POLYVANTIS

PRODUCT DATASHEET

LEXAN™ F8000HR SHEET

DESCRIPTION

LEXAN™ F8000HR is a flame-retardant opaque polycarbonate sheet range that will be available in standard and custom colors. In addition to robustly meeting the FAR 25.853 and OSU 65/65, it offers good impact resistance, high stiffness, and ease of processing. LEXAN F8000HR is an excellent candidate for manufacturing large parts in aircraft interiors, such as seating, wall cladding, ceilings, and window frames.

TYPICAL PROPERTY VALUES*

PROPERTY	TEST METHOD	UNITS	VALUE
PHYSICAL			
Density	ISO 1183	g/cm³	1.35
Water absorption, 50% RH, 23 °C	ISO 62	%	0.15
Water absorption, saturation, 23°C	ISO 62	%	0.35
Density	ASTM D792	g/cm³	1.35
MECHANICAL			
Tensile Modulus, 1 mm/min, +23 °C	ISO 527	MPa	3660
Tensile Stress, yield, 5 mm/min, +23 °C	ISO 527	MPa	50
Tensile Stress, break, 5 mm/min, +23 °C	ISO 527	MPa	40
Tensile Strain, break, 5 mm/min, +23 °C	ISO 527	%	12
Tensile Strain, yield, 5 mm/min, +23 °C	ISO 527	%	5
Flexural Stress, 2 mm/ min +23 °C	ISO 178	MPa	72
Flexural Modulus, 2 mm/min, +23 °C	ISO 178	MPa	3376
Tensile Modulus, 5 mm/min	ASTM D638	MPa	4150
Tensile Stress, yield, Type 1, 5 mm/min	ASTM D638	MPa	50
Tensile Stress, break, Type 1, 5 mm/min	ASTM D638	MPa	40
Tensile Strain, break, 5 mm/min	ASTM D638	%	9
Tensile Strain, yield, 5 mm/min	ASTM D638	%	4
Flexural Stress, yield, 1.3 mm/min 1/8"	ASTM D790	MPa	86
Flexural Modulus 1.3 mm/min 1/8"	ASTM D790	MPa	3490
IMPACT			
Izod notched 23 C, 3.0 mm	ISO 180	kJ/m²	12
Izod notched 23 C, 3.0 mm	ASTM D256	J/m	190
Izod unnotched 23 C, 3.0 mm	ASTM D256	J/m	1020
THERMAL			
Vicat softening temperature, rate B/120	ISO 306	°C	146
Thermal conductivity	ISO 8302	W/m°C	0.2
Coefficient of linear thermal expansion, 23-55°C	ISO 11359-2	1/°C	$7x\ 10^{-5}$
Ball Pressure Test, 125 ±2°C	IEC 60695-10-2	-	Pass
HDT/Af, 1.8 MPa, Flatw 120*10*4 sp=100mm	ISO 75/Af	°C	141
HDT, 3.2mm 1.82 MPa	ASTM D648	°C	146

*These property values have been derived from LEXAN™ resin data for the material used to produce this sheet product. These typical values are not intended for specification purposes.

PROPERTY SHEET◊	TEST METHOD	UNITS	VALUE
FIRE RATINGS			
OSU (heat release) 65/65	CS 25.853(d)	KW/m2	Compliant (1.2-4mm)
Smoke density & Toxicity	FAR 25.583(a)+App.F	-	Pass (1.2-4mm)
Vertical Burn, 60 s	FAR 25.583(a)+App.F	-	Pass (1.2-4mm)
Oxygen Index (LOI)	ISO 4589	%	40
MECHANICAL – Flow direction			
Tensile Modulus, 1 mm/min, +23 °C	ISO 527	MPa	3000
Tensile Stress, yield, 5 mm/min, +23 °C	ISO 527	MPa	46
Tensile Stress, break, 5 mm/min, +23 °C	ISO 527	MPa	41
Tensile Strain, break, 5 mm/min, +23 °C	ISO 527	%	24
Tensile Strain, yield, 5 mm/min, +23 °C	ISO 527	%	5
Tensile Modulus, 5 mm/min	ASTM D638	MPa	3100
Tensile Stress, yield, Type 1, 5 mm/min	ASTM D638	MPa	45
Tensile Stress, break, Type 1, 5 mm/min	ASTM D638	MPa	41
Tensile Strain, break, 5 mm/min	ASTM D638	%	23
Tensile Strain, yield, 5 mm/min	ASTM D638	%	6
MECHANICAL – Cross flow direction			
Tensile Modulus, 1 mm/min, +23 °C	ISO 527	MPa	2200
Tensile Stress, yield, 5 mm/min, +23 °C	ISO 527	MPa	39
Tensile Stress, break, 5 mm/min, +23 °C	ISO 527	MPa	38
Tensile Strain, break, 5 mm/min, +23 °C	ISO 527	%	16
Tensile Strain, yield, 5 mm/min, +23 °C	ISO 527	%	14
Tensile Modulus, 5 mm/min	ASTM D638	MPa	2400
Tensile Stress, yield, Type 1, 5 mm/min	ASTM D638	MPa	40
Tensile Stress, break, Type 1, 5 mm/min	ASTM D638	MPa	40
Tensile Strain, break, 5 mm/min	ASTM D638	%	19
Tensile Strain, yield, 5 mm/min	ASTM D638	%	16
IMPACT			
Multiaxial impact, MAI, +23 °C, puncture energy	ISO 6603	J	20

◊ Tested on 3mm extruded sheet unless mentioned otherwise.

PROCESSING

LEXAN™ F8000HR sheet is suitable for thermoforming. To reach optimal results the material needs to be heated with sandwich type heating systems to reach uniform heat uptake. Pre-drying of this material is necessary. For pre-drying guidelines, please follow standard guidelines for pre-drying standard LEXAN™ sheet.
LEXAN F8000HR sheet has a processing window between 190 and 220°C. When forming a draft angle of 3 degrees should be allowed. Post mold shrinkage is dependent on tool temperature and environmental circumstances; this will typically be in the range of 0.4 - 0.6%. It is strongly recommended to evaluate impact of part and mold design prior to production. The nature of filled products e.g. F8000HR can be different from traditional unfilled products.

THERMOFORMING PARAMETERS

	1.2 mm	3 mm	4 mm
T_{sheet} / °C	190 to 210	190 to 210	200 to 220
Pre-stretching time / s	2	2	2
Vacuum (cooling) time / s	≤ 20	≤ 20	≤ 20
Pre-drying time at 100 °C / hr	2	5	10

SAFETY

The processing guidance given in this documentation is given in good faith and the trust that in all cases you wear the correct Personal Protective Equipment (PPE), e.g. helmet, proper gloves, safety goggles etc. to safely fabricate, e.g. (but not limited to) sawing, cutting, forming our sheets and films. In all cases you should follow local and national regulations around the wear of PPE's prescribed or mandatory to perform these tasks in a safely manor.

PRODUCT AVAILABILITY

Product code:	LEXAN™ F800xHR Sheet
Color:	Standard and custom colors
Textures:	F8006HR - Polished/Suede*
Gauges:	1.2mm – 4mm (0.047"- 0.157")
Standard width:	1300mm (51.18")

* Negative and clamped thermoforming

For colors and dimensions, please contact your POLYVANTIS sales representative.

POLYVANTIS

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LEXAN™ POLYCARBONATE FILM & SHEET Tough, Virtually Unbreakable

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