LNP™ ELCRIN™ BD2031

DESCRIPTION

LNP ELCRIN BD2031 is polycarbonate (PC) Bio base copolymer transparent resin, with medium flow, synthesized from Bio source. This resin offers excellent low temperature ductility (-30℃), UV stabilized, available for injection molding and extrusion process.
BD2031 resin is a product for a wide variety of applications, such as big size and thin wall applications, or transparent/lower birefringence needed applications.

GENERAL INFORMATION	
Features	UV-C resistant, Transparent/Translucent, Low temperature impact, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding, Extrusion

INDUSTRY	SUB INDUSTRY
Automotive	Automotive Interiors
Consumer	Home Appliances
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Material Handling, Industrial General

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	56	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	66	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	6	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	140	%	ASTM D638
Tensile Modulus, 5 mm/min	2250	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	96	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2230	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	58	MPa	ISO 527
Tensile Stress, break, 50 mm/min	72	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	140	%	ISO 527
Tensile Modulus, 1 mm/min	2070	MPa	ISO 527
Flexural Strength, 2 mm/min	88	MPa	ISO 178
Flexural Modulus, 2 mm/min	2060	MPa	ISO 178
Hardness, Rockwell R	120	-	ASTM D785
IMPACT [1]			
Izod Impact, notched, 23°C	960	J/m	ASTM D256
Izod Impact, notched, -30°C	890	J/m	ASTM D256
Izod Impact, notched 80*10*3 +23°C	71	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	62	kJ/m²	ISO 180/1A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	81	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	68	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	78	J	ASTM D3763
Multiaxial Impact	133	J	ISO 6603
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	125	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	114	°C	ASTM D648
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	115	°C	ISO 75/Af
CTE, -40°C to 40°C, flow	8.E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	8.E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	8.E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	8.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	135	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	130	°C	ISO 306
Vicat Softening Temp, Rate B/120	131	°C	ISO 306
Ball Pressure Test, 125°C +/- 2°C	PASS	-	IEC 60695-10-2
Relative Temp Index, Elec [2]	105	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	105	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	105	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.2	-	ASTM D792
Density	1.2	g/cm³	ASTM D792
Density	1.2	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.15	%	ISO 62
Water Absorption, (23°C/saturated)	0.3	%	ISO 62-1
Melt Flow Rate, 300°C/1.2 kgf	7.5	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	6.5	cm³/10 min	ISO 1133
Mold Shrinkage, flow, 3.2 mm [3]	0.5 – 0.7	%	SABIC method
OPTICAL [1]			
Light Transmission, 2.54 mm	88	%	ASTM D1003
Haze, 2.54 mm	<1	%	ASTM D1003
Refractive Index	1.581	-	ASTM D542
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-104559498	-	-
UL Recognized, 94HB Flame Class Rating	≥0.8	mm	UL 94
INJECTION MOLDING [4]			
Drying Temperature	105 – 110	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	24	Hrs	
Melt Temperature	260 – 305	°C	
Nozzle Temperature	255 – 300	°C	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Front - Zone 3 Temperature	260 – 305	°C	
Middle - Zone 2 Temperature	250 – 295	°C	
Rear - Zone 1 Temperature	240 – 280	°C	
Mold Temperature	50 – 80	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	35 – 75	rpm	
Shot to Cylinder Size	40 – 60	%	
Vent Depth	0.038 – 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.

DISCLAIMER