LNP™ ELCRIN™ HPH4504HB

DESCRIPTION

LNP ELCRIN HPH4504HB High heat polycarbonate (PC) copolymer resin is a enhanced autoclavability for medical devices and pharmaceutical applications with component synthesized from Bio source. This resin offers features, including Biocompatible (ISO10993 of USP Class VI). EtO, Steam, Gamma and e-Beam Sterilizable

GENERAL INFORMATION	
Features	Heat Stabilized, Amorphous, Biocompatability-ISO10993, Autoclave/Steam sterilizable, High temperature resistance, 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
Mass Transportation	Aircraft Interiors, Specialty Vehicles, Rail

TYPICAL PROPERTY VALUES

Revision 20231109

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL [1]			
Tensile Stress, yld, Type I, 50 mm/min	65	MPa	ASTM D638
Tensile Stress, brk, Type I, 50 mm/min	71	MPa	ASTM D638
Tensile Strain, yld, Type I, 50 mm/min	7	%	ASTM D638
Tensile Strain, brk, Type I, 50 mm/min	122	%	ASTM D638
Tensile Modulus, 5 mm/min	2090	MPa	ASTM D638
Flexural Strength, 1.3 mm/min, 50 mm span	95	MPa	ASTM D790
Flexural Modulus, 1.3 mm/min, 50 mm span	2020	MPa	ASTM D790
Tensile Stress, yield, 5 mm/min	65	MPa	ISO 527
Tensile Stress, yield, 50 mm/min	65	MPa	ISO 527
Tensile Stress, break, 50 mm/min	65	MPa	ISO 527
Tensile Strain, yield, 50 mm/min	7	%	ISO 527
Tensile Strain, break, 50 mm/min	50	%	ISO 527
Tensile Modulus, 1 mm/min	2260	MPa	ISO 527
Flexural Strength, 2 mm/min	66	MPa	ISO 178
Flexural Modulus, 2 mm/min	2120	MPa	ISO 178
Hardness, Rockwell R	122	-	ASTM D785
Hardness, Rockwell M	85	-	ASTM D785
IMPACT [1]			
Izod Impact, notched, 23°C	640	J/m	ASTM D256
Izod Impact, notched, -30°C	144	J/m	ASTM D256
Izod Impact, unnotched, 23°C	3204	J/m	ASTM D4812
Izod Impact, notched 80*10*4 +23°C	13	kJ/m²	ISO 180/1A

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
Izod Impact, notched 80*10*4 -30°C	11	kJ/m²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	15	kJ/m²	ISO 179/1eA
Tensile Impact Strength, Type S	577	kJ/m²	ASTM D1822
Falling Dart Impact (D 3029), 23°C	149	J	ASTM D3029
Instrumented Dart Impact Total Energy, 23°C	73	J	ASTM D3763
THERMAL [1]			
HDT, 1.82 MPa, 3.2mm, unannealed	143	°C	ASTM D648
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	132	°C	ISO 75/Af
CTE, -40°C to 40°C, flow	6.E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, xflow	6.E-05	1/°C	ASTM E831
CTE, -40°C to 95°C, flow	9.18E-05	1/°C	ASTM E831
CTE, -40°C to 40°C, flow	6.E-05	1/°C	ISO 11359-2
CTE, -40°C to 40°C, xflow	6.E-05	1/°C	ISO 11359-2
Vicat Softening Temp, Rate B/50	160	°C	ASTM D1525
Vicat Softening Temp, Rate B/50	154	°C	ISO 306
Vicat Softening Temp, Rate B/120	155	°C	ISO 306
Specific Heat	1.26	J/g-°C	ASTM C351
Thermal Conductivity	0.21	W/m-°C	ASTM C177
Relative Temp Index, Elec [2]	125	°C	UL 746B
Relative Temp Index, Mech w/impact [2]	125	°C	UL 746B
Relative Temp Index, Mech w/o impact [2]	125	°C	UL 746B
PHYSICAL [1]			
Specific Gravity	1.2	-	ASTM D792
Specific Volume	0.83	cm³/g	ASTM D792
Density	1.19	g/cm³	ASTM D792
Density	1.2	g/cm³	ISO 1183
Water Absorption, (23°C/24hrs)	0.16	%	ASTM D570
Water Absorption, (23°C/saturated)	0.16	%	ISO 62-1
Moisture Absorption (23°C / 50% RH)	0.35	%	ISO 62
Melt Flow Rate, 300°C/1.2 kgf	3	g/10 min	ASTM D1238
Melt Volume Rate, MVR at 300°C/1.2 kg	3	cm³/10 min	ISO 1133
Melt Volume Rate, MVR at 330°C/2.16kg	12	cm³/10 min	ISO 1133
Mold Shrinkage, flow, 3.2 mm [3]	0.7 – 0.8	%	SABIC method
OPTICAL [1]			
Light Transmission, 2.54 mm	85	%	ASTM D1003
Haze, 2.54 mm	1	%	ASTM D1003
Refractive Index	1.6	-	ASTM D542
ELECTRICAL [1]			
Volume Resistivity	>2.6E+17	Ω.cm	ASTM D257
Dielectric Strength, in air, 3.2 mm	20.3	kV/mm	ASTM D149
Relative Permittivity, 50/60 Hz	3.15	-	ASTM D150
Relative Permittivity, 1 MHz	3	-	ASTM D150
Dissipation Factor, 50/60 Hz	0.0012	-	ASTM D150
Dissipation Factor, 100 Hz	0.024	-	ASTM D150
FLAME CHARACTERISTICS [2]			

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
UL Yellow Card Link	E207780-104532457	-	-
UL Recognized, 94HB Flame Class Rating	≥1.5	mm	UL 94
INJECTION MOLDING [4]			
Drying Temperature	120	°C	
Drying Time	3 – 4	Hrs	
Drying Time (Cumulative)	48	Hrs	
Maximum Moisture Content	0.02	%	
Melt Temperature	340 – 360	°C	
Nozzle Temperature	330 – 355	°C	
Front - Zone 3 Temperature	340 – 360	°C	
Middle - Zone 2 Temperature	325 – 350	°C	
Rear - Zone 1 Temperature	315 – 340	°C	
Mold Temperature	80 – 115	°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