

LEXAN™ HPS1R resin

Polycarbonate

SABIC Innovative Plastics

Message:

High flow polycarbonate. For medical devices and pharmaceutical applications. Healthcare management of change, biocompatible (ISO10993 or USP Class VI). EtO, e-beam and gamma sterilizable. Contains a higher amount of mold release than HPS1.

General Information			
Additive	demoulding		
Features	Electron beam disinfection		
	Radiation disinfection		
	Ethylene oxide disinfection		
	High liquidity		
	Biocompatibility		
Uses	Drug		
	Medical/nursing supplies		
Agency Ratings	ISO 10993		
	USP Class VI		
Processing Method	Injection molding		
Physical	Nominal Value	Unit	Test Method
Specific Gravity			
--	1.20	g/cm ³	ASTM D792, ISO 1183
--	1.19	g/cm ³	ASTM D792
Specific Volume	0.835	cm ³ /g	ASTM D792
Melt Mass-Flow Rate (MFR) (300°C/1.2 kg)	25	g/10 min	ASTM D1238
Melt Volume-Flow Rate (MVR) (300°C/1.2 kg)	23.0	cm ³ /10min	ISO 1133
Molding Shrinkage - Flow (3.20 mm)	0.50 - 0.70	%	Internal method
Water Absorption			ASTM D570
24 hr	0.15	%	ASTM D570
Equilibrium, 23°C	0.35	%	ASTM D570
Equilibrium, 100°C	0.58	%	ASTM D570
Hardness	Nominal Value	Unit	Test Method
Rockwell Hardness			ASTM D785
Class m	70		ASTM D785
Class r	118		ASTM D785
Ball Indentation Hardness (H 358/30)	95.0	MPa	ISO 2039-1
Mechanical	Nominal Value	Unit	Test Method

Tensile Modulus			
-- ¹	2380	MPa	ASTM D638
--	2350	MPa	ISO 527-2/1
Tensile Strength			
Yield ²	62.1	MPa	ASTM D638
Yield	63.0	MPa	ISO 527-2/50
Fracture ³	65.5	MPa	ASTM D638
Fracture	50.0	MPa	ISO 527-2/50
Tensile Elongation			
Yield ⁴	6.0	%	ASTM D638
Yield	6.0	%	ISO 527-2/50
Fracture ⁵	120	%	ASTM D638
Fracture	70	%	ISO 527-2/50
Flexural Modulus			
50.0mm span ⁶	2310	MPa	ASTM D790
-- ⁷	2300	MPa	ISO 178
Flexural Stress			
--	90.0	MPa	ISO 178
Yield, 50.0mm span ⁸	93.1	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 ⁹			
-30°C	10	kJ/m ²	ISO 179/1eA
23°C	12	kJ/m ²	ISO 179/1eA
Notched Izod Impact			
Colors	110 - 640	J/m	ASTM D256
Natural, Tints	640	J/m	ASTM D256
-30°C ¹⁰	10	kJ/m ²	ISO 180/1A
23°C ¹¹	12	kJ/m ²	ISO 180/1A
Unnotched Izod Impact			
23°C	3200	J/m	ASTM D4812
-30°C ¹²	No Break		ISO 180/1U
23°C ¹³	No Break		ISO 180/1U
Instrumented Dart Impact (23°C, Energy at Peak Load)	54.2	J	ASTM D3763
Dart Drop Impact (23°C)	169	J	ASTM D3029
Tensile Impact Strength ¹⁴	378	kJ/m ²	ASTM D1822
Thermal	Nominal Value	Unit	Test Method
Deflection Temperature Under Load			
0.45 MPa, unannealed, 6.40mm	138	°C	ASTM D648
0.45 MPa, unannealed, 100 mm span ¹⁵	133	°C	ISO 75-2/Be
1.8 MPa, unannealed, 6.40mm	127	°C	ASTM D648

1.8 MPa, unannealed, 100 mm span ¹⁶	121	°C	ISO 75-2/Ae
Vicat Softening Temperature			
--	139	°C	ISO 306/B50
--	140	°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
23 to 80°C	7.0E-5	cm/cm/°C	ISO 11359-2
Specific Heat	1260	J/kg/°C	ASTM C351
Thermal Conductivity			
--	0.19	W/m/K	ASTM C177
--	0.20	W/m/K	ISO 8302
Electrical	Nominal Value	Unit	Test Method
Surface Resistivity	> 1.0E+15	ohms	IEC 60093
Volume Resistivity			
--	> 1.0E+17	ohms · cm	ASTM D257
--	> 1.0E+15	ohms · cm	IEC 60093
Dielectric Strength			
3.20 mm, in Air	15	kV/mm	ASTM D149
3.20mm, in oil	17	kV/mm	IEC 60243-1
Dielectric Constant			
50 Hz	3.17		ASTM D150
60 Hz	3.17		ASTM D150
1 MHz	2.96		ASTM D150
50 Hz	2.70		IEC 60250
60 Hz	2.70		IEC 60250
1 MHz	2.70		IEC 60250
Dissipation Factor			
50 Hz	9.0E-4		ASTM D150
60 Hz	9.0E-4		ASTM D150
1 MHz	0.010		ASTM D150, IEC 60250
50 Hz	1.0E-3		IEC 60250
60 Hz	1.0E-3		IEC 60250
Flammability	Nominal Value	Unit	Test Method
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
Injection	Nominal Value	Unit	
Drying Temperature	121	°C	
Drying Time	3.0 - 4.0	hr	

Drying Time, Maximum	48	hr
Suggested Max Moisture	0.020	%
Suggested Shot Size	40 - 60	%
Rear Temperature	249 - 271	°C
Middle Temperature	260 - 282	°C
Front Temperature	271 - 293	°C
Nozzle Temperature	266 - 288	°C
Processing (Melt) Temp	271 - 293	°C
Mold Temperature	71.1 - 93.3	°C
Back Pressure	0.345 - 0.689	MPa
Screw Speed	40 - 70	rpm
Vent Depth	0.025 - 0.076	mm

NOTE

1.	50 mm/min
2.	Type 1, 50mm/min
3.	Type 1, 50mm/min
4.	Type 1, 50mm/min
5.	Type 1, 50mm/min
6.	1.3 mm/min
7.	2.0 mm/min
8.	1.3 mm/min
9.	80*10*4 sp=62mm
10.	80*10*4
11.	80*10*4
12.	80*10*4
13.	80*10*4
14.	Type S
15.	120*10*4 mm
16.	120*10*4 mm

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