LNP™ ELCRES™ EXL1213T

DESCRIPTION

LNP ELCRES EXL1213T is a transparent injection molding grade based on Polycarbonate (PC) siloxane copolymer resin. This grade offers extreme low temperature ductility in combination with high flow characteristics, excellent processability and good chemical resistance. It is a general purpose product available in transparent and opaque colors and is an excellent candidate for a broad range of applications.

GENERAL INFORMATION	
Features	Chemical Resistance, High Flow, IR Transparent, Transparent/Translucent, Impact resistant, Low temperature impact, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Consumer	Home Appliances
Electrical and Electronics	Mobile Phone - Computer - Tablets, Lighting
Industrial	Electrical, Defense

TYPICAL PROPERTY VALUES

Revision 20260303

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1] [2]			
Tensile Stress, yld, Type I, 50 mm/min	56	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	53	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.8	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	90	%	ASTM D638
Tensile Modulus, 50 mm/min	2060	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	91	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2080	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	56	MPa	ISO 527
Tensile Stress, break, 50 mm/min	56	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5	%	ISO 527
Tensile Strain, break, 50 mm/min	80	%	ISO 527
Tensile Modulus, 1 mm/min	2076	MPa	ISO 527
Flexural Stress, yield, 2 mm/min	86	MPa	ISO 178
Flexural Modulus, 2 mm/min	1950	MPa	ISO 178
IMPACT [2]			
Izod Impact, notched, 23°C	830	J/m	ASTM D256
Izod Impact, notched, -30°C	620	J/m	ASTM D256
Instrumented Dart Impact Total Energy, 23°C	68	J	ASTM D3763
Izod Impact, unnotched 80*10*3 +23°C	132	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*3 -30°C	133	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*3 +23°C	53	kJ/m²	ISO 180/1A

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Izod Impact, notched 80*10*3 -30°C	19	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	53	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	21	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	94	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	95	kJ/m²	ISO 179/1eU
THERMAL [2]			
Vicat Softening Temp, Rate A/50	147	°C	ASTM D1525
HDT, 1.82 MPa, 3.2mm, unannealed	119	°C	ASTM D648
CTE, -40°C to 95°C, flow	8.4E-05	1/°C	ASTM E831
CTE, -40°C to 95°C, xflow	9E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	9.7E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	9.2E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	PASS	-	IEC 60695-10-2
Vicat Softening Temp, Rate B/50	140	°C	ISO 306
Vicat Softening Temp, Rate B/120	141	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	121	°C	ISO 75/Af
Relative Temp Index, Elec [3]	80	°C	UL 746B
Relative Temp Index, Mech w/impact [3]	80	°C	UL 746B
Relative Temp Index, Mech w/o impact [3]	80	°C	UL 746B
PHYSICAL [2]			
Specific Gravity	1.18	-	ASTM D792
Mold Shrinkage, flow, 3.2 mm [4]	0.4 – 0.8	%	SABIC method
Melt Flow Rate, 300°C/1.2 kgf	14.7	g/10 min	ASTM D1238
Density	1.18	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.05	%	ISO 62
Melt Volume Rate, MVR at 300°C/1.2 kg	13.3	cm³/10 min	ISO 1133
OPTICAL [2]			
Light Transmission at 2.0 mm	89	%	SABIC method
Haze, 2mm	1.0	%	SABIC method
FLAME CHARACTERISTICS [3]			
UL Yellow Card Link	E207780-104423784	-	-
UL Recognized, 94HB Flame Class Rating	≥0.7	mm	UL 94
INJECTION MOLDING [5]			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	0.02	Hrs	
Melt Temperature	290 – 320	°C	
Nozzle Temperature	290 – 310	°C	
Front - Zone 3 Temperature	295 – 320	°C	
Middle - Zone 2 Temperature	285 – 305	°C	
Rear - Zone 1 Temperature	280 – 295	°C	
Mold Temperature	80 – 115	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	
Shot to Cylinder Size	40 – 60	%	

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Vent Depth	0.025 – 0.076	mm	

(1) Typical values only. Variations within normal tolerances are possible for various colors. All values are measured after at least 48 hours storage at 23°C/50% relative humidity. All properties, except the melt volume and melt flow rates, are measured on injection molded samples. All samples tested under ISO test standards are prepared according to ISO 294.

(2) 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.

(3) 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.

(4) 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.

(5) 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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