LNP™ ELCRIN™ CFR9111BL

DESCRIPTION

LNP ELCRIN CFR9111BL Polycarbonate (PC) resin is an unfilled, injection moldable grade with partial component synthesized from bio-source. This non-chlorinated, non-brominated flame retardant PC has an UL94 V0 rating at 1.5 mm and good flow capability. ELCRIN CFR9111BL is available in clear transparent and tinted color options that is an excellent candidate for a wide variety of applications.

GENERAL INFORMATION	
Features	Good Processability, Bio-Renewable, Transparent/Translucent, Non Cl/Br flame retardant
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

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

TYPICAL PROPERTY VALUES

Revision 20260805

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	67	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	54	MPa	ASTM D638
Tensile Strain, Yield			
Type I, 50 mm/min	6	%	ASTM D638
50 mm/min	6	%	ISO 527
Tensile Strain, Break			
Type I, 50 mm/min	80	%	ASTM D638
50 mm/min	73	%	ISO 527
Tensile Modulus, 50 mm/min	2400	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	103	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2400	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	63	MPa	ISO 527
Tensile Stress, break, 50 mm/min	57	MPa	ISO 527
Tensile Modulus, 1 mm/min	2300	MPa	ISO 527
Flexural Strength, 2 mm/min	96	MPa	ISO 178
Flexural Modulus, 2 mm/min	2400	MPa	ISO 178
IMPACT [1]			
Izod impact, notched			
23°C	600	J/m	ASTM D256
23°C, 2mm	707	J/m	ASTM D256

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
-30°C	103	J/m	ASTM D256
80*10*3 +23°C	55	kJ/m²	ISO 180/1A
80*10*3 -30°C	9	kJ/m²	ISO 180/1A
Izod Impact, Unnotched			
23°C	N.B.	J/m	ASTM D4812
-30°C	N.B.	J/m	ASTM D4812
80*10*3 +23°C	N.B.	kJ/m²	ISO 180/1U
80*10*3 -30°C	N.B.	kJ/m²	ISO 180/1U
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm	59	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	10	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	80	J	ASTM D3763
THERMAL [1]			
HDT, 0.45 MPa, 3.2 mm, unannealed	130	°C	ASTM D648
HDT, 1.82 MPa, 3.2mm, unannealed	120	°C	ASTM D648
HDT/Be, 0.45MPa Edgew 120*10*4 sp=100mm	131	°C	ISO 75/Be
HDT/Ae, 1.8 MPa Edgew 120*10*4 sp=100mm	121	°C	ISO 75/Ae
CTE, -40°C to 40°C, flow	6.8E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	7.E-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.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	136	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	139	°C	ISO 306
Vicat Softening Temp, Rate B/120	140	°C	ISO 306
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
Relative Temp Index, Elec [2]	125	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	120	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	125	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.19	-	ASTM D792
Density	1.2	g/cm³	ISO 1183
Melt Flow Rate			
300°C/1.2 kgf	18	g/10 min	ASTM D1238
Melt Volume Rate			
300°C/1.2 kg	17	cm³/10 min	ISO 1133
Water Absorption, (23°C/saturated)	0.13	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.11	%	ISO 62
Mold Shrinkage, flow, 3.2 mm [3]	0.55 – 0.75	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm [3]	0.6 – 0.8	%	SABIC method
OPTICAL [1]			
Light Transmission at 1.0 mm	>90	%	SABIC method
Light Transmission at 2.0 mm	>89	%	SABIC method
Light Transmission at 3.0 mm	>88	%	SABIC method
ELECTRICAL [1]			

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Dielectric Constant			
1.1 GHz	2.79	-	ASTM ES 7-83
Dissipation Factor			
1.1 GHz	0.0056	-	ASTM ES 7-83
Comparative Tracking Index (UL) {PLC} [2]	3	PLC Code	UL 746A
Hot-Wire Ignition (HWI), PLC 0 [2]	≥1.5	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 1 [2]	≥1.2	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 3 [2]	≥0.4	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 1 [2]	≥0.4	mm	UL 746A
FLAME CHARACTERISTICS [2]			
UL Yellow Card Link	E207780-100922891	-	-
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥1.2	mm	UL 94
UL Recognized, 94V-2 Flame Class Rating	≥0.4	mm	UL 94
Glow Wire Ignitability Temperature, 3.0 mm [1]	850	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm [1]	850	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.2 mm [1]	850	°C	IEC 60695-2-13
Glow Wire Flammability Index, 3.0 mm [1]	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5 mm [1]	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.2 mm [1]	960	°C	IEC 60695-2-12
INJECTION MOLDING [4]			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	48	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	280 – 305	°C	
Nozzle Temperature	275 – 300	°C	
Front - Zone 3 Temperature	280 – 305	°C	
Middle - Zone 2 Temperature	270 – 295	°C	
Rear - Zone 1 Temperature	260 – 280	°C	
Mold Temperature	70 – 95	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	
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) 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.,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.

(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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