

# DuPont™ Pyralux® FR

Flame Retardant Acrylic-Based Coverlay

Flexible Circuit Materials

## Product Description

DuPont™ Pyralux® FR Coverlay features DuPont™ Kapton® polyimide film, coated on one side with a proprietary flame retardant B-staged modified acrylic adhesive. This coverlay can be used to encapsulate etched details in flexible and rigid-flex multilayer constructions for environmental protection and electrical insulation.

## Key Features and Benefits

- Flame retardant modified acrylic adhesive composition
- Excellent bond strength affords high reliability
- Able to withstand multiple lamination cycles
- No refrigeration required for storage
- Certified to IPC-4203/1
- UL 94 VTM-0, UL File E124294
- RoHS Compliant

## Packaging

Pyralux® FR Coverlay is supplied on 24 in (610 mm) wide by 250 ft (76 m) long rolls, on nominal 3 in (76 mm) cores. Narrower widths or cut sheets are also available by special order.

## Storage Conditions and Warranty

DuPont™ Pyralux® FR Coverlay should be stored in original packaging at temperatures of 4 - 29 °C (40 - 85 °F) and below 70% relative humidity. The product should not be frozen and should be kept dry, clean, and well-protected. Subject to compliance with the foregoing handling and storage recommendations, DuPont's warranties as provided in the DuPont Standard Conditions of Sale shall remain in effect for a period of two years following the date on the Certificate of Analysis.

## Processing

Lamination conditions for DuPont™ Pyralux® FR flexible circuit materials are typically in the following ranges:

Part Temperature: .....182 - 199 °C (360 - 390 °F)

Pressure: .....14 - 28 kg/cm<sup>2</sup> (200 - 400 psi)

Time:.....1 - 2 hours, at temperature

Pyralux® FR Coverlay processing guide available from your DuPont sales representative.

**Table 1 - Standard Pyralux® FR Coverlay Offerings**

Product Code	Adhesive Thickness µm (mil)	Kapton® Thickness µm (mil)
FR7013	25 (1.0)	13 (0.5)
FR0110	25 (1.0)	25 (1.0)
FR0120	25 (1.0)	51 (2.0)
FR0130	25 (1.0)	76 (3.0)
FR0150	25 (1.0)	127 (5.0)
FR7082	51 (2.0)	13 (0.5)
FR0210	51 (2.0)	25 (1.0)
FR0220	51 (2.0)	51 (2.0)
FR0230	51 (2.0)	76 (3.0)
FR0250	51 (2.0)	127 (5.0)
FR0310	76 (3.0)	25 (1.0)
FR7001	13 (0.5)	13 (0.5)
FR1510	13 (0.5)	25 (1.0)
FR7332	19 (0.75)	13 (0.5)

## Pyralux® FR Coverlay Construction Selection

A variety of Pyralux® FR Coverlay constructions are commercially available. For help beyond the standard offerings in Table 1, please use the Laminate Product Selector at [pyralux.dupont.com](http://pyralux.dupont.com) to identify the appropriate product code for your coverlay solution.



## Safe Handling

Prior to handling, DuPont recommends referencing the Pyralux® Safe Handling Guide available at [pyralux.dupont.com](http://pyralux.dupont.com). Pyralux® FR flexible circuit materials DO NOT contain polybrominated biphenyls (PBBs), polybrominated biphenyl oxides (PBBOs), or polybrominated diphenyl ethers (PBDEs).

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## Product Performance

Table 2 - DuPont™ Pyralux® FR Coverlay Properties

Property	FR0110 Typical Value	Test Method
Dielectric Constant (Dk)		
1 MHz	3.6	IPC-TM-650 2.5.5.3
10 GHz	3.1	ASTM D2520
Loss Tangent (Df)		
1 MHz	0.020	IPC-TM-650 2.5.5.3
10 GHz	0.015	ASTM D2520
Peel Strength* (Adhesion to Copper)		
As Received, N/mm (lb/in)	1.6 (9.0)	IPC-TM-650 2.4.9
After Solder, N/mm (lb/in)	1.6 (9.0)	
Adhesive Flow, mm (mil)	0.10 - 0.15 (4 - 6)	IPC-TM-650 2.3.17.1†
Dimensional Stability (MD/TD)	± 0.03 %	IPC-TM-650 2.2.4
Solder Float, 288 °C for 10 s	Pass	IPC-TM-650 2.4.13
Volume Resistivity, $\Omega \cdot \text{cm}$	$> 10^{15}$	IPC-TM-650 2.5.17
Surface Resistance, $\Omega$	$> 10^{13}$	IPC-TM-650 2.5.17

Data within this table are typical values for the listed product. Performance can vary depending on construction and processing.

\*Lamination Conditions: 14 kg/cm<sup>2</sup> (200 psi) at 182 °C (360 °F) for 1 hour to treated side of 1 oz RA copper foil.

## Quality and Traceability

DuPont™ Pyralux® FR Coverlay is manufactured under a certified ISO9001:2015 Quality Management System facility. Complete material and manufacturing records, which include archive samples of finished product, are maintained by DuPont. Each manufactured lot is identified for reference traceability. The packaging label serves as the primary tracking mechanism in the event of customer inquiry and includes the product name, batch number, size, and quantity.



[pyralux.dupont.com](http://pyralux.dupont.com)

For more information on DuPont™ FR Coverlay or other DuPont products, please visit our website.

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CAUTION: Do not use in medical applications involving permanent implantation in the human body. For other medical applications, see "DuPont Medical Caution Statement," H-50102-5 and "DuPont Policy Regarding Medical Applications" H-50103-5.

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