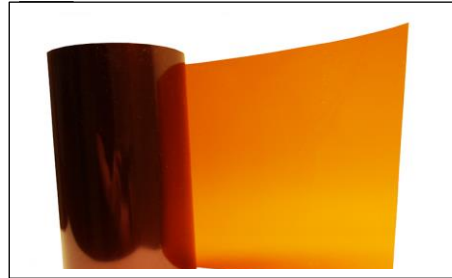


ABOUT THIS PRODUCT

Available in 125 microns, this polyimide film is an excellent electrical insulation material, with outstanding thermal, mechanical, chemical and electrical properties. This versatile film has been used in applications where the environmental temperatures have been as low as -269°C and as high as 400°C and can be easily fabricated by a wide variety of techniques e.g. punching, die-cutting and thermal forming. This film can also be laminated, metallised or adhesive coated.



FEATURES AND BENEFITS

- Outstanding thermal, mechanical, chemical and electrical properties
- Excellent temperature range
- Easily fabricated by a wide range of techniques
- Flexible
- Radiation resistance
- Flame retardant

APPLICATIONS

- Electrical insulation
- Mechanical parts
- Electronic parts
- Insulation blankets
- Insulation tubing
- Fibre optics cable
- Pressure sensitive tape
- Etching
- Shims
- Automotive diaphragms sensors and manifolds

MATERIAL DATA

Product Code	6401
Material	Polyimide Film
Standard Colour	Natural (amber)
Total Thickness – μ	125
Operating Temperature – °C	-269 – 400
Elongation at Break – %	See technical table
Dielectric Strength – Kv	See technical table
Tensile Strength – N/cm	See technical table
Relevant Specifications	Kapton® Polyimide meets ASTM D-5213 (type 1, item A) requirements

TECHNICAL TABLE

Property		Unit	125microns	Test Method
Ultimate Tensile Strength	at 23°C	psi (MPa)	33,500 (231)	ASTM D-882-91, Method A
	at 200°C		20,000 (139)	
Ultimate Elongation	at 23°C	%	82	ASTM D-882-91, Method A
	at 200°C		83	
Tensile Modulus	at 23°C	psi (GPa)	370,000 (2.5)	ASTM D-882-91, Method A
	at 200°C		290,000 (2.0)	
Density		g/cc	1.42	ASTM D- 1505-90
MIT Folding Endurance		cycles	5,000	ASTM D-2176-89
Tear Strength-propagating (Elmendorf), N (lb./f)			0.58 (0.02)	ASTM D-1992-89
Tear Strength, Initial (Graves), N (lb/f)			46.9 (1.6)	ASTM D-1004-90
Yield Point at 3%	at 23°C	MPa (psi)	69 (10,000)	ASTM D-882-91
	at 200°C		41 (6,000)	
Stress to produce 5% elongation	at 23°C	MPa (psi)	90 (13,000)	ASTM D-882-92
	at 200°C		61 (9,000)	
Coefficient of friction, Kinetic (film to film)			0.48	ASTM D-1894- 90
Coefficient of friction, static (film to film)			0.63	ASTM D-1894-90
Refractive Index (sodium D line)			1.70	ASTM D-542-90
Poisson's Ratio			0.34	Avg. three samples, Elongated at 5, 7,10%
Low temperature flex life			Pass	IPC-TM-650, Method 2.6.18
Impact strength at 23°C		N, cm ft.lb.	78 0.58	DuPont Pneumatic Impact Test

Thermal Properties

Thermal Property		Typical Value	Test Condition	Test Method
Melting Point		None	None	ASTM E-794-85 (1989)
Thermal Coefficient of Linear Expansion		20 ppm/°C	-14 to 38°C	ASTM D-696-91
Coefficient of Thermal Conductivity		0.12	296 K	ASTM F-433-77 (1987)
W/m.K cal cm.sec.°C			23°C	
Specific Heat, J/g. K (cal/g. °C)		1.09 (0.261)		Differential calorimetry
Heat Seal-ability		Not heat sealable		
Solder Float		Pass		IPC-TM-650 Method 2.4.13A
Smoke generation		$D_m < 1$	NBS smoke chamber	NFPA-258
Shrinkage, %	30 mins at 150°C	0.17		IPC-TM-650 Method 2.2.4A; ASTM D-5214-91
	120 mins at 200°C	1.25		
Limiting oxygen index - %		37-45		ASTM D-2863-87
Glass Transition Temperature (T _g)		A second order transition occurs in Kapton® between 360°C and 410°C and is assumed to be the glass transition temperature. Different measurements techniques produce different results within the above temperature range.		

125 microns - Typical Electrical Properties at 23°C, 50% RH

Property Film Gage	Typical Value	Test Condition	Test Method
Dielectric Strength	V/m kV/mm – 154	60Hz ¼ in electrodes 500 V/sec rise	ASTM D-149-91
Dielectric Constant	3.5	1kHz	ASTM D-150-92
Dissipation Factor	0.0026	1kHz	ASTM D-150-92
Volume Resistivity	1x10 ¹⁷		ASTM D-257-91