LNP™ ELCRIN™ EXL1613TBL

DESCRIPTION

ELCRIN EXL1613TBL polycarbonate (PC) siloxane copolymer resin is a transparent injection molding grade with component synthesized from Bio source. This resin offers extreme low temperature ductility in combination with medium flow characteristics and excellent processability with opportunities for shorter IM cycle times compared to standard PC. ELCRIN EXL1613TBL resin 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, Good Processability, Amorphous, Bio-Renewable, Aesthetics/Visual effects, Transparent/Translucent, High temperature resistance, Impact resistant, Low temperature impact, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Recreational/Specialty Vehicles
Consumer	Personal Accessory
Electrical and Electronics	Electronic Components, Mobile Phone - Computer - Tablets, Speaker - Earphone

TYPICAL PROPERTY VALUES

Revision 20260203

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	57	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	49	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.9	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	58	%	ASTM D638
Tensile Modulus, 50 mm/min	2100	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	2012	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	57	MPa	ISO 527
Tensile Stress, break, 50 mm/min	47	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5.7	%	ISO 527
Tensile Strain, break, 50 mm/min	67	%	ISO 527
Tensile Modulus, 1 mm/min	2100	MPa	ISO 527
Flexural Strength, 2 mm/min	85	MPa	ISO 178
Flexural Modulus, 2 mm/min	2100	MPa	ISO 178
IMPACT [1]			
Izod Impact, notched, 23°C	900	J/m	ASTM D256
Izod Impact, notched, -30°C	690	J/m	ASTM D256
Izod Impact, notched 80*10*3 +23°C	62	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	20	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*3 +23°C	130	kJ/m²	ISO 180/1U

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Izod Impact, unnotched 80*10*3 -30°C	130	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	70	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	20	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	95	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	95	kJ/m²	ISO 179/1eU
Instrumented Dart Impact Total Energy, 23°C	75	J	ASTM D3763
Instrumented Dart Impact Total Energy, -30°C	73	J	ASTM D3763
THERMAL [1]			
HDT, 1.82 MPa, 3.2mm, unannealed	122	°C	ASTM D648
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	122	°C	ISO 75/Af
CTE, -40°C to 95°C, flow	7.15E-05	1/°C	ASTM E831
CTE, -40°C to 95°C, xflow	7.61E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	7.7E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	8.26E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	150	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	142	°C	ISO 306
Vicat Softening Temp, Rate B/120	143	°C	ISO 306
Ball Pressure Test, 125°C +/- 2°C	PASS	-	IEC 60695-10-2
PHYSICAL [1]			
Specific Gravity	1.18	-	ASTM D792
Density	1.18	g/cm³	ISO 1183
Melt Flow Rate, 300°C/1.2 kgf	8	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	7.5	cm³/10 min	ISO 1133
Moisture Absorption (23°C / 50% RH)	0.04	%	ISO 62
Mold Shrinkage, flow, 3.2 mm [2]	0.4 – 0.8	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [2]	0.4 – 0.8	%	SABIC method
OPTICAL [1]			
Light Transmission, 2.54 mm	87	%	ASTM D1003
Haze, 2.54 mm	1.3	%	ASTM D1003
ELECTRICAL [1]			
Surface Resistivity	≥1E+15	Ω	ASTM D257
Volume Resistivity	>1E+15	Ω.cm	ASTM D257
INJECTION MOLDING [3]			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	48	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	300 – 330	°C	
Nozzle Temperature	300 – 320	°C	
Front - Zone 3 Temperature	305 – 330	°C	
Middle - Zone 2 Temperature	295 – 315	°C	
Rear - Zone 1 Temperature	285 – 305	°C	
Mold Temperature	80 – 115	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	

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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) 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.

(3) 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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