SynFlex Elektro GmbH
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SynTherm® YT56 DDP

SynTherm® YT56 DDP is a synthetic medium density electro insulation paper constructed of a calendered, 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® YT56 is a Class H (180 °C) insulating material. Its mechanical, thermal and electrical properties are between SynTherm® YT510 and SynTherm® YT511.
Temperatures over 200 °C only slightly influence its electrical properties. The good mechanical properties can be extrapolated to significantly higher temperatures. SynTherm® YT56 is also suitable for use at temperatures to -190 °C due to its polymer-structure.
It has a high short-term dielectric strength. SynTherm® YT56 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® YT56 has low flammability (UL 94V-0) and very high resistance to beta and gamma radiation.

Application

SynTherm® YT56 DDP is designed for cost critical applications which require a moderate mechanical and electrical strength.
SynTherm® YT56 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:
130, 180, 250, 300, 510, 760
SynTherm® YT56 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 tape-width, thickness on request

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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	130	180	250	300	380	510
Typical thickness	µm	130	180	250	300	380	520
Specific weight	g/m²	86	125	172	245	265	342
Tensile strength longitudinal	N/cm	100	155	200	300	260	320
Tensile strength transversal	N/cm	40	60	80	145	130	150
Elongation at break longitudinal	%	8	9	9.5	12	10.5	11
Elongation at break transversal	%	8.5	9.5	10	13	11	11.5
Elmendorf tear strength longitudinal	N	1.5	2.5	3	5.5	8.5	11.5
Elmendorf tear strength transversal	N	3.5	5	6	7	12.5	14.5

Mechanical	Unit of measure			Test method
Nominal thickness	µm	610	760	

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Mechanical	Unit of measure			Test method
Typical thickness	µm	610	760	GB/T12914-2008
Specific weight	g/m²	414	532	GB/T451.2-2002
Tensile strength longitudinal	N/cm	375	420	GB/T12914-2008
Tensile strength transversal	N/cm	180	200	GB/T12914-2008
Elongation at break longitudinal	%	11	10	GB/T12914-2008
Elongation at break transversal	%	10.5	10	GB/T12914-2008
Elmendorf tear strength longitudinal	N	N/A	N/A	GB/T455-2002
Elmendorf tear strength transversal	N	N/A	N/A	GB/T455-2002

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

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Properties of B-stage resin	Unit of measure					
Curing conditions	°C	130	120	110	100	90
Shelf life		6 months after production				

Electrical	Unit of measure	
Nominal thickness	µm	130
Field intensity	kV/mm	11

Electrical	Unit of measure						
Nominal thickness	µm	180	250	300	380	510	610
Field intensity	kV/mm	11	12	15	12	13	13

Electrical	Unit of measure		Test method
Nominal thickness	µm	760	
Field intensity	kV/mm	13	GB/T1408.1-2006