

# LEXAN™ HP2 resin

Wednesday, 13 April 2016

## General Information

### Product Description

Med/high flow polycarbonate. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO10993 or USP Class VI). EtO and steam sterilizable. Contains mold release.

### General

Material Status	• Commercial: Active
Availability	• Asia Pacific
Additive	• Mold Release
Features	• Biocompatible • High Flow • Ethylene Oxide Sterilizable • Steam Sterilizable
Uses	• Medical/Healthcare Applications • Pharmaceuticals
Agency Ratings	• ISO 10993 • USP Class VI
Processing Method	• Injection Molding

## ASTM and ISO Properties <sup>1</sup>

Physical	Nominal Value	Unit	Test Method
Specific Gravity	1.20	g/cm <sup>3</sup>	ASTM D792
Specific Volume	0.830	cm <sup>3</sup> /g	ASTM D792
Density	1.19	g/cm <sup>3</sup>	ASTM D792
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	18	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	16.0	cm <sup>3</sup> /10min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 to 0.70	%	Internal Method
Water Absorption (24 hr)	0.15	%	ASTM D570
Water Absorption			ASTM D570
Equilibrium, 23°C	0.35	%	
Equilibrium, 100°C	0.58	%	
Mechanical	Nominal Value	Unit	Test Method
Tensile Modulus <sup>2</sup>	2370	MPa	ASTM D638
Tensile Modulus	2350	MPa	ISO 527-2/1
Tensile Strength <sup>3</sup> (Yield)	62.0	MPa	ASTM D638
Tensile Stress (Yield)	63.0	MPa	ISO 527-2/50
Tensile Strength <sup>3</sup> (Break)	68.0	MPa	ASTM D638
Tensile Stress (Break)	65.0	MPa	ISO 527-2/50
Tensile Elongation <sup>3</sup> (Yield)	7.0	%	ASTM D638
Tensile Strain (Yield)	6.0	%	ISO 527-2/50
Tensile Elongation <sup>3</sup> (Break)	130	%	ASTM D638
Tensile Strain (Break)	100	%	ISO 527-2/50
Flexural Modulus <sup>4</sup> (50.0 mm Span)	2340	MPa	ASTM D790

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Mechanical	Nominal Value	Unit	Test Method
Flexural Modulus <sup>5</sup>	2300	MPa	ISO 178
Flexural Stress <sup>5,6</sup>	90.0	MPa	ISO 178
Flexural Strength <sup>4</sup> (Yield, 50.0 mm Span)	96.0	MPa	ASTM D790
Taber Abrasion Resistance 1000 Cycles, 1000 g, CS-17 Wheel	10.0	mg	ASTM D1044
Impact	Nominal Value	Unit	Test Method
Charpy Notched Impact Strength (23°C)	35	kJ/m <sup>2</sup>	ISO 179/2C
Notched Izod Impact (23°C)	690	J/m	ASTM D256
Notched Izod Impact Strength <sup>7</sup>			ISO 180/1A
-30°C	10	kJ/m <sup>2</sup>	
23°C	12	kJ/m <sup>2</sup>	
Unnotched Izod Impact (23°C)	3200	J/m	ASTM D4812
Instrumented Dart Impact (23°C, Energy at Peak Load)	62.0	J	ASTM D3763
Gardner Impact (23°C)	169	J	ASTM D3029
Tensile Impact Strength <sup>8</sup>	546	kJ/m <sup>2</sup>	ASTM D1822
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
M-Scale	70		
R-Scale	118		
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load 0.45 MPa, Unannealed, 6.40 mm	137	°C	ASTM D648
Heat Deflection Temperature <sup>9</sup> 0.45 MPa, Unannealed, 100 mm Span	133	°C	ISO 75-2/Be
Deflection Temperature Under Load 1.8 MPa, Unannealed, 6.40 mm	129	°C	ASTM D648
Heat Deflection Temperature <sup>9</sup> 1.8 MPa, Unannealed, 100 mm Span	122	°C	ISO 75-2/Ae
Vicat Softening Temperature	154	°C	ASTM D1525 <sup>10</sup>
Vicat Softening Temperature			
--	140	°C	ISO 306/B50
--	141	°C	ISO 306/B120
Ball Pressure Test (125°C)	Pass		IEC 60695-10-2
CLTE - Flow (-40 to 95°C)	6.8E-5	cm/cm/°C	ASTM E831
CLTE - Flow (23 to 80°C)	7.0E-5	cm/cm/°C	ISO 11359-2
Specific Heat	1250	J/kg/°C	ASTM C351
Thermal Conductivity	0.19	W/m/K	ASTM C177
Thermal Conductivity	0.20	W/m/K	ISO 8302
RTI Elec	130	°C	UL 746
RTI Imp	130	°C	UL 746
RTI Str	130	°C	UL 746
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093

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Electrical	Nominal Value	Unit	Test Method
Volume Resistivity	> 1.0E+17	ohms·cm	ASTM D257
Volume Resistivity	> 1.0E+15	ohms·cm	IEC 60093
Dielectric Strength (3.20 mm, in Air)	15	kV/mm	ASTM D149
Electric Strength (3.20 mm, in Oil)	17	kV/mm	IEC 60243-1
Dielectric Constant			ASTM D150
50 Hz	3.17		
60 Hz	3.17		
1 MHz	2.96		
Relative Permittivity			IEC 60250
50 Hz	2.70		
60 Hz	2.70		
1 MHz	2.70		
Dissipation Factor			ASTM D150
50 Hz	9.0E-4		
60 Hz	9.0E-4		
1 MHz	0.010		
Dissipation Factor			IEC 60250
50 Hz	1.0E-3		
60 Hz	1.0E-3		
1 MHz	0.010		
Comparative Tracking Index (CTI)	PLC 2		UL 746
High Amp Arc Ignition (HAI)	PLC 1		UL 746
High Voltage Arc Tracking Rate (HVTR)	PLC 2		UL 746
Hot-wire Ignition (HWI)	PLC 2		UL 746
Flammability	Nominal Value	Unit	Test Method
Flame Rating (1.47 mm)	HB		UL 94
Oxygen Index	25	%	ISO 4589-2
Optical	Nominal Value	Unit	Test Method
Refractive Index	1.586		ASTM D542
Transmittance (2540 μm)	88.0	%	ASTM D1003
Haze (2540 μm)	1.0	%	ASTM D1003

### Processing Information

Injection	Nominal Value	Unit
Drying Temperature	121	°C
Drying Time	3.0 to 4.0	hr
Drying Time, Maximum	48	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 to 60	%
Rear Temperature	260 to 282	°C
Middle Temperature	271 to 293	°C
Front Temperature	282 to 304	°C
Nozzle Temperature	277 to 299	°C

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Injection	Nominal Value	Unit
Processing (Melt) Temp	282 to 304	°C
Mold Temperature	71.1 to 93.3	°C
Back Pressure	0.345 to 0.689	MPa
Screw Speed	40 to 70	rpm
Vent Depth	0.025 to 0.076	mm

### Notes

<sup>1</sup> Typical properties: these are not to be construed as specifications.

<sup>2</sup> 50 mm/min

<sup>3</sup> Type I, 50 mm/min

<sup>4</sup> 1.3 mm/min

<sup>5</sup> 2.0 mm/min

<sup>6</sup> Yield

<sup>7</sup> 80\*10\*4

<sup>8</sup> Type S

<sup>9</sup> 120\*10\*4 mm

<sup>10</sup> Rate B (120°C/h), Loading 2 (50 N)

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