

## PRODUCT DATASHEET

# LEXAN™ FR83 FILM

### DESCRIPTION

LEXAN™ FR83 flame-retardant film is a ultra fine matte/polished, thin-gauge polycarbonate film with a UL94 VTM-O 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; it is very suitable for applications such as printed circuit board insulation, backlit aircraft in-flight panels and displays, and business equipment insulation, computer rack partitions, battery cell pack, 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
<b>MECHANICAL</b>						
Tensile Strength @ Yield	ASTM D882	psi	10000	ISO 527	MPa	65
Ultimate	ASTM D882	psi	8700	ISO 527	MPa	70
Tensile Modulus	ASTM D882	psi	319000	ISO 527	MPa	>2200
Tensile Elongation at Break	ASTM D882	%	100-160	ISO 527	%	>100
Tear Strength						
Initiation	ASTM D1004	lb/mil	1.4-1.8		kN/m	298
Propagation	ASTM D1922	g/mil	30-55		kN/m	6
Puncture Resistance (Dynatup)	ASTM D3763	ft-lb	9		J	12
<b>THERMAL</b>						
Coefficient of Thermal Conductivity	ASTM D5470	Btu/hr/ft <sup>2</sup> /°F/i	1.35		W/m°K	0.2
Coefficient of Thermal Expansion	ASTM E831	(x10 <sup>-5</sup> /°F)	3.2	ISO 11359	(x10 <sup>-5</sup> /°C)	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	148
Vicat Softening Temperature, B	ASTM 1525-00	°F	347			141
Heat Deflection Temp. by TMA at 1.8		°F	290	ISO 75	°C	127
Shrinkage at 302°F (150°C)	ASTM D1204	%	0.02		%	0.02
<b>PHYSICAL</b>						
Density	ASTM D792	slug/ft <sup>3</sup>	2.5	ISO 1183	kg/m <sup>3</sup>	1.300
Water Absorption, 24 hrs.	ASTM D570	% change	0.28	ISO 62	% change	0.28
Surface Energy(1 <sup>st</sup> surface/ 2 <sup>nd</sup> surface)	ASTM D5946-01	-	34/36			
Surface Tension(1 <sup>st</sup> surface/2 <sup>nd</sup>	Dyne Pens	Dyne	>44/38-40			

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PROPERTY	ASTM TEST METHOD	UNITS (USCS)	VALUE	ISO TEST METHOD	UNITS (SI)	VALUE
<b>OPTICAL</b>						
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
<b>ELECTRICAL</b>						
Dielectric Strength in oil, short time @ 72°F (23°C), 10 mils (0.25mm)	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			

- ◆ These are typical properties and are not intended for specification purposes. If minimum certifiable properties are required, please contact your local POLYVANTIS representative or the POLYVANTIS Quality Services Department.  
Reported Values are based on 0.250 mm (0.010") thickness unless otherwise noted.

## MANUFACTURING SPECIFICATIONS

NOMINAL GAUGE RANGES	MIN./MAX LIMIT OF NOMINAL
0.002 - 0.007" (0.050 - 0.175mm)	± 10%

COLOR CODE:  
Black Color: 701 (BK)  
Clear: 116 (CL)

UL FILE NUMBERS: [E539157](#), [E539252](#)

**POLYVANTIS**

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**LEXAN™** Tough, Virtually Unbreakable  
POLYCARBONATE FILM & SHEET