



Wound Insulation Tubes made of Kapton® are highly stable and can be used in the most demanding applications in the aerospace, aviation and automotive industries. It is used where high dielectric strength and mechanical strength are required despite low wall thicknesses. It is suitable for applications with the harshest environmental conditions.

Kapton® HN Insulating Tubes, Non-Shrinking, Class C (200°C)

Properties

- Coiled insulating and protective conduit for applications in temperature class C
- Material: DuPont™ Kapton® HN
- Inside diameters from 1.60 mm to 210 with wall thicknesses from 0.028 mm available.
- Outstanding mechanical properties.
- For applications in temperature class C up to 250 °C.
- Dielectric strength remains even when exposed to radiation

Technical data

Electrical properties						
Properties		Typical value for film 25 µm			Test condition	Test method
		-195 °C	25 °C	200 °C		
short-term						
Dielectric strength	[kV]	10,8	7,0	5,6	60 Hz	ASTM D 149-64
Dielectric constant		---	3,5	3,0	1000 Hz	ASTM D 150-64T
Loss factor		---	0,003	0,002	1000 Hz	ASTM D 150-64T
Contact resistance	[Ω/m]	---	1016	1012	---	ASTM D 257-61
Surface resistance [Ω/square]		---	1016	---	50% relative humidity	ASTM D 257-61
Corona discharge voltage	[V]	---	465	---	50% relative humidity	ASTM D 1868-61T
Insulation resistance	[MΩ/F]	---	100000	---		measured from a capacitor wound with 25 µm H foil 0.05 µF

Physical properties						
Properties			Typical value for film 25 µm			Test method
			-195 °C	25° C	200 °C	
Tear strength (LR)		[kg/cm2] [MPa]	2,450 241	1,750 172	1,200 117	ASTM D 882-64T
Yield strength (LR)		[kg/cm2] [MPa]	-	700 69	420 41	ASTM D 882-64T
Tension for 5% elongation (LR)		[kg/cm2] [MPa]	-	910 90	600 59	ASTM D 882-64T
Tear elongation (LR)		[%]	2	70	90	ASTM D 882-64T
Train module (LR)		[kg/cm2] [MPa]	35'800 3'500	30'000 2'950	18,200 1,800	ASTM D 882-64T
Impact resistance (D)		[kg/cm] [N/m]	-	6 0.6	-	DuPont™ Pneumatic Impact Test
Folding resistance (MIT)		Cycles	-	10'000	-	ASTM D 2176-63T
Tear resistance (Elmendorf)		[g] [mN]	-	8 78	-	ASTM D 1922-61T
Tear resistance (Graves)		[g] [N]	-	510 5	-	ASTM D 1004-61
Burst test (Mullen)		[kg/cm2] [kPa]	-	5.25 517	-	ASTM D 774-63T
Density		[Mg/m2]		1,42	-	ASTM D 1505-63T
Coefficient of sliding friction film to film			-	0,42	-	ASTM D 1894-63
Refractive index (Becke Line)			-	1,78	-	Encyclopaedic Dictionary of Physics, Volume 1
Grammage		[m2/kg]	-	28	-	Calculation

Thermal properties			
Properties	Typical value for film 25 µm	Test condition	Test method
Melting point	none		
Zero Strength Temperature*)	815 °C	1.4 kg/cm2 (138 kPa) Load during 5 s	Hot Bar (DuPont™ Test)
Softening temperature	435 °C 525 °C	25 µm 50-125 µm	Weighted Probe on Heated Film (DuPont™ Test)
Thermal expansion coefficient	2.0 x 10-5/K	-14 °C to 38 °C	ASTM D 696-44
Thermal conductivity coefficient [cal] [cm]	3.72 x 10-4 [cm2][s][°C][0,156W/m/K]	25 °C	Model TC-1 000 Twin Heatmeter Comparative Tester
	3.89 x 10-4 [cm2][s][°C][0,163W/m/K]	75 °C	
	4.26 x 10-4 [cm2][s][°C][0,178W/m/K]	200 °C	
Flammability	self-extinguishing	-	
heat sealable	no	-	
Heat capacity	0.261 cal/g/°C (1092 J/kg/K)	40 °C	Differential calorimeter

*) Temperature at which the film can withstand a tension of 0.014 MPas (20psi) for 5 s.

Item number:

Example: IRNKH0100/005/0500

IRNKH = master number

0100 = 1.00 mm diameter

005 = 0.05 mm wall thickness

0500 = 500 mm length