Technical Data Sheet
Secondary Insulations

ELAN-film® HT-180

UL approved thermal Class180 Electrical Insulation film for Ground & phase Insulation

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Description

ELAN-Film® HT-180 is a PET film coated on each side with a layer of ELANTAS PDG, Inc. Tritherm® polyamideimide. The Tritherm® coating is applied on the PET giving the film a fully integrated composite structure suitable for slitting, forming and cutting.

Areas of Application

ELAN-Film® HT-180 can be used in slot liners, wedges and phase applications in electrical motor manufacture and repair.

Features and Benefits

- Superior electrical properties
- Low moisture absorption
- Class H UL rating
- Excellent adhesion to impregnating resins
- Excellent chemical/refrigerant resistance

Application Method

Mechanical insertion

Standard Dimensions/Storage/ Transportation

Available in film rolls of 1.42 m (56") wide with Tritherm® coating width of 1.37 m (54") on a 1.52 m (60") long, 15.2 cm (6") ID cardboard core shrink wrapped to standard pallet. Depending upon substrate thickness, roll length averages from 1000 m to 3000 m. Special size rolls and converted film shapes are available through distribution. Thicknesses available from 75 µm to 380 µm.

Store in a dry area out of elements. Under proper storage conditions (25°C, 50% r.h.), the original properties of ELAN-Film® HT-180 can be maintained in excess of one year.

Film rolls are shipped in crates as non- hazardous, Class 55 cargo. No special shipping instructions.

Health / Safety

See MSDS for specific safety and health information.

Typical Properties and Performance of Material as Supplied ELAN-film® HT-180 Temperature Index as per UL 1446 (File # ????) :

Property	Test Method	Unit	Value	Class
Thermal Classification	UL 1446	°C	180	H

Dielectric Properties

Film Thickness	**µm**	**114**	**190**	**279**
Dielectric strength as per ASTM D149	Volts	11,100	14,300	16,100
Volume resistivity at 500 V DC as per ASTM D257	ohm.cm	10^{15}	10^{15}	10^{15}
Surface resistivity at 500 V DC as per ASTM D257	Ohm/cm^2	10^{13}	10^{14}	10^{14}
Tests as per IEC 60455-2 at 30V on 215 µm at 25°C		**100 Hz**	**500 Hz**	**1 kHz**
Dielectric constant Initial		2.4	3.1	3.4
After 168h water immersion		2.2	3.1	3.7
Dielectric loss factor Initial		0.03	0.003	0.008
After 168h water immersion		0.02	0.005	0.008

Chemical properties

Property	Test Method	Unit	Result		
Water Absorption	After 24 hours water immersion	%	**114 µm**	**190 µm**	**279 µm**
			0.7	0.5	0.4
Freon Extraction	Weight loss	%	0.1	0.1	0.1
Adhesion with the impregnating resin	ASTM D3359, Tape jpg#51578, BYK Gardener 6 X 1 mm cross hatch cutting blade	-	Excellent		

Mechanical Properties

Property	Test Method	Units	114 µm	190 µm	279 µm
Tensile Strength	ASTM D882	Mpa	137	134	107
Tensile Modulus	ASTM D882	Mpa	3235	3150	2360
Tear Strength	ASTM D1004	N/mm	378	394	388
Elongation	ASTM D882	%	88	106	144

Film Yield at Various Thicknesses

Thickness, µm (mil)	Yield, kg/m^2	Yield, m^2/kg	Yield, $lb./yd^2$	Yield, $yd^2/lb.$
114 (4.5)	0.15	6.7	0.28	2.9
190 (7.5)	0.26	3.8	0.48	2.1
279 (11)	0.38	2.6	0.70	1.4

Thermal Conductivity

Property	Film Thickness	Test Method	Temperature, ^0C	Result, $W*m^{-1}*K^{-1}$
Thermal Conductivity	**215 µm**	**ASTM E 1530**	26	0.19
			90	0.18
			128	0.18
	270 µm	**ASTM E 1530**	26	0.20
			90	0.19
			125	0.19

The above properties are typical values and are not intended for specification use.

Disclaimer

This information is intended only for general guidance in the application of our product. It has been obtained by careful investigation and represents the present state of our knowledge and experience. Because of the large number of possible methods of application and processing we are not able to assume responsibility in any one particular case for either the technical results or the patent rights situation applicable to the country under consideration

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