LNP™ ELCRIN™ CRX7416UB

DESCRIPTION

LNP ELCRIN CRX7416UB is an unfilled, amorphous Polycarbonate (PC) copolymer resin that offers medium flow, non-chlorinated/brominated flame retardant grade with major component synthesized from bio source. This grade is available in custom colors, has UL V0 rating @ 1 mm for all colors, 5VB rating at 2.5mm with high impact, including low temperature ductility and is UV stabilized. The grade has improved chemical resistance against a range of chemicals and is intended for a variety of consumer and industrial applications that need durability against chemicals.

GENERAL INFORMATION	
Features	Chemical Resistance, Bio-Renewable, Non Cl/Br flame retardant, Impact resistant, Low temperature impact, Weatherable/UV stable
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Consumer	Consumer Goods, Sport/Leisure, Home Appliances, Commercial Appliance
Electrical and Electronics	Mobile Phone - Computer - Tablets
Industrial	Industrial General

TYPICAL PROPERTY VALUES

Revision 20240508

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Modulus, 1 mm/min	2000	MPa	ISO 527
Tensile Stress, yield, 50 mm/min	50	MPa	ISO 527
Tensile Stress, break, 50 mm/min	57	MPa	ISO 527
Tensile Strain, break, 50 mm/min	>100	%	ISO 527
Flexural Modulus, 2 mm/min	1950	MPa	ISO 178
Flexural Strength, 2 mm/min	73	MPa	ISO 178
Tensile Modulus, 50 mm/min	2000	MPa	ASTM D638
Tensile Stress, yld, Type I, 50 mm/min	50	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	57	MPa	ASTM D638
Tensile Nominal Strain, brk, Type I, 50 mm/min	>100	%	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span	2050	MPa	ASTM D790
Flexural Stress, yld, 1.3 mm/min, 50 mm span	76	MPa	ASTM D790
Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span	73	MPa	ASTM D790
IMPACT [1]			
Izod Impact, notched 80*10*3 +23°C	72	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	64	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	65	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	52	kJ/m²	ISO 179/1eA

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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
Izod Impact, notched, 23°C	680	J/m	ASTM D256
Izod Impact, notched, -30°C	540	J/m	ASTM D256
Izod Impact, unnotched, 23°C	NB	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	NB	J/m	ASTM D4812
THERMAL [1]			
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	114	°C	ISO 75/Af
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	126	°C	ISO 75/Bf
Vicat Softening Temp, Rate B/50	128	°C	ISO 306
Vicat Softening Temp, Rate B/120	131	°C	ISO 306
CTE, 23°C to 50°C, flow	8E-05	1/°C	ISO 11359-2
CTE, 23°C to 50°C, xflow	8E-05	1/°C	ISO 11359-2
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
HDT, 1.82 MPa, 3.2mm, unannealed	111	°C	ASTM D648
HDT, 0.45 MPa, 3.2 mm, unannealed	126	°C	ASTM D648
Vicat Softening Temp, Rate B/50	128	°C	ASTM D1525
Vicat Softening Temp, Rate B/120	131	°C	ASTM D1525
CTE, 23°C to 50°C, flow	8E-05	1/°C	ASTM E831
CTE, 23°C to 50°C, xflow	8E-05	1/°C	ASTM E831
PHYSICAL [1]			
Density	1.19	g/cm³	ISO 1183
Melt Volume Rate, MVR at 300°C/1.2 kg	12	cm³/10 min	ISO 1133
Water Absorption, (23°C/saturated)	0.2 – 0.4	%	ISO 62-1
Specific Gravity	1.19	-	ASTM D792
Melt Flow Rate, 300°C/1.2 kgf	13	g/10 min	ASTM D1238
Mold Shrinkage, flow [2]	0.4 – 0.9	%	SABIC method
Mold Shrinkage, xflow [2]	0.4 – 0.9	%	SABIC method
ELECTRICAL [1]			
Comparative Tracking Index	225	V	IEC 60112
Dielectric Strength, in oil, 1.0 mm	33	kV/mm	IEC 60243-1
Dielectric Strength, in oil, 1.6 mm	27	kV/mm	ASTM D149
Surface Resistivity	≥1E+15	Ω	ASTM D257
Volume Resistivity	1E+15	Ω.cm	ASTM D257
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
Arc Resistance, Tungsten {PLC}	7	PLC Code	ASTM D495
High Voltage Arc Track Rate {PLC}	3	PLC Code	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥0.6	mm	UL 746A
Hot-Wire Ignition (HWI), PLC 0	≥0.6	mm	UL 746A
FLAME CHARACTERISTICS [3]			
UL Yellow Card Link	E45329-104555541	-	-
UL Yellow Card Link 2	E207780-104595418	-	-
UL Recognized, 94V-0 Flame Class Rating	≥1	mm	UL 94
UL Recognized, 94V-1 Flame Class Rating	≥0.8	mm	UL 94
UL Recognized, 94HB Flame Class Rating	≥0.6	mm	UL 94

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PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
UL Recognized, 94-5VB Flame Class Rating	≥2.5	mm	UL 94
Glow Wire Ignitability Temperature, 3.0 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.0 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	800	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.0 mm	825	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 0.8 mm	800	°C	IEC 60695-2-13
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 0.8 mm	960	°C	IEC 60695-2-12
INJECTION MOLDING (4)			
Drying Temperature	100 – 120	°C	
Drying Time	2 – 4	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	280 – 320	°C	
Rear - Zone 1 Temperature	260 – 300	°C	
Middle - Zone 2 Temperature	270 – 310	°C	
Front - Zone 3 Temperature	280 – 320	°C	
Nozzle Temperature	280 – 320	°C	
Mold Temperature	70 – 100	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	50 – 100	rpm	
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) 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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