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## SynTherm® YT56 DDP

SynTherm® YT56 DDP is a synthetic medium density electro insulation paper constructed of a calendered, aromatic polyamide fibril flock composition. Both sides of the paper are printed with a B-stage epoxy resin in a diamond dotted pattern.

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### 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.

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### 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.

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### Standards

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

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### 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 fibrille flock composition with diamond dotted B-stage resin on both sides.

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Updated 10/18



| 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/m <sup>2</sup> | 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/m <sup>2</sup> | 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 |

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