

---

## SynTherm® YT510 DDP

SynTherm® YT510 DDP is a synthetic electro-insulation paper constructed of a calandered, aromatic polyamide fibrille 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 use 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 fibrille flock composition with diamond dotted B-stage resin on both sides.

| <b>Mechanical</b>                    | Unit of measure  |      |      |      |      |      |      |
|--------------------------------------|------------------|------|------|------|------|------|------|
| Nominal thickness                    | µm               | 80   | 130  | 180  | 250  | 300  |      |
| Typical thickness                    | µm               | 52   | 78   | 130  | 180  | 255  | 290  |
| Specific weight                      | g/m <sup>2</sup> | 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    |

The information on this data sheet is based on the information provided by our supplier. It does not represent any specification or agreements regarding conditions or properties. The indicated values are standard values. Deviations from those values due to production and application cannot be excluded. The information on this data sheet is addressed to experts who use it at their own discretion and at their own risk. We do not guarantee results, or accept liability for the indicated specifications or for results obtained based on the specifications. Please contact us for more detailed information. Non-toxic and toxic substances are listed on the safety data sheet.  
Updated 07/21



| 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    |

The information on this data sheet is based on the information provided by our supplier. It does not represent any specification or agreements regarding conditions or properties. The indicated values are standard values. Deviations from those values due to production and application cannot be excluded. The information on this data sheet is addressed to experts who use it at their own discretion and at their own risk. We do not guarantee results, or accept liability for the indicated specifications or for results obtained based on the specifications. Please contact us for more detailed information. Non-toxic and toxic substances are listed on the safety data sheet.

Updated 07/21



| 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 |

The information on this data sheet is based on the information provided by our supplier. It does not represent any specification or agreements regarding conditions or properties. The indicated values are standard values. Deviations from those values due to production and application cannot be excluded. The information on this data sheet is addressed to experts who use it at their own discretion and at their own risk. We do not guarantee results, or accept liability for the indicated specifications or for results obtained based on the specifications. Please contact us for more detailed information. Non-toxic and toxic substances are listed on the safety data sheet.  
Updated 07/21



| 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 |

The information on this data sheet is based on the information provided by our supplier. It does not represent any specification or agreements regarding conditions or properties. The indicated values are standard values. Deviations from those values due to production and application cannot be excluded. The information on this data sheet is addressed to experts who use it at their own discretion and at their own risk. We do not guarantee results, or accept liability for the indicated specifications or for results obtained based on the specifications. Please contact us for more detailed information. Non-toxic and toxic substances are listed on the safety data sheet.

Updated 07/21

