

## LNPTM ELCRESTM CRX7412U

## **DESCRIPTION**

Hygiene and Healthcare

LNP ELCRES CRX7412U is an unfilled, amorphous Polycarbonate (PC) copolymer resin that offers medium flow, non-chlorinated/brominated flame retardant grade. This grade is available for custom coloring, has UL VO rating @ 1.2 mm for all colors, low temperature ductility and is UV stabilized. The grade has improved chemical resistance against a wide range of disinfectants compared to standard PC/ABS blends and is a good candidate for thin wall applications and hospital/medical equipment.

GENERAL INFORMATION	
Features	Chemical Resistance, 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

## TYPICAL PROPERTY VALUES Revision 20240503

General Healthcare

MECHANICAL (¹)           Tensile Modulus, 1 mm/min         1950         MPa         105 27           Tensile Stress, yield, 50 mm/min         48         MPa         105 27           Tensile Stress, break, 50 mm/min         56         MPa         105 227           Tensile Strein, break, 50 mm/min         >100         %Pa         105 227           Tensile Strein, break, 50 mm/min         72         MPa         101 78           Flexural Strength, 2 mm/min         72         MPa         ASTM D638           Tensile Modulus, 50 mm/min         50         MPa         ASTM D638           Tensile Stress, yld, Type I, 50 mm/min         58         MPa         ASTM D638           Tensile Stress, brk, Type I, 50 mm/min         100         %Pa         ASTM D638           Tensile Stress, brk, Type I, 50 mm/min         200         MPa         ASTM D638           Tensile Stress, brk, Type I, 50 mm/min         100         %Pa         ASTM D638           Tensile Stress, brk, Type I, 50 mm/min         200         MPa         ASTM D638           Flexural Stress, yld, 1.3 mm/min, 50 mm span         7         SMD P0         ASTM D790           Flexural Stress, at 5% strain, 1.3 mm/min, 50 mm span         7         SMD P0         ASTM D790           Ibunal St	PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Tensile Stress, yield, 50 mm/min         48         MPa         ISO 527           Tensile Stress, break, 50 mm/min         56         MPa         ISO 527           Tensile Strain, break, 50 mm/min         100         %         ISO 178           Fleural Modulus, 2 mm/min         1900         MPa         ISO 178           Fleural Strength, 2 mm/min         2000         MPa         ASTM D638           Tensile Modulus, 50 mm/min         50         MPa         ASTM D638           Tensile Stress, brk, Type I, 50 mm/min         58         MPa         ASTM D638           Tensile Nominal Strain, brk, Type I, 50 mm/min         50         MPa         ASTM D638           Fleural Stress, brk, Type I, 50 mm/min         200         MPa         ASTM D638           Fleural Stress, brk, Type I, 50 mm/min         700         %         ASTM D638           Fleural Stress, brk, Type I, 50 mm/min         700         MPa         ASTM D638           Fleural Stress st St strain, 1.3 mm/min, 50 mm span         73         ASTM D638         ASTM D790           Fleural Stress st St strain, 1.3 mm/min, 50 mm span         70         Kl/m²         ISO 180/1A           Izod Impact, notched 80°10°3 +23°C         70         Kl/m²         ISO 180/1A           Izod Impact, notched 80°10°3 +23°C <td>MECHANICAL (1)</td> <td></td> <td></td> <td></td>	MECHANICAL (1)			
Tensile Stress, break, 50 mm/min         56         MPa         ISO 527           Tensile Strain, break, 50 mm/min         >100         %         ISO 527           Flexural Modulus, 2 mm/min         1900         MPa         ISO 178           Flexural Strength, 2 mm/min         72         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         58         MPa         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D638           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT (¹)         Impact, notched 80*10*3 +23°C         70         Impact, motched 80*10*3 +23°C         S0 180/1A           Izod Impact, unnotched 80*10*3 +23°C         NB         Impact, motched 80*10*3 +23°C         NB         Impact, motched 80*10*3 +23°C         S0 180/1U           Charpy 23°C, V-notch Edgew 80*10*3 spe62	Tensile Modulus, 1 mm/min	1950	MPa	ISO 527
Tensile Strain, break, 50 mm/min         >1000         %         ISO 527           Flexural Modulus, 2 mm/min         1900         MPa         ISO 178           Flexural Strength, 2 mm/min         72         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         58         MPa         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT <sup>(1)</sup> Impact, notched 80*10*3 +23°C         70         Id/m²         ISO 180/1A           Izod Impact, notched 80*10*3 +23°C         NB         Id/m²         ISO 180/1U           Izod Impact, unnotched 80*10*3 +23°C         NB         Id/m²         ISO 180/1U           Izod Impact, unnotched 80*10*3 -30°C         NB         Id/m²         ISO 180/1U           Charpy 30°C, V-notch Edgew 80*10*3 sp=62mm         52         Id/m²         Id/m²         ISO 179/1eA	Tensile Stress, yield, 50 mm/min	48	MPa	ISO 527
Flexural Modulus, 2 mm/min         1900         MPa         ISO 178           Flexural Strength, 2 mm/min         72         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         58         MPa         ASTM D638           Tensile Nominal Strain, brk, Type I, 50 mm/min         100         %         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT ************************************	Tensile Stress, break, 50 mm/min	56	MPa	ISO 527
Flexural Strength, 2 mm/min         72         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         58         MPa         ASTM D638           Tensile Nominal Strain, brk, Type I, 50 mm/min         >100         MPa         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         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         70         kl/m²         ISO 180/11A           Izod Impact, notched 80°10°3 -30°C         NB         kl/m²         ISO 180/11           Izod Impact, unnotched 80°10°3 -23°C         NB         kl/m²         ISO 180/11           Izod Impact, unnotched 80°10°3 -30°C         NB         kl/m²         ISO 180/11           Charpy 23°C, V-notch Edgew 80°10°3 sp=62mm         52         kl/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80°10°3 sp=62mm         NB         kl/m²         ISO 179/1eA </td <td>Tensile Strain, break, 50 mm/min</td> <td>&gt;100</td> <td>%</td> <td>ISO 527</td>	Tensile Strain, break, 50 mm/min	>100	%	ISO 527
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         58         MPa         ASTM D638           Tensile Nominal Strain, brk, Type I, 50 mm/min         >100         %         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           Impact (1)	Flexural Modulus, 2 mm/min	1900	MPa	ISO 178
Tensile Stress, yld, Type I, 50 mm/min         50         MPa         ASTM D638           Tensile Stress, brk, Type I, 50 mm/min         58         MPa         ASTM D638           Tensile Nominal Strain, brk, Type I, 50 mm/min         >100         %         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT (1)         Lizod Impact, notched 80*10*3 +23°C         70         kl/m²         ISO 180/1A           Izod Impact, notched 80*10*3 -30°C         NB         kl/m²         ISO 180/1U           Izod Impact, unnotched 80*10*3 -23°C         NB         kl/m²         ISO 180/1U           Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm         52         kl/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm         NB         kl/m²         ISO 179/1eA	Flexural Strength, 2 mm/min	72	MPa	ISO 178
Tensile Stress, brk, Type I, 50 mm/min         58         MPa         ASTM D638           Tensile Nominal Strain, brk, Type I, 50 mm/min         >100         %         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT ************************************	Tensile Modulus, 50 mm/min	2000	MPa	ASTM D638
Tensile Nominal Strain, brk, Type I, 50 mm/min         >100         %         ASTM D638           Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT (¹)         Lizod Impact, notched 80*10*3 +23°C         70         kJ/m²         ISO 180/1A           Izod Impact, notched 80*10*3 -30°C         66         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, unnotched 80*10*3 sp=62mm         63         kJ/m²         ISO 179/1eA           Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm         52         kJ/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm         NB         kJ/m²         ISO 179/1eA	Tensile Stress, yld, Type I, 50 mm/min	50	MPa	ASTM D638
Flexural Modulus, 1.3 mm/min, 50 mm span         2000         MPa         ASTM D790           Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT (1)         IX DEPTH DE	Tensile Stress, brk, Type I, 50 mm/min	58	MPa	ASTM D638
Flexural Stress, yld, 1.3 mm/min, 50 mm span         74         MPa         ASTM D790           Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span         73         MPa         ASTM D790           IMPACT (1)         Lood Impact, notched 80°10°3 +23°C         70         kJ/m²         ISO 180/1A           Izod Impact, notched 80°10°3 -30°C         66         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         63         kJ/m²         ISO 179/1eA           Charpy -30°C, V-notch Edgew 80°10°3 sp=62mm         52         kJ/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80°10°3 sp=62mm         NB         kJ/m²         ISO 179/1eA	Tensile Nominal Strain, brk, Type I, 50 mm/min	>100	%	ASTM D638
Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span   73   MPa   ASTM D790     IMPACT (1)	Flexural Modulus, 1.3 mm/min, 50 mm span	2000	MPa	ASTM D790
IMPACT (1)           Izod Impact, notched 80*10*3 +23°C         70         kJ/m²         ISO 180/1A           Izod Impact, notched 80*10*3 -30°C         66         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         63         kJ/m²         ISO 179/1eA           Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm         52         kJ/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm         NB         kJ/m²         ISO 179/1eA	Flexural Stress, yld, 1.3 mm/min, 50 mm span	74	MPa	ASTM D790
Izod Impact, notched 80°10°3 +23°C         70         kJ/m²         ISO 180/1A           Izod Impact, notched 80°10°3 -30°C         66         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         63         kJ/m²         ISO 179/1eA           Charpy -30°C, V-notch Edgew 80°10°3 sp=62mm         52         kJ/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80°10°3 sp=62mm         NB         kJ/m²         ISO 179/1eU	Flexural Stress at 5% strain, 1.3 mm/min, 50 mm span	73	MPa	ASTM D790
Izod Impact, notched 80°10°3 -30°C         66         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         63         kJ/m²         ISO 179/1eA           Charpy -30°C, V-notch Edgew 80°10°3 sp=62mm         52         kJ/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80°10°3 sp=62mm         NB         kJ/m²         ISO 179/1eU	IMPACT (1)			
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         63         kJ/m²         ISO 179/1eA           Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm         52         kJ/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm         NB         kJ/m²         ISO 179/1eU	Izod Impact, notched 80*10*3 +23°C	70	kJ/m²	ISO 180/1A
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         63         kJ/m²         ISO 179/1eA           Charpy -30°C, V-notch Edgew 80°10°3 sp=62mm         52         kJ/m²         ISO 179/1eA           Charpy 23°C, Unnotch Edgew 80°10°3 sp=62mm         NB         kJ/m²         ISO 179/1eU	Izod Impact, notched 80*10*3 -30°C	66	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*3 sp=62mm       63       kJ/m²       ISO 179/1eA         Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm       52       kJ/m²       ISO 179/1eA         Charpy 23°C, Unnotch Edgew 80*10*3 sp=62mm       NB       kJ/m²       ISO 179/1eU	Izod Impact, unnotched 80*10*3 +23°C	NB	kJ/m²	ISO 180/1U
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Charpy -30°C, Unnotch Edgew 80*10*3 sp=62mm NB kJ/m² ISO 179/1eU	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



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched, 23°C	670	J/m	ASTM D256
Izod Impact, notched, -30°C	550	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	113	°C	ISO 75/Af
HDT/Bf, 0.45 MPa Flatw 80*10*4 sp=64mm	127	°C	ISO 75/Bf
Vicat Softening Temp, Rate B/50	129	°C	ISO 306
Vicat Softening Temp, Rate B/120	130	°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
HDT, 1.82 MPa, 3.2mm, unannealed	110	°C	ASTM D648
HDT, 0.45 MPa, 3.2 mm, unannealed	125	°C	ASTM D648
Vicat Softening Temp, Rate B/50	129	°C	ASTM D1525
Vicat Softening Temp, Rate B/120	130	°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
Relative Temp Index, Elec (2)	110	°C	UL 746B
Relative Temp Index, Mech w/impact (2)	110	°C	UL 746B
Relative Temp Index, Mech w/o impact (2)	110	°C	UL 746B
PHYSICAL (1)	110	C	OE I TOB
	1.10		100 1100
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 (3)	0.4 – 0.9	%	SABIC method
Mold Shrinkage, xflow <sup>(3)</sup>	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 (2)			
UL Yellow Card Link	<u>E45329-104555539</u>	-	
UL Yellow Card Link 2	E207780-104595404	-	-
UL Recognized, 94V-0 Flame Class Rating	≥1.2	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



PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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) 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**

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