

# LEXAN™ EFR65 FILM

## PRODUCT DATASHEET

### DESCRIPTION

LEXAN™ EFR65 is one side fine matt and one side velvet of both clear and black color environmental friendly flame-retardant polycarbonate film with a UL94 VTM-0 listing at 0.100 mm (BK) and 0.127 mm (NC). This film has formability, excellent mechanical properties, good dimensional stability at high temperatures and a high flammability rating, making it good for applications such as power supply insulation, disc drive insulation, bus-bar insulation, TV/monitor insulation, PC board insulation, business equipment insulation and has insulation and EMI/RFI shielding when laminated with metal foil.

### 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	7832	ISO 527	MPa	54
Ultimate	ASTM D882	psi	8267	ISO 527	MPa	57
Tensile Modulus	ASTM D882	psi	295700	ISO 527	MPa	2039
Tensile Elongation at Break	ASTM D882	%	>90	ISO 527	%	>90
Tear Strength						
Initiation	ASTM D1004	lb/mil	1.23		kN/m	215
Propagation	ASTM D1338	g/mil	30.8		kN/m	11.9
Puncture Resistance (Dynatup)	ASTM D3763	ft-lb/in	416		J/mm	22.2
Fold Endurance (MIT)	ASTM D2176-97a	double folds				
0.010" (0.254 mm) (MD/TD)			74/50			
0.017" (0.432 mm) (MD/TD)			25/21			
0.020" (0.508 mm) (MD/TD)			18/18			
<b>THERMAL</b>						
Coefficient of Thermal Conductivity @25°C	ASTM E1530	Btu-in/(hr-ft <sup>2</sup> -°F)	1.66		W/m-K	0.24
Coefficient of Thermal Expansion	ASTM E831	(x10 <sup>-5</sup> /°F)	3.6	ISO 11359	(x10 <sup>-5</sup> /°C)	6.4
Specific Heat @ 25°C	ASTM E1269-05	Btu/(lb-°F)	0.29		KJ/Kg-°C	1.23
Glass Transition Temperature	ASTM D3418	°F	307	ISO 11357	°C	153
Vicat Softening Temperature, B @ 50N, 120°C/h	ASTM 1525	°F	303		°C	151
Heat Deflection Temp. by TMA at 1.8 Mpa	ASTM D648	°F	267	ISO 75 Modified	°C	131
Shrinkage at 302°F (150°C/0.5h)	ASTM D1204					
MD		%	1.2		%	1.2
TD		%	0.23		%	0.23
<b>PHYSICAL</b>						
Density	ASTM D792	slug/ft <sup>3</sup>	2.33	ISO 1183	kg/m <sup>3</sup>	1200
Surface Tension	Dyne Pens	Dyne	36			

PROPERTY	ASTM TEST METHOD	UNITS (USCS)	VALUE	ISO TEST METHOD	UNITS (SI)	VALUE
<b>OPTICAL</b>						
Refractive Index @ 25°C (NC color)	ASTM D542-00		1.6			
Light Transmission (NC color)	ASTM D1003	%	92.6			
Yellowness Index (NC color)	ASTM E313	%	<1.0			
Haze (NC color)	ASTM D1003	%	97.2			
Gloss over Flat Black min/max @ 60° (Fine Matte/Velvet)	ASTM D523-60	-	5.0/5.7	ISO 2813	-	5.0/5.7

<b>ELECTRICAL</b>						
Dielectric Strength in oil, short time @ 77°F (25°C)	ASTM D 149-97a Method A			IEC 60243		
10 mils (0.254mm)		kV/mil	1.73		kV/mm	68.1
Dielectric Constant @ 60 Hz	ASTM D150	-	2.29	IEC 60250	-	2.29
@ 1,000,000 Hz		-	2.94		-	2.94
Dissipation Factor @ 60 Hz	ASTM D150	-	0.001	IEC 60250	-	0.001
@ 1,000,000 Hz		-	0.006		-	0.006
Volume Resistivity	ASTM D257	Ω-cm	>1.0E+17	IEC 60093	Ω-cm	>1.0E+17
Surface Resistivity	ASTM D257	Ω/square	>1.0E+16	IEC 60093	Ω/square	>1.0E+16
Arc Resistance, Tungsten Electrodes	ASTM D495	s	123			

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

NOMINAL GAUGE RANGES	MIN./MAX LIMIT OF NOMINAL
0.004 - 0.007" (0.100 - 0.178mm)	± 10%
0.010 - 0.022" (0.254 - 0.550mm)	± 5%

### Color Code:

Black Color - 701 (BK)  
 Natural Color - NC  
 UL File Number: E121562, E207780

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