

# Lexan® FR700 Film

## Product Datasheet

### DESCRIPTION

Lexan® FR700 Film is a black, one side fine matt, one side velvet flame-retardant polycarbonate film with a UL94 V-0 listing at 0.250 mm. 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<sup>1</sup>

Property	ASTM Test Method	Units (USCS)	Value	ISO Test Method	Units (SI)	Value
<b>Mechanical</b>						
Tensile Strength						
@ Yield	ASTM D882	psi	10800	ISO 527	MPa	70
Ultimate	ASTM D882	psi	11000	ISO 527	MPa	60
Tensile Modulus	ASTM D882	psi	317000	ISO 527	MPa	2200
Tensile Elongation at Break	ASTM D882	%	100-160	ISO 527	%	100-155
Gardner Impact Strenght at 0.03 in. (0.75 mm)	ASTM D3029	ft-lb	11	ISO 6603-1	J	28
Tear Strength						
Initiation	ASTM D1004	lb/mil	1.43		kN/m	298
Propagation	ASTM D1922	g/mil	18.8		kN/m	6
Puncture Resistance (Dynatup)	ASTM D3763	ft-lb	9		J	12
Fold Endurance (MIT)						
0.010 inch (0.25 mm)	ASTM D2176-69	double folds	27			
0.020 inch (0.50 mm)	ASTM D2176-69	double folds	12			
<b>Thermal</b>						
Coefficient of Thermal Conductivity	ASTM D5470	Btu/hr/ft <sup>2</sup> /°F/in	1.35		W/m <sup>2</sup> K	0.2
Coefficient of Thermal Expansion	ASTM E831	(x 10 <sup>-5</sup> /°F)	3.2	ISO 11359	(x 10 <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	153
Vicat Softening Temperature, B	ASTM 1525-00 Modified	°F	347		°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
>= 0.010" (0.250 mm) and < 0.015" (0.375 mm)	UL94V-0	1	0
> 0.015" (0.375 mm)	UL94V-0	0	0
CTI: 3			
File Number	E61257		

### Manufacturing Specifications

Nominal Gauge Ranges	Min./Max Limit of Nominal
0.010-0.014" (0.250-0.350 mm)	± 10%
0.015-0.030" (0.375-0.750 mm)	± 5%



- 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
<b>Physical</b>						
Density	ASTM D792	slug/ft <sup>3</sup>	2.6	ISO 1183	kg/m <sup>3</sup>	1344
Water Absorption, 24 hrs.	ASTM D570	% change	0.28	ISO 62	% change	0.28
Surface Energy (1st surface / 2nd surface)	ASTM D5946-01	-	35/35			
Surface Tension (1st surface / 2nd surface)	Dyne Pens	Dyne	36-38 / 36-38			
<b>Optical</b>						
Refractive Index @ 77 °F (25 °C)	ASTM D542A	-	NA			
Light Transmission	ASTM D1003	%	NA			
Yellowness Index	ASTM D1925	%	NA			
Haze	ASTM D1003	%	NA			
Gloss over Flat Black min/max @ 60°	ASTM D523-60	-	10.5	ISO 2813	-	10.5
<b>Electrical</b>						
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	68
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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