

Lexan^{*} HPFAF Film

Product Datasheet

DESCRIPTION

Lexan^{*} HPFAF Film is a one-side coated polycarbonate film offering long-term anti-fog performance, abrasion resistance, formability, impact resistance, dimensional stability, and good optical clarity. Lexan HPFAF Film also provides chemical resistance, tintability, and anti-static properties. It has been specifically developed to offer very good performance in the visor/eye protection industries and a variety of other applications. Lexan HPFAF Film accepts commercial ophthalmic dyes even at ambient temperature on the coated side. Both sides of the film can be printed for graphic applications.

Typical applications include: Industrial visors and goggles, Sunglasses, Sports eyewear, Instrument lenses & display panels, Motorcycle visors, Mirrors, Windows, Face shields and wind shields, Appliance fascias, and Telecom lenses.

Typical Property Values¹

Property	ASTM Test Method	Units (USCS)	Value	ISO Test Method	Units (SI)	Value
Mechanical						
Tensile Strength						
@ Yield	ASTM D882	psi	9000	ISO 527	MPa	62.5
Ultimate	ASTM D882	psi	10400	ISO 527	MPa	71.4
Tensile Modulus	ASTM D882	psi	318000	ISO 527	MPa	2190
Tensile Elongation at Break	ASTM D882	%	100-160	ISO 527	%	100-155
Gardner Impact Strength at 0.03 in. (0.75 mm)	ASTM D3029	ft-lb	23	ISO 6603-1	J	31
Tear Strength						
Initiation	ASTM D1004	lb/mil	1.59		kN/m	278
Propagation	ASTM D1922	g/mil	40		kN/m	14
Puncture Resistance (Dynatup)	ASTM D3763	ft-lb	9		J	12
Fold Endurance (MIT)						
0.010 inch (0.25 mm)	ASTM D2176-69	double folds	130			
0.020 inch (0.50 mm)	ASTM D2176-69	double folds	35			
Thermal						
Coefficient of Thermal Conductivity	ASTM D5470	Btu/hr/ft ² /°F/in	1.35		W/m ² K	0.2
Coefficient of Thermal Expansion	ASTM E831	(x 10 ⁻⁵ /°F)	3.4	ISO 11359	(x 10 ⁻⁵ /°C)	6.2
Specific Heat @ 40 °F (4 °C)	ASTM E1269	Btu/lb/°F	0.3		KJ/Kg-°C	1.14
Glass Transition Temperature	ASTM D3417/D3418	°F	307	ISO 11357	°C	153
Vicat Softening Temperature, B	ASTM 1525-00 Modified	°F	311		°C	155
Heat Deflection Temp. by TMA at 1.8 MPa		°F	290	ISO 75 Modified	°C	145
Shrinkage at 302 °F (150 °C)	ASTM D1204	%	1.80%		%	1.80%
Brittleness Temperature	ASTM D746	°F	-211		°C	-135

Manufacturing Specifications

Nominal Gauge Ranges	Min./Max Limit of Nominal
0.007" (0.175 mm)	± 10%
0.010-0.015" (0.250-0.375 mm)	± 5%
0.020-0.030" (0.500-0.750 mm)	± 3%



¹ These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local GE Advanced Materials, Specialty Film & Sheet representative or the GE Advanced Materials, Specialty Film & Sheet Quality Services Department. Reported values are based on 0.010" (0.250 mm) thickness unless otherwise noted.

* Lexan is a trademark of General Electric Company.

GE Advanced Materials Specialty Film & Sheet

Property	ASTM Test Method	Units	Value	ISO Test Method	Units	Value
Physical						
Density	ASTM D792	slug/ft ³	2.3	ISO 1183	kg/m ³	1200
Water Absorption, 24 hrs.	ASTM D570	% change	0.51	ISO 62	% change	0.51
Surface Energy (1st surface / 2nd surface)	ASTM D5946-01	-	45/34			
Surface Tension (1st surface / 2nd surface)	Dyne Pens	Dyne	32-34 / 38-40			
Pencil Hardness (1st surface / 2nd surface)	ASTM D3363	-	b-hb / 4h-5h			
Taber Abrasion (coated surface)	ASTM D1044	delta Haze	5			
Bayer Abrasion (coated surface)	Colt Labs test	Ratio	12.13			
Steel Wool Abrasion Haze Gain (coated surface)	Colt Labs test	Haze Gain	10.83			
Steel Wool Abrasion Ratio Gain (coated surface)	Colt Labs test	Ratio	0.12			
Optical						
Refractive Index @ 77 °F (25 °C)	ASTM D542A	-	1.5			
Light Transmission	ASTM D1003	%	92			
Yellowness Index	ASTM D1925	%	0.6			
Haze	ASTM D1003	%	0.9			
Gloss over Flat Black min/max @ 60°	ASTM D523-60	-	172	ISO 2813	-	172
UV %Transmission at 380 nm	UV/Visual Spectroscopy	%	20			

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