

Description

Lexan* FR83 flame-retardant film is a matt/polished, thin-gauge polycarbonate film with a UL94 VTM-0 listing to meet the stringent requirements in a wide range of electrical, electronic and transportation applications. Lexan FR83 film offers ease of thermoforming, hydroforming, embossing, die-cutting, folding, and bending and is very suitable for applications such as printed circuit board insulation, backlit aircraft in-flight panels and displays, business equipment insulation, computer rack partitions, TV and monitor insulation, PC Board insulation, and can be foil laminated for insulation and shielding.

Typical property Values♦

Property	ASTM Test Method	Units (USCS)	Value	ISO Test Method	Units (SI)	Value
Mechanical						
Tensile Strength						
@ Yield	ASTM D882	psi	10000	ISO 527	MPa	70
Ultimate	ASTM D882	psi	8700	ISO 527	MPa	60
Tensile Modulus	ASTM D882	psi	319000	ISO 527	MPa	2200
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	21	ISO 6603-1	J	28
Tear Strength						
Initiation	ASTM D1004	lb/mil	1.4 - 1.8		kN/m	298
Propogation	ASTM D1922	g/mil	30 - 55		kN/m	6
Puncture Resistance (Dynatup)	ASTM D3763	ft-lb	9		J	12
Thermal						
Coefficient of Thermal Conductivity	ASTM D5470	Btu/hr/ft ² /°F/in	1.35		W/m°K	0.2
Coefficient of Thermal Expansion	ASTM E831	(x10 ⁻⁵ /°F)	3.2	ISO 11359		5.8
Specific Heat @ 40 °F (4 °C)	ASTM E1269	Btu/lb/°F	0.3		KJ/Kg-°C	1.25
Glass Transition Temperature	ASTM D3417/D3418	°F	307	ISO 11357	°C	153
Vicat Softening Temperature, B	ASTM 1525-00 Modified	°F	347		(x10 ⁻⁵ /°C)	175
Heat Deflection Temp. by TMA at 1.8 Mpa		°F	290	ISO 75 Modified	°C	145
Shrinkage at 302°F (150°C)	ASTM D1204	%	0.02%		%	0.02%
Brittleness Temperature	ASTM D746	°F	-211		°C	-135

UL Flammability Rating / Performance Levels

Thickness	Rating	HWI	HAI
>= 0.002" (0.050mm) and < 0.010" (0.250mm)	UL94VTM-0	-	-
CTI: 3			
File Number	E103380		

Manufacturing Specifications

Nominal Gauge	Min./Max Limit
<u>Ranges</u>	<u>of Nominal</u>
.002 - 0.007" (0.050 - 0.175mm)	-/+ 10%

- ♦ These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local SABIC Innovative Plastics representative or the Quality Services Department. Reported Values are Based on 0.010" (0.250 mm) Thickness unless otherwise noted.

Property	ASTM Test Method	Units	Value	ISO Test Method	Units	Value
Physical						
Density	ASTM D792	slug/ft ³	2.6	ISO 1183	kg/m ³	1330
Water Absorption, 24 hrs.	ASTM D570	% change	0.28	ISO 62	% change	0.28
Surface Energy (1st surface / 2nd surface)	ASTM D5946-01	-	34/36			
Surface Tension (1st surface / 2nd surface)	Dyne Pens	Dyne	>44 / 38-40			
Optical						
Refractive Index @77°F (25° C)	ASTM D542A	-	1.6			
Light Transmission	ASTM D1003	%	88			
Yellowness Index	ASTM D1925	%	1.1			
Haze	ASTM D1003	%	88			
Gloss over Flat Black min/max @ 60°	ASTM D523-60	-	10	ISO 2813	-	10
Electrical						
Dielectric Strength in oil, short time @ 72° F (23°C), 10 mils (0.25 mm)	ASTM D149-97a Method A	kV/mil	1.5	IEC 60243	kV/mm	59
Dielectric Constant						
@ 60 Hz	ASTM D150	-	2.9	IEC 60250	-	2.9
@1,000,000 Hz	ASTM D150	-	2.8	IEC 60250	-	2.8
Dissipation Factor						
@ 60 Hz	ASTM D150	-	0.0026	IEC 60250	-	0.0026
@ 1,000,000 Hz	ASTM D150	-	0.0117	IEC 60250	-	0.0117
Volume Resistivity	ASTM D257	Ω cm	1.00E+17	IEC 60093	Ω cm	1.00E+17
Surface Resistivity	ASTM D257	Ω /square	1.00E+16	IEC 60093	Ω/square	1.00E+16
Arc Resistance, Tungsten Electrodes	ASTM D495	s	64			

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