

# DuPont™ Kapton® 150FWR019

## Insulation Substrate

### Description

DuPont™ Kapton® 150FWR019 is a heat fusible polyimide-FEP fluoropolymer composite film that has a unique balance of excellent electrical, thermal durability, and chemical resistance properties. The properties of 150FWR019 will provide a tough, high dielectric strength insulation with significantly improved hydrolysis resistance compared to other commonly used polyimide materials.

### Characteristics

- Excellent hydrolysis resistance
- UL 94 recognition: V-0
- High dielectric strength
- Tough
- Heat fusible

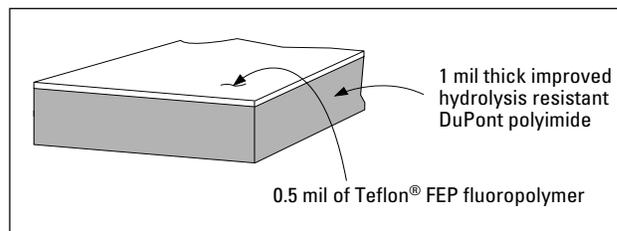
### Constructions

Kapton® 150FWR019 film is constructed of a 1.0 mil Kapton® polyimide film with 0.5 mil of FEP fluoropolymer on one side (see **Figure 1**).

### Packaging

Kapton® 150FWR019 insulation substrate is supplied in tape widths ranging from 0.0078 inches to 0.875 inches wide in traverse wound rolls. Pad rolls are available in 0.50 inches to 50 inches wide.

Figure 1. Construction of Kapton® 150FWR019



### Processing

Kapton® 150FWR019 can be properly processed on most tape wrapping machines. It can be fused using either induction or radiant heat. Kapton® FWR films have a higher modulus and lower water vapor permeability than equivalent Kapton® FN films. The wire wrapping and sealing process may have to be modified to compensate for these differences.

Typical properties for Kapton® 150FWR019 are shown in **Table 1**.

### Storage Conditions/Shelf Life

Proper storage of Kapton® film will ensure its performance. Kapton® 150FWR019 should not be exposed to ultraviolet radiation as from direct sunlight or in conditions of high humidity for extended periods of time. The storage life will be decreased dramatically under these conditions. The shelf life for Kapton® in typical warehouse temperature will be in excess of 20 years. Rolls should be kept wrapped in storage to prevent surface contamination.

### Safe Handling

Proper care should be taken when handling Kapton® polyimide film.



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**Table 1**  
**Typical Properties of Kapton® 150FWR019**

| Property                                         | Typical Value      | Test Method    |
|--------------------------------------------------|--------------------|----------------|
| <b>Mechanical</b>                                |                    |                |
| Tensile Strength, Kpsi/Mpa                       | 28.0/148           | ASTM D-882     |
| Tensile Modulus, Kpsi/Gpa                        | 500/3.7            | ASTM D-882     |
| Elongation to break, %                           | 60                 | ASTM D-882     |
| Specific Gravity, gm/cc                          | 1.69               | ASTM D-1505-90 |
| Thickness, mil/micron                            | 1.5/37.5           | DuPont         |
| <b>Electrical</b>                                |                    |                |
| Dielectric Strength, kV/mil (kV/mm)              | 5.4 (212)          | ASTM D-149     |
| Dielectric Constant at 1Khz                      | 2.7                | ASTM D-150     |
| Dissipation Factor                               | 0.0013             | ASTM D-150     |
| Volume Resistivity                               | 2.30 <sup>17</sup> | IPC-TM-650     |
| <b>Thermal</b>                                   |                    |                |
| Meltpoint, polyimide, °C                         | none               | ASTM E-794     |
| Meltpoint, FEP, °C                               | 270                | ASTM E-794     |
| Flammability, UL rating                          | 94V-0              | UL-94          |
| Mechanical, °C                                   | 200                |                |
| Electrical, °C                                   | 240                |                |
| LOI, %                                           | >35                | ASTM D-2863    |
| Glass Transition Temperature, °C                 | 350                |                |
| <b>Chemical (polyimide only)</b>                 |                    |                |
| Moisture Absorption at 100% RH, %                | 2.2                | ASTM D-570     |
| Water Vapor Permeability, gm/m <sup>2</sup> /day | 8.4                | ASTM E-96      |
| Hydroscopic Coefficient of Expansion, ppm/% RH   | 9                  | DuPont         |

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