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## SynTherm® YT511 (metastar® YT511)

SynTherm® YT511 is a synthetic electrical insulating paper consisting of a non-calendered, aromatic polyamide fibrille flock composition.

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### Attributes

SynTherm® YT511 is a Class H (180 °C) insulating materials. Temperatures of up to 200 °C only slightly influence the electrical properties. The good mechanical properties can be extrapolated to significantly higher temperatures. Due to the polymer structure SynTherm® YT511 can also be used a low temperature of up to -190 °C. It has a very high short-term dielectric strength.

SynTherm® YT511 is compatible with all common classes of resins, varnishes, adhesives and transformer liquids, lubricants and cooling agents. Commonly used solvents may lead to minor, reversible expansion. SynTherm® YT511 paper is of low flammability (UL 94V-0) and very high resistance to beta and gamma radiation

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### Application

High-quality SynTherm® YT511 is used as electrical insulating material in almost any known application. Used in AC and DC motors, large generators, liquid-immersed and dry transformer, and chokes, even when exposed to beta and gamma radiation.

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### Standards

- Insulating material Class H (180 °C)
- UL listed (RTI mech. + electr. 210 °C)
- UL file no. E358562

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### Delivery forms

Film thickness in µm:

130, 180, 250, 380, 580

SynTherm® YT511 is available:

- tapes: depending on material thickness on request

Beginning at 6mm (thin materials)

- rolls: 1030 mm

Feathering:

- depth approx. 1 - 12 mm, distance approx. 1 - 10 mm

- 10 mm to 240 mm width, material thickness on request

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### Base

Non-calendered, aromatic polyamide flock composition

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Updated 10/18



| Typical mechanical properties        | Unit of measure   |      |      |      |      |      | Test standard   |
|--------------------------------------|-------------------|------|------|------|------|------|-----------------|
| Nominal thickness                    | µm                | 130  | 180  | 250  | 380  | 580  |                 |
| Typical thickness                    | µm                | 130  | 170  | 250  | 390  | 570  | GB/T451.3-2002  |
| Specific weight                      | g/m <sup>2</sup>  | 42   | 64   | 82   | 155  | 200  | GB/T451.2-2002  |
| Density                              | g/cm <sup>3</sup> | 0.31 | 0.37 | 0.32 | 0.39 | 0.35 |                 |
| Tensile strength longitudinal        | N/cm              | 25   | 40   | 60   | 145  | 170  | GB/T12914-2008  |
| Tensile strength transversal         | N/cm              | 13   | 21   | 32   | 68   | 85   | GB/T12914-2008  |
| Elongation at break longitudinal     | %                 | 3.3  | 3.7  | 4.5  | 5.5  | 6.0  | GB/T12914-2008  |
| Elongation at break transversal      | %                 | 4.5  | 5.0  | 5.5  | 6.5  | 7.0  | GB/T12914-2008  |
| Shrinkage at 240 °C longitudinal     | %                 | 0.4  | 0.4  | 0.4  | 0.4  | 0.4  | IEC60819-2:2002 |
| Shrinkage at 240 °C transversal      | %                 | 0.2  | 0.2  | 0.2  | 0.2  | 0.2  | IEC60819-2:2002 |
| Elmendorf tear strength longitudinal | N                 | 1.2  | 1.8  | 2.0  | 4.5  | 8.5  | GB/T455-2002    |
| Elmendorf tear strength transversal  | N                 | 1.8  | 3.0  | 3.5  | 7.0  | 9.0  | GB/T455-2002    |

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| Typical electrical properties | Unit of measure |     |     |     |     |     | Test standard   |
|-------------------------------|-----------------|-----|-----|-----|-----|-----|-----------------|
| Nominal thickness             | µm              | 130 | 180 | 250 | 380 | 580 |                 |
| Field intensity               | kV/mm           | 9   | 9   | 8   | 8   | 7   | GB/T1408.1-2006 |
| Dielectric constant at 60 Hz  |                 | 1.3 | 1.3 | 1.3 | 1.4 | 1.4 | GB/T1409-2006   |

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