LNP™ ELCRES™ CRX9016E

DESCRIPTION

LNP ELCRES CRX9016E is an unfilled, opaque, amorphous Polycarbonate (PC) copolymer resin suitable for extrusion. This non-chlorinated/brominated flame-retardant grade has an UL-94 V0 rating at 1.5 mm in black. It offers excellent low temperature ductility (-60°C) and is UV stabilized providing additional weathering capability. The grade has improved chemical resistance against a range of chemicals and is intended for a variety of mobility and industrial applications that need durability against chemicals.

GENERAL INFORMATION	
Features	Chemical Resistance, Non Cl/Br flame retardant, Enhanced mold release, Impact resistant, Low temperature impact, Weatherable/UV stable
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Extrusion, Compression molding

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

TYPICAL PROPERTY VALUES

Revision 20240619

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Modulus, 1 mm/min	2100	MPa	ISO 527
Tensile Stress, yield, 50 mm/min	53	MPa	ISO 527
Tensile Stress, break, 50 mm/min	62	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	6	%	ISO 527
Tensile Strain, break, 50 mm/min	>100	%	ISO 527
Flexural Modulus, 2 mm/min	2100	MPa	ISO 178
Flexural Strength, 2 mm/min	80	MPa	ISO 178
Tensile Modulus, 50 mm/min	2100	MPa	ASTM D638
Tensile Stress, yld, Type I, 50 mm/min	57	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	>100	%	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span	2150	MPa	ASTM D790
Flexural Strength, 1.3 mm/min, 50 mm span	85	MPa	ASTM D790
IMPACT [1]			
Izod Impact			
Izod Impact, notched 80*10*4 +23°C	80	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	70	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*4 -60°C	40	kJ/m²	ISO 180/1A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, unnotched 80*10*4 +23°C	NB	kJ/m²	ISO 180/1U
Izod Impact, unnotched 80*10*4 -30°C	NB	kJ/m²	ISO 180/1U
Izod Impact, notched 80*10*3 +23°C	80	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	60	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -60°C	40	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
Izod Impact, notched, 23°C	890	J/m	ASTM D256
Izod Impact, notched, -30°C	800	J/m	ASTM D256
Izod Impact, unnotched, 23°C	NB	J/m	ASTM D4812
Izod Impact, unnotched, -30°C	NB	J/m	ASTM D4812
Charpy			
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	70	kJ/m²	ISO 179/1eA
Charpy -30°C, V-notch Edgew 80*10*4 sp=62mm	60	kJ/m²	ISO 179/1eA
Charpy 23°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
Charpy -30°C, Unnotch Edgew 80*10*4 sp=62mm	NB	kJ/m²	ISO 179/1eU
Instrumented Dart Impact Total Energy, 23°C	70	J	ASTM D3763
Instrumented Dart Impact Total Energy, -30°C	70	J	ASTM D3763
THERMAL [1]			
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	125	°C	ISO 75/Af
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	138	°C	ISO 75/Bf
Vicat Softening Temp, Rate B/50	145	°C	ISO 306
Vicat Softening Temp, Rate B/120	145	°C	ISO 306
Vicat Softening Temp, Rate A/50	153	°C	ISO 306
Vicat Softening Temp, Rate A/120	153	°C	ISO 306
Ball Pressure Test, 125°C +/- 2°C	PASSES	-	IEC 60695-10-2
CTE, 23°C to 50°C, flow	7.5E-05	1/°C	ISO 11359-2
CTE, 23°C to 50°C, xflow	9.0E-05	1/°C	ISO 11359-2
HDT, 1.82 MPa, 3.2mm, unannealed	125	°C	ASTM D648
HDT, 0.45 MPa, 3.2 mm, unannealed	138	°C	ASTM D648
Vicat Softening Temp, Rate B/50	145	°C	ASTM D1525
Vicat Softening Temp, Rate B/120	145	°C	ASTM D1525
Vicat Softening Temp, Rate A/50	153	°C	ASTM D1525
Vicat Softening Temp, Rate A/120	153	°C	ASTM D1525
CTE, 23°C to 50°C, flow	7.5E-05	1/°C	ASTM E831
CTE, 23°C to 50°C, xflow	9.0E-05	1/°C	ASTM E831
Relative Temp Index, Elec	125	°C	UL 746B
Relative Temp Index, Mech w/impact	115	°C	UL 746B
Relative Temp Index, Mech w/o impact	125	°C	UL 746B
PHYSICAL [1]			
Density	1.18	g/cm³	ISO 1183
Moisture Absorption, (23°C/50% RH/Equilibrium)	0.15	%	ISO 62-4
Water Absorption, (23°C/saturated)	0.40	%	ISO 62-1
Melt Volume Rate, MVR at 300°C/2.16 kg	4	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 300°C/5.0 kg	10	cm³/10 min	ISO 1133

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Melt Volume Rate, MVR at 330°C/2.16kg	9	cm³/10 min	ISO 1133
Mold Shrinkage, xflow [2]	0.5 – 0.9	%	SABIC method
Mold Shrinkage, flow [2]	0.5 – 0.9	%	SABIC method
Specific Gravity	1.18	-	ASTM D792
Moisture Absorption, (23°C/50% RH/24 hrs)	0.10	%	ASTM D570
Water Absorption, (23°C/24hrs)	0.15	%	ASTM D570
Melt Flow Rate, 300°C/2.16 kgf	4	g/10 min	ASTM D1238
ELECTRICAL [3]			
Hot-Wire Ignition (HWI), PLC 2	≥1.5	mm	UL 746A
High Amp Arc Ignition (HAI), PLC 0	≥1.5	mm	UL 746A
FLAME CHARACTERISTICS [3]			
UL Yellow Card Link	E45329-104610596	-	-
UL Recognized, 94V-0 Flame Class Rating	≥1.5	mm	UL 94
UL Recognized, 94-5VA Flame Class Rating	≥3.0	mm	UL 94
Glow Wire Ignitability Temperature, 3.0 mm	875	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 2.5 mm	875	°C	IEC 60695-2-13
Glow Wire Ignitability Temperature, 1.5 mm	850	°C	IEC 60695-2-13
Glow Wire Flammability Index, 3.0 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 2.5 mm	960	°C	IEC 60695-2-12
Glow Wire Flammability Index, 1.5 mm	960	°C	IEC 60695-2-12
PROFILE EXTRUSION [4]			
Drying Temperature	110 – 120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	18	Hrs	
Maximum Moisture Content	0.05	%	
Water Bath Temperature	60 – 80	°C	
Melt Temperature	240 – 280	°C	
Hopper Temperature	50 – 70	°C	
Adapter Temperature	240 – 280	°C	
Barrel - Zone 1 Temperature	240 – 280	°C	
Barrel - Zone 2 Temperature	240 – 280	°C	
Barrel - Zone 3 Temperature	240 – 280	°C	
Barrel - Zone 4 Temperature	240 – 280	°C	
Calibrator 2 Temperature	60 – 90	°C	
Calibrator Temperature	60 – 90	°C	
Die Temperature	230 – 260	°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) Extrusion parameters are only mentioned as general guidelines. These may not apply or may need adjustment in specific situations.

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