



DUPONT™ KAPTON® FN

POLYIMIDE FILM

DuPont™ Kapton® FN is a general purpose HN film that is coated or laminated on one or both sides with FEP fluoropolymer. Kapton® FN imparts heat sealability, provides a moisture barrier, and enhances chemical resistance.

Kapton® FN is recommended in applications that require a heat bondable film, or moisture and chemical resistance beyond the capabilities of uncoated Kapton® films. A list of available constructions can be found in the DuPont™ Kapton® polyimide film general specification, H-38479.

APPLICATIONS

- Tubing
- Heater circuits
- Heat sealable bags
- Automotive diaphragms and manifolds
- Electrical insulation

PRODUCT SPECIFICATIONS

Kapton® FN is manufactured, slit and packaged according to the product specifications listed in H-38479, DuPont™ Kapton® polyimide film general specification.

CERTIFICATION

Kapton® FN meets ASTM D5213 (type 2, item A) requirements.

Table 1-Physical Properties of Kapton® FN Film

Property	Typical Value for Film Type			Test Method
	120FN616	150FN019	250FN029	
Ultimate Tensile Strength, MPa (psi) 23°C (73°F) 200°C (392°F)	207 (30,000) 121 (17,500)	162 (23,500) 89 (13,000)	200 (29,000) 115 (17,000)	ASTM D882, Method A*
Yield Point at 3%, MPa (psi) 23°C (73°F) 200°C (392°F)	61 (9000) 42 (6000)	49 (7000) 43 (6000)	58 (8500) 36 (5000)	ASTM D882
Stress at 5% Elongation, MPa (psi) 23°C (73°F) 200°C (392°F)	79 (11,500) 53 (8000)	65 (9500) 41 (6000)	76 (11,000) 48 (7000)	ASTM D882
Ultimate Elongation, % 23°C (73°F) 200°C (392°F)	75 80	70 75	85 110	ASTM D882
Tensile Modulus, GPa (psi) 23°C (73°F) 200°C (392°F)	2.48 (360,000) 1.62 (235,000)	2.28 (330,000) 1.14 (165,000)	2.62 (380,000) 1.38 (200,000)	ASTM D882
Impact Strength at 23°C (73°F), N•cm (ft•lb)	78 (0.58)	68.6 (0.51)	156.8 (1.16)	DuPont Pneumatic Impact Test
Tear Strength, initial Graves, N (lbf)	1.8 (2.6)	1.5 (2.6)	17.8 (4.0)	ASTM D1004
Tear Strength, propagating Elmendorf, N	7.2	16.3	26.3	ASTM D1922
Polyimide, wt% FEP, wt%	80 20	57 43	73 27	
Density, g/cc or g/mL	1.53	1.67	1.57	ASTM D1505

*Speciman size 25 x 150 mm (1.6 in); jaw separation 100 mm (4 in), jaw speed, 50mm/min (2 in/min). Ultimate refers to the tensile strength and elongation measured at break.



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Table 2-Typical Electrical Properties of Kapton® FN Film at 23°C (73°F), 50% RH

Property	120FN616	150FN019	250FN029	Test Method
Dielectric Strength, V/ μ m (V/mil)	272 (6900)	197 (5000)	197 (5000)	ASTM D149
Dielectric Constant	3.1	2.7	3.0	ASTM D150
Dissipation Factor	0.0015	0.0013	0.0013	ASTM D150
Volume Resistivity, $\Omega \cdot$ cm 23°C (73°F) 200°C (392°F)	1.4×10^{17} 4.4×10^{14}	2.3×10^{17} 3.6×10^{14}	1.9×10^{17} 3.7×10^{14}	ASTM D257

Table 3-Chemical Properties of Kapton® FN Film

Property	120FN616	150FN019	400FN022	Test Method
Moisture Absorption, % at 23°C (73°F), 50% RH 98% RH	1.3 2.5	0.8 1.7	0.4 1.2	ASTM D570
Water Vapor Permeability, g/(m ² •24 h) g/(100 in ² •24 h)	17.5 1.13	9.6 0.62	2.4 0.16	ASTM E96

FOR MORE INFORMATION ON DUPONT™ KAPTON® FN POLYIMIDE FILMS, PLEASE CONTACT YOUR LOCAL REPRESENTATIVE, OR VISIT OUR SALES & SUPPORT WEBPAGE FOR ADDITIONAL REGIONAL CONTACT INFORMATION.

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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-50102-4.

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