LNP™ ELCRIN™ HPX4B

DESCRIPTION

LNP ELCRIN HPX4B specialty polycarbonate copolymer resin is medium flow grade with major component synthesized from Bio source. This resin shows improved processability & autoclavability, is available in healthcare management of change, biocompatible (ISO10993 or USP Class VI), EtO and steam sterilizable, targets to medical devices and pharmaceutical applications.

GENERAL INFORMATION	
Features	Good Processability, Biocompatability-ISO10993, Healthcare/Formula lock, Autoclave/Steam sterilizable, Sterilizable, No PFAS intentionally added
Fillers	Unreinforced
Polymer Types	Polycarbonate (PC)
Processing Techniques	Injection Molding

INDUSTRY	SUB INDUSTRY
Hygiene and Healthcare	Pharmaceutical, General Healthcare, Medical Facility Infrastructure

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	58	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	64	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	5.8	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	131.4	%	ASTM D638
Tensile Modulus, 50 mm/min	2210	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	94	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2210	MPa	ASTM D790
Tensile Stress, yield, 50 mm/min	57	MPa	ISO 527
Tensile Stress, break, 50 mm/min	61	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	5.5	%	ISO 527
Tensile Strain, break, 50 mm/min	124.9	%	ISO 527
Tensile Modulus, 1 mm/min	2350	MPa	ISO 527
Flexural Strength, 2 mm/min	90	MPa	ISO 178
Flexural Modulus, 2 mm/min	2150	MPa	ISO 178
Hardness, Rockwell L	89	-	ASTM D785
IMPACT [1]			
Izod Impact, notched, 23°C	890	J/m	ASTM D256
Izod Impact, notched, -30°C	795	J/m	ASTM D256
Izod Impact, notched 80*10*3 +23°C	65	kJ/m²	ISO 180/1A
Izod Impact, notched 80*10*3 -30°C	55	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

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Charpy -30°C, V-notch Edgew 80*10*3 sp=62mm	55	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	82	J	ASTM D3763
Instrumented Dart Impact Total Energy, -30°C	85	J	ASTM D3763
THERMAL (1)			
HDT, 1.82 MPa, 3.2mm, unannealed	124	°C	ASTM D648
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	118	°C	ISO 75/Af
CTE, -40°C to 95°C, flow	7.15E-05	1/°C	ASTM E831
CTE, -40°C to 95°C, xflow	7.93E-05	1/°C	ASTM E831
CTE, 23°C to 80°C, flow	7.15E-05	1/°C	ISO 11359-2
CTE, 23°C to 80°C, xflow	7.93E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate A/50	141	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	141	°C	ISO 306
Vicat Softening Temp, Rate B/120	142	°C	ISO 306
Relative Temp Index, Elec (2)	130	°C	UL 746B
Relative Temp Index, Mech w/impact (2)	120	°C	UL 746B
Relative Temp Index, Mech w/o impact (2)	130	°C	UL 746B
Ball Pressure Test, 125°C +/- 2°C	Pass	-	IEC 60695-10-2
PHYSICAL (1)			
Specific Gravity	1.19	-	ASTM D792
Density	1.19	g/cm³	ISO 1183
Moisture Absorption (23°C / 50% RH)	0.09	%	ISO 62
Water Absorption, (23°C/saturated)	0.12	%	ISO 62-1
Melt Flow Rate, 300°C/1.2 kgf	10	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	9	cm³/10 min	ISO 1133
Mold Shrinkage, flow, 3.2 mm (3)	0.4 – 0.8	%	SABIC method
Mold Shrinkage, xflow, 3.2 mm (3)	0.4 – 0.8	%	SABIC method
OPTICAL (1)			
Light Transmission, 2.54 mm	82	%	ASTM D1003
Haze, 2.54 mm	3	%	ASTM D1003
ELECTRICAL (1)			
Volume Resistivity	>1.E+15	Ω.cm	ASTM D257
Surface Resistivity	>1.E+15	Ω	ASTM D257
FLAME CHARACTERISTICS (2)			
UL Yellow Card Link	E207780-100566198	-	-
UL Recognized, 94V-2 Flame Class Rating	≥2.5	mm	UL 94
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
Glow Wire Ignitability Temperature, 0.8 mm (1)	825	°C	IEC 60695-2-13
Glow Wire Flammability Index, 0.8 mm (1)	825	°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	%	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Melt Temperature	295 – 315	°C	
Nozzle Temperature	290 – 310	°C	
Front - Zone 3 Temperature	295 – 315	°C	
Middle - Zone 2 Temperature	280 – 305	°C	
Rear - Zone 1 Temperature	270 – 295	°C	
Mold Temperature	70 – 95	°C	
Back Pressure	0.3 – 0.7	MPa	
Screw Speed	40 – 70	rpm	

(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