

## DuPont™ Kapton® 100FPC Polyimide Film, 25 Micron Thickness

Category : Polymer , Film , Thermoset , Polyimide, TS , Polyimide, Thermoset Film

### Material Notes:

Film thickness 25 micron (1.0 mil) All purpose polyimide film. Can be laminated, diecut, slit, formed, or adhesive-coated. Similar to Kapton® Type VN with improved bondability. Available in thicknesses from 0.3 mil (7.5 µm) to 5 mil (125 µm). General Kapton® information: Kapton® is synthesized by polymerizing an aromatic dianhydride with an aromatic diamine. It has excellent chemical resistance; there are no known organic solvents for the film. It does not melt. It can be used at both high and low temperature extremes. Kapton® polyimide films can be used in a variety of electrical and electronic uses: wire and cable tapes, formed coil insulation, substrates for printed circuit boards, motor slot liners, magnet wire insulation, transformer and capacitor insulation, magnetic and pressure-sensitive tapes, and tubing. Data provided by DuPont High Performance Films.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_DuPont-Kapton-100FPC-Polyimide-Film-25-Micron-Thickness.php](http://www.lookpolymers.com/polymer_DuPont-Kapton-100FPC-Polyimide-Film-25-Micron-Thickness.php)

| Physical Properties | Metric    | English       | Comments              |
|---------------------|-----------|---------------|-----------------------|
| Density             | 1.42 g/cc | 0.0513 lb/in³ |                       |
| Water Absorption    | 2.8 %     | 2.8 %         | 24 hr/23°C. ASTM D570 |

| Mechanical Properties              | Metric   | English   | Comments                                          |
|------------------------------------|----------|-----------|---------------------------------------------------|
| Film Elongation at Break, MD       | 75 %     | 75 %      | Orientation not specified; ASTM D882              |
| Poissons Ratio                     | 0.34     | 0.34      | Value for Kapton® HN                              |
| Secant Modulus                     | 2.80 GPa | 406 ksi   | ASTM D882                                         |
| Coefficient of Friction, Dynamic   | 0.48     | 0.48      | Value for Kapton® HN. Film to film. ASTM D1894-90 |
| Coefficient of Friction, Static    | 0.63     | 0.63      | Value for Kapton® HN. Film to film. ASTM D1894-90 |
| Film Tensile Strength at Break, MD | 221 MPa  | 32100 psi | Orientation not specified; ASTM D882              |

| Thermal Properties     | Metric               | English              | Comments             |
|------------------------|----------------------|----------------------|----------------------|
| CTE, linear            | 20.0 µm/m-°C         | 11.1 µin/in-°F       | Value for Kapton® HN |
|                        | @Temperature 20.0 °C | @Temperature 68.0 °F |                      |
|                        | 32.0 µm/m-°C         | 17.8 µin/in-°F       | Value for Kapton® HN |
|                        | @Temperature 100 °C  | @Temperature 212 °F  |                      |
|                        | 40.0 µm/m-°C         | 22.2 µin/in-°F       | Value for Kapton® HN |
|                        | @Temperature 250 °C  | @Temperature 482 °F  |                      |
| Specific Heat Capacity | 1.09 J/g-°C          | 0.261 BTU/lb-°F      | Value for Kapton® HN |

| Thermal Properties               | Metric  | English                       | Comments                                                                                                                                 |
|----------------------------------|---------|-------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|
| Thermal Conductivity             | W/m-K   | BTU-in/hr-ft <sup>2</sup> -°F | Value for Kapton® HN                                                                                                                     |
| Maximum Service Temperature, Air | 400 °C  | 752 °F                        | Kapton® can function after brief exposure to 400°C (750°F). Various grades are UL rated for continuous service at 220-240°C (430-460°F). |
| Minimum Service Temperature, Air | -269 °C | -452 °F                       | Maintains properties and flexibility                                                                                                     |
| Glass Transition Temp, Tg        | 385 °C  | 725 °F                        | Value for Kapton® HN                                                                                                                     |
| Flammability, UL94               | V-0     | V-0                           |                                                                                                                                          |

| Optical Properties | Metric               | English              | Comments                                      |
|--------------------|----------------------|----------------------|-----------------------------------------------|
| Refractive Index   | 1.70                 | 1.70                 | Value for Kapton® HN. Na D line; ASTM D542-90 |
|                    | @Wavelength 589.3 nm | @Wavelength 589.3 nm |                                               |

| Electrical Properties  | Metric             | English            | Comments                                                                                                                                                                                              |
|------------------------|--------------------|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electrical Resistivity | 1.00e+10 ohm-cm    | 1.00e+10 ohm-cm    | Kapton® HN in damp heat; IPC-TM-650; Method 2.5.17                                                                                                                                                    |
|                        | 1.00e+17 ohm-cm    | 1.00e+17 ohm-cm    | per ASTM D257-91 for Kapton® HN                                                                                                                                                                       |
| Dielectric Constant    | 3.6                | 3.6                | Use evaporated metal electrodes, two terminal system of measurement at standard conditions.; ASTM D150                                                                                                |
|                        | @Frequency 1000 Hz | @Frequency 1000 Hz |                                                                                                                                                                                                       |
| Dielectric Strength    | 276 kV/mm          | 7010 kV/in         | Flat sheets in air placed between 1/4 in diameter brass electrodes with 0.8 mm (1/32 in) edge radius subjected to 60 cycles AC voltage at 600V/s rate of rise to the breakdown voltage.; ASTM D149-81 |
| Dissipation Factor     | 0.0020             | 0.0020             | Same test as dielectric constant.                                                                                                                                                                     |
|                        | @Frequency 1000 Hz | @Frequency 1000 Hz |                                                                                                                                                                                                       |

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