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## **Voltatex® 2100 Impregnating varnish**

Varnish composed of polyester imide / phenolic resin.

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### **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.

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### **Base**

Polyester imide / phenolic resin

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## Color

Transparent

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## Storage

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

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## 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

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## 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.

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## Processing

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

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## 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 06/24

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Chemical	Unit of measure	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	
VOC acc. 31. BImSchV	%		50.5	2010/75/EU

Electrical	Unit of measure	Value	Test method
Specific volume resistance at 23 °C	$\Omega \cdot \text{cm}$	$\geq 10^{15}$	acc. IEC 60455-2, test method acc. IEC 60093
Specific volume resistance after 96 h water immersion	$\Omega \cdot \text{cm}$	$\geq 10^{15}$	acc. IEC 60455-2, test method acc. IEC 60093
Dielectric strength at 23 °C and 50 % r.h.	kV/mm	$\geq 100$	acc. IEC 60455-2, test method acc. IEC 60243-1
Dielectric loss factor at (AC, 23 °C, 50 Hz)		$\leq 20 \times 10^{-3}$	acc. IEC 60455-2, test method acc. IEC 60250

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Electrical	Unit of measure	Value	Test method
Dielectric loss factor at 155 °C and 50 Hz		$\leq 100 \times 10^{-3}$	acc. IEC 60455-2, test method acc. IEC 60250
Dielectric constant at 23 °C between 50 Hz and 1 MHz		$3.0 \pm 0.5$	nach IEC 60455-2, Prüfverfahren nach IEC 60250
Dielectric constant at 155 °C and 50 Hz		$5.0 \pm 0.5$	acc. IEC 60455-2, test method acc. IEC 60250
Loss factor cross section $0.2 = 200 \times 10^{-3}$	°C	$\geq 170$	acc. IEC 60455-12, test method acc. IEC 60250

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

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