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SABIC LEXAN™ HP1HF

LEXAN HP1HF is a very high flow polycarbonate (PC) with an MVR (300°C/1.2kg) of 36. This is a biocompatible (ISO10993 or USP Class VI) grade for medical devices and pharmaceutical applications. It is EtO and sterilizable and contains mold release and adheres to our healthcare management of change policy.
Information provided by SABIC

Physical Properties	Metric	English	Comments
Specific Gravity	1.18 g/cc	1.18 g/cc	ASTM D792
Density	1.19 g/cc	0.0430 lb/in³	ISO 1183
Water Absorption	0.27 %	0.27 %	23°C/sat; ISO 62
Moisture Absorption	0.0900 %	0.0900 %	23°C / 50% RH; ISO 62
Linear Mold Shrinkage, Flow	0.0050 - 0.0070 cm/cm @Thickness 3.20 mm	0.0050 - 0.0070 in/in @Thickness 0.126 in	SABIC method
Melt Flow	36 g/10 min @Load 1.20 kg, Temperature 300 °C	36 g/10 min @Load 2.65 lb, Temperature 572 °F	cm³/10 min; ISO 1133
	39 g/10 min @Load 1.20 kg, Temperature 300 °C	39 g/10 min @Load 2.65 lb, Temperature 572 °F	ASTM D1238

Mechanical Properties	Metric	English	Comments
Tensile Strength at Break	55.0 MPa	7980 psi	50 mm/min; ISO 527
	58.0 MPa	8410 psi	50 mm/min; ASTM D638
Tensile Strength, Yield	60.0 MPa	8700 psi	50 mm/min; ISO 527
	63.0 MPa	9140 psi	50 mm/min; ASTM D638
Elongation at Break	108 %	108 %	50 mm/min; ASTM D638
	110 %	110 %	50 mm/min; ISO 527
Elongation at Yield	5.7 %	5.7 %	50 mm/min; ISO 527
	6.0 %	6.0 %	50 mm/min; ASTM D638
Tensile Modulus	2.30 GPa	334 ksi	1mm/min; ISO 527
	2.41 GPa	350 ksi	50 mm/min; ASTM D638
Flexural Yield Strength	85.0 MPa	12300 psi	2 mm/min; ISO 178
	102 MPa	14800 psi	1.3 mm/min, 50 mm span; ASTM D790
Flexural Modulus	2.30 GPa	334 ksi	2 mm/min; ISO 178
	2.41 GPa	350 ksi	1.3 mm/min, 50 mm span; ASTM D790
Izod Impact, Notched	6.87 J/cm	12.9 ft-lb/in	ASTM D256
	0.550 J/cm @Temperature -30.0 °C	1.03 ft-lb/in @Temperature -22.0 °F	ASTM D256
Izod Impact, Notched (ISO)	60.0 kJ/m²	28.6 ft-lb/in²	80*10*3; ISO 180/1A
	10.0 kJ/m² @Temperature -30.0 °C	4.76 ft-lb/in² @Temperature -22.0 °F	80*10*3; ISO 180/1A
Izod Impact, Unnotched (ISO)	NB	NB	80*10*3; ISO 180/1U
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	80*10*3; ISO 180/1U
Charpy Impact Unnotched	NB	NB	Edgew 80*10*3 sp=62mm; ISO 179/1eU
	0.500 J/cm² @Temperature -30.0 °C	2.38 ft-lb/in² @Temperature -22.0 °F	ISO 179/2C
	NB @Temperature -30.0 °C	NB @Temperature -22.0 °F	Edgew 80*10*3 sp=62mm; ISO 179/1eU
Charpy Impact, Notched	6.50 J/cm²	30.9 ft-lb/in²	Edgew 80*10*3 sp=62mm; ISO 179/1eA

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	1.00 J/cm² @Temperature -30.0 °C	4.76 ft-lb/in² @Temperature -22.0 °F	Edgew 80*10*3 sp=62mm; ISO 179/1eA
Dart Drop, Total Energy	66.0 J	48.7 ft-lb	ASTM D3763

Thermal Properties	Metric	English	Comments
CTE, linear, Parallel to Flow	72.0 µm/m-°C @Temperature -40.0 - 40.0 °C	40.0 µin/in-°F @Temperature -40.0 - 104 °F	ASTM E831
	72.0 µm/m-°C @Temperature -40.0 - 40.0 °C	40.0 µin/in-°F @Temperature -40.0 - 104 °F	ISO 11359-2
CTE, linear, Transverse to Flow	78.0 µm/m-°C @Temperature -40.0 - 40.0 °C	43.3 µin/in-°F @Temperature -40.0 - 104 °F	ASTM E831
	78.0 µm/m-°C @Temperature -40.0 - 40.0 °C	43.3 µin/in-°F @Temperature -40.0 - 104 °F	ISO 11359-2
Hot Ball Pressure Test	125 °C	257 °F	IEC 60695-10-2
Deflection Temperature at 1.8 MPa (264 psi)	121 °C	250 °F	1.8 MPa Edgew 120*10*4 sp=100mm; ISO 75/Ae
	125 °C @Thickness 3.20 mm	257 °F @Thickness 0.126 in	unannealed; ASTM D648
Vicat Softening Point	139 °C	282 °F	Rate B/50; ISO 306
	140 °C	284 °F	Rate B/120; ISO 306
	140 °C	284 °F	Rate B/50; ASTM D1525
Flammability, UL94	V-2 @Thickness 3.00 mm	V-2 @Thickness 0.118 in	UL 94 by SABIC-IP

Optical Properties	Metric	English	Comments
Haze	<= 1.0 % @Thickness 2.54 mm	<= 1.0 % @Thickness 0.100 in	ASTM D1003
Transmission, Visible	88 % @Thickness 2.54 mm	88 % @Thickness 0.100 in	ASTM D1003

Processing Properties	Metric	English	Comments
Processing Temperature	60.0 - 80.0 °C	140 - 176 °F	Hopper Temperature
Nozzle Temperature	270 - 290 °C	518 - 554 °F	Injection Molding
Zone 1	260 - 280 °C	500 - 536 °F	
Zone 2	270 - 290 °C	518 - 554 °F	
Zone 3	280 - 300 °C	536 - 572 °F	
Melt Temperature	280 - 300 °C	536 - 572 °F	
Mold Temperature	80.0 - 100 °C	176 - 212 °F	
Drying Temperature	120 °C	248 °F	Injection Molding
Dry Time	2.00 - 4.00 hour	2.00 - 4.00 hour	Injection Molding
Moisture Content	0.020 %	0.020 %	

Compliance Properties	Metric	English	Comments
USP Class VI	Yes	Yes	