
SynTherm® YT511 (metastar® YT511)

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

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

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.

Standards

- Insulating material Class H (180 °C)
- UL listed (RTI mech. + electr. 210 °C)
- UL file no. E358562
- RoHS compliant acc. to 2011/65/EU

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: 965 mm

Feathering:

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

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

Base

Non-calendered, aromatic polyamide flock composition

| 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 ² | 42 | 64 | 82 | 155 | 200 | GB/T451.2-2002 |
| Density | g/cm ³ | 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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Updated 10/18

SynTherm® is a registered trademark of SynFlex.



| 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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