DuPont™ Kapton® 100HN 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. 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-100HN-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
Moisture Absorption at Equilibrium	1.8 %	1.8 %	50% RH; 23°C
Water Vapor Transmission	3.50 g/m²/day	0.225 g/100 in²/day	25 µm film; ASTM E-96-92
Oxygen Transmission	9.90 cc-mm/m²-24hr-atm	25.1 cc-mil/100 in²-24hr-atm	25 µm film; ASTM D1434-82; 50% RH

Mechanical Properties	Metric	English	Comments
Film Tensile Strength at Yield, MD	69.0 MPa	10000 psi	25 µm film; 3% yield point, orientation not specified; ASTM D882-91
Film Elongation at Break, MD	75 %	75 %	Orientation not specified; ASTM D882
Poissons Ratio	0.34	0.34	Avg. three samples elongated at 5%, 7%, 10%
Secant Modulus	2.80 GPa	406 ksi	ASTM D882
Impact Test	0.780 J	0.575 ft-lb	Impact strength per DuPont Pneumatic Impact Test
Coefficient of Friction, Dynamic	0.48	0.48	film to film; ASTM D1894-90
Coefficient of Friction, Static	0.63	0.63	film to film; ASTM D1894-90
Tear Strength Test	7.2	7.2	N Graves (Initial) value; ASTM D1004-90
Elmendorf Tear Strength MD	270 g	270 g	Orientation not specified; ASTM D1922-89
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 @Temperature -14.0 - 38.0 °C	11.1 µin/in-°F @Temperature 6.80 - 100 °F	ASTM D696-91
	32.0 µm/m-°C @Temperature 100 - 200 °C	17.8 µin/in-°F @Temperature 212 - 392 °F	
	40.0 µm/m-°C @Temperature 200 - 300 °C	22.2 µin/in-°F @Temperature 392 - 572 °F	
Specific Heat Capacity	1.09 J/g-°C	0.261 BTU/lb-°F	Differential Calorimetry
Thermal Conductivity	0.120 W/m-K	0.833 BTU-in/hr-ft²-°F	ASTM F433-77
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	360 - 410 °C	680 - 770 °F	A 2nd order transition occurs in Kapton® between 360-410°C (680-770°F) and is assumed to be the T_g
Flammability, UL94	V-0	V-0	
Oxygen Index	>= 37 %	>= 37 %	ASTM D2863-87

Optical Properties	Metric	English	Comments
Refractive Index	1.70 @Wavelength 589.3 nm	1.70 @Wavelength 589.3 nm	Na D line; ASTM D542-90

Electrical Properties	Metric	English	Comments
Electrical Resistivity	1.00e+10 ohm-cm	1.00e+10 ohm-cm	in damp heat; IPC-TM-650; Method 2.5.17
	1.50e+17 ohm-cm	1.50e+17 ohm-cm	per ASTM D257-91
Dielectric Constant	3.5 @Frequency 100000 Hz	3.5 @Frequency 100000 Hz	
	3.6 @Frequency 1000 Hz	3.6 @Frequency 1000 Hz	Use evaporated metal electrodes, two terminal system of measurement at standard conditions.; ASTM D150
			Flat sheets in air placed between 1/4

Electrical Properties	Metric	English	Comments
Dielectric Strength	276 kV/mm	7010 kV/in	in diameter brass electrodes with 0.8 mm (.752 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 @Frequency 1000 Hz	0.0020 @Frequency 1000 Hz	Same test as dielectric constant.
	0.0090 @Frequency 100000 Hz	0.0090 @Frequency 100000 Hz	

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