer resin with medium flowability, good flame retardancy, good low temperature ductility and UV stabilized performance. It has good electrical tracking resistance with UL CTI PLC=0 and IEC CTI=600V intended for high voltage applications such as EV Charger or other related electrical devices.

GENERAL INFORMATION	
Features	Flame Retardant, Low temperature impact, Tracking resistance
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive EV Batteries
Electrical and Electronics	Energy Management
Hydrocarbon and Energy	Energy Storage
Industrial	Electrical

TYPICAL PROPERTY VALUES

Revision 20261028

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 5 mm/min	53	MPa	ASTM D638
Tensile Stress, brk, Type I, 5 mm/min	55	MPa	ASTM D638
Tensile Strain, brk, Type I, 5 mm/min	78.5	%	ASTM D638
Tensile Modulus, 5 mm/min	2050	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	86	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2110	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	53	MPa	ISO 527
Tensile Stress, break, 5 mm/min	54	MPa	ISO 527
Tensile Strain, break, 5 mm/min	78.5	%	ISO 527
Tensile Modulus, 1 mm/min	2100	MPa	ISO 527
Flexural Strength, 2 mm/min	80	MPa	ISO 178
Flexural Modulus, 2 mm/min	2070	MPa	ISO 178
IMPACT [1]			
Izod impact, notched			
23°C	720	J/m	ASTM D256
-30°C	630	J/m	ASTM D256
-35°C	540	J/m	ASTM D256
-40°C	410	J/m	ASTM D256
80*10*3 +23°C	60	kJ/m²	ISO 180/1A
80*10*3 -30°C	58	kJ/m²	ISO 180/1A

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, Unnotched			
23°C	NB	J/m	ASTM D4812
-30°C	NB	J/m	ASTM D4812
80*10*3 +23°C	NB	kJ/m²	ISO 180/1U
80*10*3 -30°C	NB	kJ/m²	ISO 180/1U
Instrumented Dart Impact Energy @ peak, 23°C	63	J	ASTM D3763
Instrumented Dart Impact Total Energy, 23°C	64	J	ASTM D3763
THERMAL [1]			
HDT, 1.82 MPa, 3.2mm, unannealed	122	°C	ASTM D648
HDT, 0.45 MPa, 3.2 mm, unannealed	136	°C	ASTM D648
CTE, 23°C to 80°C, flow	7.9E-5	1/°C	ASTM E831
CTE, 23°C to 80°C, xflow	8.3E-5	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	6.5E-5	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.1E-5	1/°C	ASTM E831
Vicat Softening Temp, Rate B/50	142	°C	ISO 306
Vicat Softening Temp, Rate B/120	143	°C	ISO 306
Relative Temp Index, Elec [2]	130	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	115	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	130	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.22	-	ASTM D792
Water Absorption, (23°C/24hrs)	0.06	%	ISO 62-1
Melt Flow Rate			
300°C/1.2 kgf	8	g/10 min	ASTM D1238
Melt Volume Rate			
300°C/1.2 kg	7	cm³/10 min	ASTM D1238
Mold Shrinkage, flow [3]	0.7 – 0.9	%	SABIC method
Mold Shrinkage, xflow [3]	0.7 – 0.9	%	SABIC method
ELECTRICAL [1]			
Surface Resistivity	8.6E15	Ω	ASTM D257
Volume Resistivity	1.8E15	Ω.cm	ASTM D257
Dielectric Constant			
1.1 GHz	2.87	-	SABIC method
1.9 GHz	2.88	-	SABIC method
5 GHz	2.87	-	SABIC method
10 GHz	2.87	-	SABIC method
Dissipation Factor			
1.1 GHz	0.0105	-	SABIC method
1.9 GHz	0.0097	-	SABIC method
5 GHz	0.0079	-	SABIC method
10 GHz	0.0074	-	SABIC method
Comparative Tracking Index (UL) {PLC} [2]	0	PLC Code	UL 746A
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-104626639	-	-
UL Recognized, 94-5VA Flame Class Rating	≥3.0	mm	UL 94

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
UL Recognized, 94-5VB Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94V-0 Flame Class Rating	≥1.3	mm	UL 94
INJECTION MOLDING [4]			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	260 – 290	°C	
Nozzle Temperature	250 – 285	°C	
Front - Zone 3 Temperature	260 – 290	°C	
Middle - Zone 2 Temperature	255 – 285	°C	
Rear - Zone 1 Temperature	250 – 280	°C	
Mold Temperature	70 – 120	°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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