

LEXANTM COPOLYMER HPH4504HEU

REGION EUROPE

DESCRIPTION

High heat specialty polycarbonate with enhanced autoclavability. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO10993 of USP Class VI). EtO, steam, gamma and e-beam sterilizable.

TYPICAL PROPERTY VALUES

Revision 20191031

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
MECHANICAL			
Tensile Stress, yld, Type I, 50 mm/min	65	MPa	ASTM D 638
Tensile Stress, brk, Type I, 50 mm/min	71	MPa	ASTM D 638
Tensile Strain, yld, Type I, 50 mm/min	7	%	ASTM D 638
Tensile Strain, brk, Type I, 50 mm/min	122	%	ASTM D 638
Tensile Modulus, 5 mm/min	2090	MPa	ASTM D 638
Flexural Stress, yld, 1.3 mm/min, 50 mm span	95	MPa	ASTM D 790
Flexural Modulus, 1.3 mm/min, 50 mm span	2020	MPa	ASTM D 790
Hardness, Rockwell M	85	-	ASTM D 785
Hardness, Rockwell R	122	-	ASTM D 785
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 Stress, yield, 2 mm/min	66	MPa	ISO 178
Flexural Modulus, 2 mm/min	2120	MPa	ISO 178
IMPACT			
Izod Impact, unnotched, 23°C	3204	J/m	ASTM D 4812
Izod Impact, notched, 23°C	640	J/m	ASTM D 256
Izod Impact, notched, -30°C	144	J/m	ASTM D 256
Tensile Impact Strength, Type S	577	kJ/m ²	ASTM D 1822
Falling Dart Impact (D 3029), 23°C	149	J	ASTM D 3029
Instrumented Impact Total Energy, 23°C	73	J	ASTM D 3763
Izod Impact, notched 80*10*4 +23°C	13	kJ/m ²	ISO 180/1A
Izod Impact, notched 80*10*4 -30°C	11	kJ/m ²	ISO 180/1A
Charpy 23°C, V-notch Edgew 80*10*4 sp=62mm	15	kJ/m ²	ISO 179/1eA
THERMAL			
Vicat Softening Temp, Rate B/50	160	°C	ASTM D 1525
HDT, 1.82 MPa, 3.2mm, unannealed	143	°C	ASTM D 648
CTE, -40°C to 40°C, flow	6.E-05	1/°C	ASTM E 831
CTE, -40°C to 40°C, xflow	6.E-05	1/°C	ASTM E 831
CTE, -40°C to 95°C, flow	9.18E-05	1/°C	ASTM E 831
Specific Heat	1.26	J/g·°C	ASTM C 351

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Thermal Conductivity	0.21	W/m·°C	ASTM C177
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	154	°C	ISO 306
Vicat Softening Temp, Rate B/120	155	°C	ISO 306
HDT/Af, 1.8 MPa Flatw 80*10*4 sp=64mm	132	°C	ISO 75/Af
Relative Temp Index, Elec	125	°C	UL 746B
Relative Temp Index, Mech w/impact	125	°C	UL 746B
Relative Temp Index, Mech w/o impact	125	°C	UL 746B
PHYSICAL			
Specific Gravity	1.2	-	ASTM D 792
Specific Volume	0.83	cm³/g	ASTM D 792
Density	1.19	g/cm³	ASTM D 792
Water Absorption, 24 hours	0.16	%	ASTM D 570
Mold Shrinkage, flow, 3.2 mm	0.7 – 0.8	%	SABIC method
Melt Flow Rate, 300°C/1.2 kgf	3	g/10 min	ASTM D 1238
Density	1.2	g/cm³	ISO 1183
Water Absorption, (23°C/sat)	0.16	%	ISO 62
Moisture Absorption (23°C / 50% RH)	0.35	%	ISO 62
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
OPTICAL			
Light Transmission, 2.54 mm	85	%	ASTM D 1003
Haze, 2.54 mm	1	%	ASTM D 1003
Refractive Index	1.6	-	ASTM D542
ELECTRICAL			
Volume Resistivity	>2.6E+17	Ohm-cm	ASTM D 257
Dielectric Strength, in air, 3.2 mm	20.3	kV/mm	ASTM D 149
Relative Permittivity, 50/60 Hz	3.15	-	ASTM D 150
Relative Permittivity, 1 MHz	3	-	ASTM D 150
Dissipation Factor, 50/60 Hz	0.0012	-	ASTM D 150
Dissipation Factor, 100 Hz	0.024	-	ASTM D 150
Hot Wire Ignition {PLC}	2	PLC Code	UL 746A
High Voltage Arc Track Rate {PLC}	3	PLC Code	UL 746A
High Ampere Arc Ign, surface {PLC}	4	PLC Code	UL 746A
Comparative Tracking Index (UL) {PLC}	3	PLC Code	UL 746A
FLAME CHARACTERISTICS			
UL Recognized, 94V-2 Flame Class Rating	1.47	mm	UL 94
INJECTION MOLDING			
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	

PROPERTIES	TYPICAL VALUES	UNITS	TEST METHODS
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	
Shot to Cylinder Size	40 – 60	%	
Vent Depth	0.025 – 0.076	mm	

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