

# Lexan\* FR66 Film

## Product Datasheet

### DESCRIPTION

Lexan® FR66 Film flame-retardant film is a clear, thin-gauge polycarbonate film with a suede finish on one side and a matte finish on the other, and a UL94 V-0 listing to meet the stringent requirements in a wide range of electrical, electronic and transportation applications. Lexan FR66 Film offers ease of thermoforming, hydroforming, embossing, die-cutting, folding and bending and is an excellent candidate for applications such as printed circuit board insulation, backlit aircraft in-flight panels and displays, business equipment insulation, computer rack partitions, and TV and monitor insulation.

### 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                           | 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                     | 10-20   |
| Puncture Resistance (Dynatup)                 | ASTM D3763            | ft-lb                         | 9       |                 | J                        | 12      |
| Fold Endurance (MIT)                          |                       |                               |         |                 |                          |         |
| 0.010 inch (0.25 mm)                          | ASTM D2176-69         | double folds                  | 60      |                 |                          |         |
| 0.020 inch (0.50 mm)                          | ASTM D2176-69         | double folds                  | 20      |                 |                          |         |
| <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" (0.250 mm)             | ± 10%                     |
| 0.015-0.020" (0.375-0.500 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.  
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# 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     |
| <b>Optical</b>   |                           |                      |          |                 |                   |          |
| Refractive Index @ 77 °F (25 °C)   | ASTM D542A                | -                    | 1.6      |                 |                   |          |
| Light Transmission   | ASTM D1003                | %                    | 86.1     |                 |                   |          |
| Yellowness Index   | ASTM D1925                | %                    | 1.3      |                 |                   |          |
| Haze   | ASTM D1003                | %                    | 102      |                 |                   |          |
| Gloss over Flat Black min/max @ 60°  | ASTM D523-60              | %                    | 4        | ISO 2813        | %                 | 4        |
| <b>Electrical</b>  |                           |                      |          |                 |                   |          |
| Dielectric Strength in oil, short time<br>@ 72 °F (23 °C), 10 mils (0.25 mm) | ASTM D149-97a<br>Method A | kV/mil               | 1.5      | IEC 60243       | kV/mm             | 59       |
| Dielectric Constant<br>@ 60 Hz   | ASTM D150                 | -                    | 2.9      | IEC 60250       | -                 | 2.9      |
| @ 1,000,000 Hz   | ASTM D150                 | -                    | 2.8      | IEC 60250       | -                 | 2.8      |
| Dissipation Factor<br>@ 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       |                 |                   |          |

## RMS by Gauge

|      | Gauge                         | Matte      |
|------|-------------------------------|------------|
| FR66 | 0.010" (0.250 mm)             | Minimum 30 |
|      |                               | Maximum 65 |
|      | 0.015-0.020" (0.375-0.500 mm) | Minimum 20 |
|      |                               | Maximum 55 |

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