
Voltatex® 2100 Impregnating varnish

Varnish composed of polyester imide / phenolic resin.

Attributes

Voltatex® 2100 is a transparent, ready-to-use and heat-curing impregnating varnish composed of polyester imide/ phenolic resin combination.

Particular features:

- fast curing
- hard-elastic bonding
- compatible with all common magnet wires

The cured varnish is resistant to:

- solvent vapours
 - transformer oils
 - climate-related stress
 - mould infestation
 - acids, alkalines and ammonia
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Application

Voltatex® 2100 is applicable for:

- insulation systems up to thermal class H, acc. IEC 60085
 - in general suitable up to thermal class E-H, depending on curing time and -temperature.
 - electric motors
 - rotors with thermal and mechanical high stress
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Standards

- Thermal class acc. IEC 216: TI 155-165
 - Type acc. E DIN IEC 60646-3-2: type 155
 - UL-temperature class: 200
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Delivery forms

Voltatex® 2100 is delivered in 25 kg one-way compounds.

Base

Polyester imide / phenolic resin

Color

Transparent

Storage

The resin can be stored for up to 12 months at max. 25 °C if sealed correctly in original containers.

Hardening

- Thermal class E: 4-6 h at 120 °C
- Thermal class B: 4-6 h at 130 °C
- Thermal class F-H: 6 h at 150 °C

Protection

Cured Voltatex® 2100 is biologically inactive and not dangerous to health. When processing the liquid resin, please refer to the Material Safety Data Sheet (MSDS) for Voltatex® 2100.

Processing

Voltatex® 2100 is delivered ready-to-use. The consistency can be lowered if necessary with Voltatex® T022.

Cleaning

Cured Voltatex® 2100 is almost insoluble. Therefore, application equipment should be regularly cleaned with cleaner Voltatex® T050 or T060. All equipment cleaning and maintenance should be carried out in accordance with the equipment manufacturer's instructions.

| Mechanical | Unit of measure | Value | Test method |
|---|-----------------|----------|---|
| Bond strength of twisted coils room temperature | N | 250 ± 30 | IEC 60455-2, test method A acc. IEC 61033 |
| Bond strength of twisted coils 130 °C | N | 46 ± 4 | IEC 60455-2, test method A acc. IEC 61033 |
| Bond strength of twisted coils 155 °C | N | 34 ± 2 | IEC 60455-2, test method A acc. IEC 61033 |
| Bond strength of twisted coils 180 °C | N | 25 ± 2 | IEC 60455-2, test method A acc. IEC 61033 |

| Thermal | Unit of measure | Condition | Value | Test method |
|-------------------|-----------------|------------------------------|---------|---------------------|
| Thermal class | | Helical Coil | 200 | UL 1446, ASTM D2519 |
| Thermal class | | Twisted Pair | 200 | UL 1446, ASTM D2307 |
| Temperature class | °C | based on dielectric strength | 160-170 | IEC 60216 |
| Temperature index | °C | based on weight loss | 155-165 | IEC 60216 |

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Updated 02/19

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| Chemical | Condition | Value | Test method |
|---------------------------|---|--|--------------------------------|
| Resistance | mould, test method I (28 days without add. nutrient solution) | range 0 - resistant | DIN IEC 68 part 2-10 |
| Resistance | temperature changes: -55 °C/+130 °C | resistant | Test Na acc. DIN IEC 68 part 2 |
| Resistance | dry heat: +150 °C | resistant | Test Bb DIN IEC 68 part 2 |
| Resistance | Coldness: -55 °C | resistant | Test Ab acc. DIN IEC 68 part 2 |
| Impact on enamelled wires | | compatible with all common enamelled wires | |

| Liquid phase | Unit of measure | Condition | Value | Test method |
|----------------|-----------------|-----------|---------|-------------|
| Binder content | % | | 48-52 | |
| Viscosity | mPas | at 25 °C | 295-365 | DIN 53019 |
| Flow time | s | at 23 °C | 65-95 | DIN 53211 |

| Electrical | Unit of measure | Value | Test method |
|---|-----------------|-------------------|--|
| Specific volume resistance at 23 °C | Ω*cm | ≥10 ¹⁵ | acc. IEC 60455-2, test method acc. IEC 60093 |
| Specific volume resistance after 96 h water immersion | Ω*cm | ≥10 ¹⁵ | acc. IEC 60455-2, test method acc. IEC 60093 |

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| Electrical | Unit of measure | Value | Test method |
|---|-----------------|-----------------------|--|
| Dielectric strength at 23 °C and 50 % r.h. | kV/mm | ≥100 | acc. IEC 60455-2, test method acc. IEC 60243-1 |
| Dielectric loss factor at (AC, 23 °C, 50 Hz) | | ≤20x10 ⁻³ | acc. IEC 60455-2, test method acc. IEC 60250 |
| Dielectric loss factor at 155 °C and 50 Hz | | ≤100x10 ⁻³ | acc. IEC 60455-2, test method acc. IEC 60250 |
| Dielectric constant at 23 °C between 50 Hz and 1 MHz | | 3.0±0.5 | nach IEC 60455-2, Prüfverfahren nach IEC 60250 |
| Dielectric constant at 155 °C and 50 Hz | | 5.0±0.5 | acc. IEC 60455-2, test method acc. IEC 60250 |
| Loss factor cross section 0.2=200x10 ⁻³ | °C | ≥170 | acc. IEC 60455-12, test method acc. IEC 60250 |

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