DuPont™ Kapton® FN

POLYIMIDE FILM

Technical Data Sheet

DuPont™ Kapton® FN is a general purpose HN film that is coated or laminated on one or both sides with Teflon® 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.

Techniques for fabricating DuPont™ Teflon® FEP can be found in technical data bulletin H-55005-2. Chemical resistance data for Teflon® FEP can be found in information bulletin H-55007-2.

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, Bulletin GS-96-7.

Certification

Kapton® FN meets ASTM D-5213 (type 2, item A) requirements.

Table 1
Physical Properties of Kapton® FN Film

	Typical Value for Film Type*			
Property	**120FN616**	**150FN019**	**250FN029**	**Test Method**
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 D-889-91, 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 D-889-91, Method A
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 D-889-91, Method A
Ultimate Elongation, % 23°C (73°F) 200°C (392°F)	 75 80	 70 75	 85 110	ASTM D-889-91, Method A
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 D-889-91, Method A
Impact Strength at 23°C (73°F), N•cm (ft•lb)	 78 (0.58)	 68.6 (0.51)	 156.8 (1.16)	ASTM D-889-91, Method A
Tear Strength, initial Graves, N (lbf)	 11.8 (2.6)	 11.5 (2.6)	 17.8 (4.0)	ASTM D-889-91, Method A
Tear Strength, propagating Elmendorf, N	7.2	16.3	26.3	ASTM D-889-91, Method A
Polyimide, wt% FEP, wt%	80 20	57 43	73 27	ASTM D-889-91, Method A
Density, g/cc or g/mL	1.53	1.67	1.57	ASTM D-889-91, Method A

*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.

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/µm (V/mil)	272 (6900)	197 (5000)	197 (5000)	ASTM D-149-91
Dielectric Constant	3.1	2.7	3.0	ASTM D-150-92
Dissipation Factor	0.0015	0.0013	0.0013	ASTM D-150-92
Volume Resistivity,Ω• 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 D-257-91

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 D-570
Water Vapor Permability, g/(m^2•24 h) g/(100 in^2•24 h)	 17.5 1.13	 9.6 0.62	 2.4 0.16	ASTM E-96-92

For more information on DuPont™ Kapton® or other High Performance Materials, please contact your local representative, or visit our website for additional regional contacts:

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