LNP™ ELCRIN™ EXL1414B

DESCRIPTION

ELCRIN EXL1414B is based on Polycarbonate (PC) siloxane copolymer and is a medium flow opaque injection molding (IM) grade with major component synthesized from Bio source. This resin offers extreme low temperature (-40°C) ductility in combination with excellent processability and mold release, providing opportunities for shorter IM cycle times compared with standard PC. ELCRIN EXL1414B resin is available in a wide range of opaque colors and is targeted for a variety of applications.

GENERAL INFORMATION	
Features	Chemical Resistance, Good Processability, Bio-Renewable, Impact resistant, Low temperature impact, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Interiors, Automotive Under the Hood, Recreational/Specialty Vehicles
Building and Construction	Building Component, Water Management
Consumer	Sport/Leisure, Personal Accessory, Home Appliances, Personal Recreation, Commercial Appliance
Electrical and Electronics	Mobile Phone - Computer - Tablets, Lighting
Industrial	Electrical, Defense

TYPICAL PROPERTY VALUES

Revision 20250416

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	55	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	50	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	98	%	ASTM D638
Tensile Modulus, 50 mm/min	2020	MPa	ASTM D638
Flexural Strength			
1.3 mm/min, 50 mm span	92	MPa	ASTM D790
2.6 mm/min, 100 mm span	84	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2230	MPa	ASTM D790
Flexural Modulus, 2.6 mm/min, 100 mm span	2060	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	57	MPa	ISO 527
Tensile Stress, break, 50 mm/min	60	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	120	%	ISO 527
Tensile Modulus, 1 mm/min	2150	MPa	ISO 527
Flexural Modulus, 2 mm/min	2250	MPa	ISO 178
Hardness, Rockwell R	121	-	ASTM D785
Hardness, Rockwell L	89	-	ASTM D785

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
IMPACT [1]			
Izod Impact, notched, 23°C	865	J/m	ASTM D256
Izod Impact, notched, -30°C	774	J/m	ASTM D256
Izod Impact, notched 80*10*3 +23°C	70	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	60	kJ/m²	ISO 180/1A
Izod Impact, unnotched 80*10*3 +23°C	NB	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*3 -30°C	NB	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	65	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm	NB	kJ/m²	ISO 179/1eU
Instrumented Dart Impact Total Energy, 23°C	70	J	ASTM D3763
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	139	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	124	°C	ASTM D648
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	140	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	128	°C	ISO 75/Ae
CTE, -40°C to 40°C, flow	7.0E-5	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.47E-5	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	7.2E-5	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.2E-5	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	145	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	145	°C	ISO 306
Vicat Softening Temp, Rate B/120	146	°C	ISO 306
Ball Pressure Test, 125°C +/- 2°C	Passes	-	IEC 60695-10-2
PHYSICAL [1]			
Specific Gravity	1.18	-	ASTM D792
Density	1.19	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.15	%	ISO 62
Water Absorption, (23°C/saturated)	0.35	%	ISO 62-1
Melt Flow Rate, 300°C/1.2 kgf	10	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	9	cm³/10 min	ISO 1133
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
ELECTRICAL [3]			
Hot-Wire Ignition (HWI), PLC 0	≥0.70	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 1	≥0.70	mm	UL 746A
FLAME CHARACTERISTICS [3]			
UL Yellow Card Link	E207780-228376	-	-
UL Yellow Card Link 2	E207780-100079875	-	-
UL Recognized, 94HB Flame Class Rating	≥0.40	mm	UL 94
UV-light, water exposure/immersion	f1	-	UL 746C
INJECTION MOLDING [4]			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	

(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) 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) 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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