Plamide HN Non-Shrink Tube

Precision-wound protective and resistive tube for Class H insulation

Key Benefits

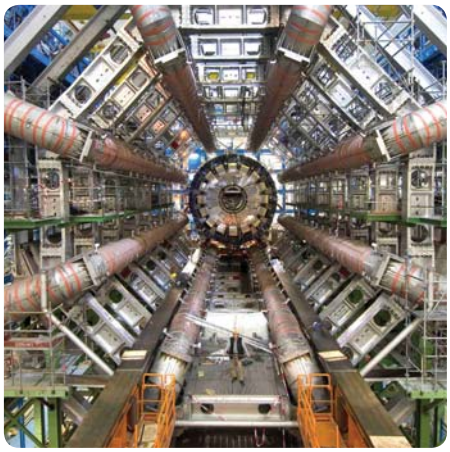
- DuPont™ Kapton® HN construction provides excellent mechanical properties and performance at high temperatures
- Available with internal diameters from 1.60 mm to 210.00mm, with wall thicknesses as fine as 0.028mm
- Suitable for Class H applications and temperatures up to 250°C depending on application

Exceptional dielectric strength and performance at high temperatures.

Multilayered precision-wound protective tube made from DuPont™ Kapton® film. Plamide Non-Shrink Tube is ultra-stable and maintains its dielectric strength at high temperatures.

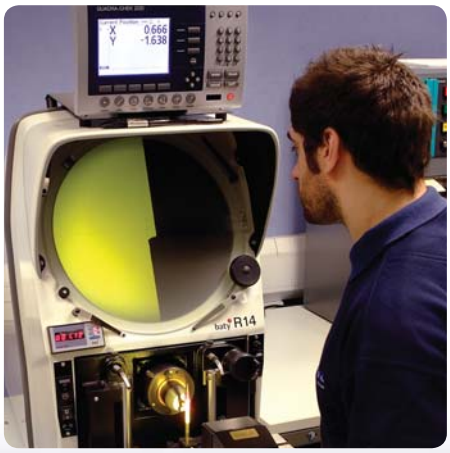
It is suited to applications where an ultra-thin walled electrically insulating tube is required to perform at high temperatures.

Plamide Non-Shrink Tube is suited to a wide range of protective wire windings in applications, from defence, space and aerospace, to automotive and household goods.



More features

- UL recognised DuPont™ Kapton® film construction maintains high dielectric strength (25 µm thickness 276V/µm) D and dimensional stability at high and low temperatures (<2% expansion at 95% humidity)
- Wall thicknesses available from 0.028mm
- Internal diameters available from 1.60mm
- Different construction variants supplied to match application requirements, using 0.012, 0.025, 0.050 and 0.125mm film
- Maintains dielectric strength when exposed to radiation



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TUBULAR TECHNOLOGY

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Technical Data

DuPont™ Kapton® HN

Electrical Properties

Property	Typical Value - 1 mil (25 µm) film			Test Condition	Test Method
	-195°C	25°C	200°C		
Short Term					
Dielectric strength (kV)	10.8	7.0	5.6	60 cycles	ASTM D 149-64
Dielectric Constant	-	3.5	3.0	1 kilocycle	ASTM D 150-64T
Dissipation Factor	-	0.003	0.002	1 kilocycle	ASTM D 150-64T
Volume Resistivity	-	10^{16} ohm/m	10^{12} ohm/m	-	ASTM D 257-61
Surface Resistivity	-	10^{16} ohm/sq	-	50% Relative Humidity	ASTM D 257-61
Corona Start Voltage	-	465 volts	-	50% Relative Humidity	ASTM D 1868-61T
Insulation Resistance	-	100000 megohm/µF	-		Based on 0.05 µF wound capacitor using 1-mil (25 µm) H film

Physical Properties

Property			Typical Value - 1 mil (25 µm) film			Test Method
			-195°C	25°C	200°C	
Ultimate Tensile Strength	(MD)	kg/cm^2 MPa	2450 241	1750 172	1200 117	ASTM D 882-64T
Yield Point	(MD)	kg/cm^2 MPa	-	700 69	420 41	ASTM D 882-64T
Stress to Produce 5% Elongation	(MD)	kg/cm^2 MPa	-	910 90	600 59	ASTM D 882-64T
Ultimate Elongation	(MD)	%	2	70	90	ASTM D 882-64T
Tensile Modulus	(MD)	kg/cm^2 MPa	35800 3500	30000 2950	18200 1800	ASTM D 882-64T
Impact Strength	(D)	kg/cm N/m	-	6 0.6	-	DuPont™ Pneumatic Impact Test
Folding Endurance	(MIT)	cycles	-	10000	-	ASTM D 2176-63T
Tear Strength - Propagating (Elmendorf)		g mN	-	8 78	-	ASTM D 1922-61T
Tear Strength - Propagating (Graves)		g N	-	510 5	-	ASTM D 1004-61
Bursting Test (Mullen)		kg/cm^2 kPa	-	5.25 517	-	ASTM D 774-63T
Density		Mg/m^2		1.42	-	ASTM D 1505-63T
Coefficient of Friction Kinectic (Film-to-Film)			-	0.42	-	ASTM D 1894-63
Refractive Index (Becke Line)			-	1.78	-	Encyclopaedic Dictionary of Physics, Volume 1
Area Factor		m^2/kg	-	28	-	Calculation

Thermal Properties

Property	Typical Value - 1 mil (25 µm) film		Test Condition	Test Method
Melting Point	None			
Zero Strength Temperature	815°C		1.4 kg/cm^2 (138 kPa) load for 5 secs	Hot Bar (DuPont™ Test)
Cut-through Temperature	25 µm 435°C	50-125 µm 525°C	25 µm 50-125 µm	Weighted Probe on Heated Film (DuPont™ Test)
Coefficient of Thermal Expansion	2.0 x 10^{-5}/K		-14°C to 38°C	ASTM D 696-44
Coefficient of Thermal Conductivity	$\frac{\text{(cal)}\ \text{(cm)}}{}$ 3.72 x 10^{-4} (cm^2) (sec) (°C) (0.156 W/m/K) 3.89 x 10^{-4} (cm^2) (sec) (°C) (0.163 W/m/K) 4.26 x 10^{-4} (cm^2) (sec) (°C) (0.178 W/m/K)		25°C 75°C 200°C	Model TC-1000 Twin Heatmeter Comparitive Tester
Flammability	Self-extinguishing		-	
Heat Sealable	No		-	
Thermal Capacity	0.261 cal./g/°C (1092 J/kg/K)		40°C	Differential Calorimetry