SynFlex Elektro GmbH
Auf den Kreuzen 24
D-32825 Blomberg Germany
Telefon +49-5235-968-0
E-Mail info@synflex.de

SynTherm® YT510 DDP

SynTherm® YT510 DDP is a synthetic electro-insulation paper constructed of a calandered, aromatic polyamide fibride flock composition. Both sides of the paper are printed with a B-stage Epoxy resin in a diamond dotted pattern.

Attributes

The base material SynTherm® YT510 is a Class H (180 °C) insulating material. Temperatures below 200 °C only slightly influence its electrical properties. The good mechanical properties can be extrapolated to significantly higher temperatures. SynTherm® YT510 is also suitable for us at temperatures to -190 °C due to its polymer-structure. It has a high short-term dielectric strength. SynTherm® YT510 is compatible with all classes of common resins, varnishes, adhesives as well as transformer liquids, lubricants, and cooling agents. Common solvents may lead to slight reversible moisture expansion. SynTherm® YT510 has low flammability (UL 94V-0) and very high resistance to beta and gamma radiation.

Application

SynTherm® YT510 DDP is used as layer insulation in transformers.

Standards

- Insulating material class F (155 °C). Base material class H (180 °C)
- The base material is UL listed (RTI mech. + electr. 210 °C)

Delivery forms

Material thickness in µm:

50, 80, 130, 180, 250, 300, 380, 510, 760

SYNTHERM® YT510 DDP is available:

- in tapes: depending on material thickness on request beginning at 6mm (thin material)
- in rolls: 1000 mm

Feathering:

- depth approx. 1 - 12 mm, distance approx. 1 - 10 mm
- 10 mm up to 240 mm width, thickness on request

Base

Calandered, aromatic polyamide fibride flock composition with diamond dotted B-stage resin on both sides.

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Mechanical	Unit of measure						
Nominal thickness	µm	80	130	180	250	300	
Typical thickness	µm	52	78	130	180	255	290
Specific weight	g/m²	41.5	63	116	170	252	291
Tensile strength longitudinal	N/cm	41	66	130	200	290	340
Tensile strength transversal	N/cm	17	29	60	75	120	155
Elongation at break longitudinal	%	7.5	9.5	10.5	11.5	11.5	10.5
Elongation at break transversal	%	7.0	9.5	11.5	12.5	13.5	10.5
Shrinkage at 300 °C longitudinal	%	3.5	3.0	3.0	3.0	3.0	
Shrinkage at 300 °C transversal	%	3.0	2.5	2.5	2.5	2.5	
Elmendorf tear strength longitudinal	N	1.05	2.2	3.5	5.0	6.5	
Elmendorf tear strength transversal	N	1.1	2.05	3.8	4.8	6.0	8

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Mechanical	Unit of measure				Test standard
Nominal thickness	µm	380	510	760	
Typical thickness	µm	380	515	765	GB/T451.3-2002
Specific weight	g/m²	376	510	710	GB/T451.2-2002
Tensile strength longitudinal	N/cm	420	500	650	GB/T12914-2008
Tensile strength transversal	N/cm	250	345	450	GB/T12914-2008
Elongation at break longitudinal	%	12.0	13	13	GB/T12914-2008
Elongation at break transversal	%	13.0	13	12	GB/T12914-2008
Shrinkage at 300 °C longitudinal	%	3.0	3.0	3.0	IEC60819-2:2002
Shrinkage at 300 °C transversal	%	2.5	2.0	2.0	IEC60819-2:2002
Elmendorf tear strength longitudinal	N	10.0	13	-	GB/T455-2002
Elmendorf tear strength transversal	N	13.5	16	-	GB/T455-2002

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Properties of B-stage resin	Unit of measure					
Thickness increase (one side)	µm	10±15 %				
Basic weight increase (both sides)	g/m²	5±10 %				
Curing conditions	h	1	3	10	20	30
Curing conditions	°C	130	120	110	100	90
Shelf life		6 months after production				

Electrical	Unit of measure	
Nominal thickness	µm	50
Dielectric constant (50 Hz)		1.5
Field intensity	kV/mm	16

Electrical	Unit of measure						
Nominal thickness	µm	80	130	180	250	300	380

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Electrical	Unit of measure						
Dielectric constant (50 Hz)		1.5	2.1	2.4	2.5	2.7	3.0
Field intensity	kV/mm	16	20	21	24	22	23

Electrical	Unit of measure			Test standard
Nominal thickness	µm	510	760	
Dielectric constant (50 Hz)		3.1	3.2	GB/T1409-2006
Field intensity	kV/mm	21	18	GB/T1408.1-2006