
Voltatex® 4200 1-component-resin

Voltatex® 4200 is a low emission, ready-to-use impregnating 1K dip resin, based on unsaturated polyesterimide resins.

Attributes

- single component
- free of styrene and vinyltoluene
- low emission, VOC-free
- resistant to refrigerants
- not classified as dangerous in the meaning of transport regulations

The cured resin compound is characterized by:

- high thermal and mechanical strength, especially under long-term stress
- good resistance against solvent gases
- good adhesion

Application

- hermetic motors
- transformers, especially with thick wires and shaped conductors
- suitable for: Insulation systems up to thermal class 200 (N)

Standards

- UL-File-Nr.: E 101752 (M) Underwriters Laboratories Inc., USA
- Isolation-system temperature of thermal class 200 (N) acc. to IEC 60085:2007
- Temperature Index in acc. with IEC 60455-3-5, Type 200, Testing Method in acc. with IEC 60216
- RoHS-compliant 2011/65/EU
- Reach-compliant 2006/121/EU
- polybrominated Diphenylether 2003/11/EU
- Temperature class acc. to UL 1446:

Twisted Pair ASTM D2307 MW 30:200
MW 35:220

Helical Coil ASTM D2519 MW 30:240
MW 35:220

Insulation-system acc. to UL 1446 (IEC 61858):

Class 130 C190HE
R150HE

Z130HE
Z150HE
Class 155 C290HE
CZ255HE
R201HE
R203HE
Z200HE
Class 180 R342HE
R342HE2

Delivery forms

The dip resin is delivered in 25 kg and 200 kg one-way-cans. Additionally 1000 kg containers (returnable) are available (not for oversea export).

Storage

The resin can be stored for up to 6 months at max. 25 °C if sealed correctly in original containers. We recommend a storage at 20-25 °C. Opened containers have to be resealed and protected against direct daylight!

Hardening

Voltatex® 4200 is a low emission product; nevertheless to minimize evaporation of reactive components while curing the impregnated objects

should be heated up to the curing temperature in the shortest possible time. The air flow in the curing zone should be kept to the minimum permitted by safety considerations.

Curing times (Dip & Bake process):

at 130 °C: 2h

at 150 °C: 1 h

In the cooling pool, the temperature change should be limited to max. 5 °C.

Protection

Voltatex® 4200 is biologically inactive and safe to health. Implement normal protective measures when processing the liquid dip resin: See the Material safety data sheet (MSDS).

Processing

The impregnating resin can be applied by using

- all kind of conventional dip & bake equipment
- continuous and vacuum dip processes
- VPI process

-
- Trickling machines

Unlimited tank stability with resin Voltatex® 4200 can be achieved as long as the material is kept below 25 °C and at least 20 % of the tank content is used and replaced with fresh resin per month.

Cleaning

Once cured Voltatex® 4200 is almost insoluble. Therefore, application equipment should be cleaned regularly 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 | Values | Test method |
|---|-----------------|----------|--|
| Bond strength of twisted coils room temperature | N | 325 ± 40 | IEC 60455-2 test method A acc. IEC 61033 |
| Bond strength of twisted coils 130 °C | N | 90 ± 20 | IEC 60455-2 test method A acc. IEC 61033 |
| Bond strength of twisted coils 155 °C | N | 80 ± 10 | IEC 60455-2 test method A acc. IEC 61033 |
| Bond strength of twisted coils 180 °C | N | 52 ± 12 | IEC 60455-2 test method A acc. IEC 61033 |
| Shore D hardness room temperature | | 77 ± 5 | IEC 60455-2 test method acc. ISO 868 |

| Thermal | Unit of measure | Bedingungen | Value | Test method |
|------------------------------|-----------------|-------------|----------|---------------------------------------|
| Temperature index | °C | | type 220 | IEC 60455 test method acc. IEC 60216 |
| Bond strength IEC 60317-8 | °C | MW 30 | 238 | IEC 61033, method B, final point 22 N |
| Bond strength IEC 60317-13 | °C | MW 35 | 229 | IEC 61033, method B, final point 22 N |
| Testing voltage IEC 60317-8 | °C | MW 30 | 212 | IEC 60172 |
| Testing voltage IEC 60317-13 | °C | MW 35 | 222 | IEC 60172 |

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 02/19

Voltatex® is a registered trademark of Axalta Coating Systems LLC., Philadelphia PA 19103, USA.



| Thermal | Unit of measure | Bedingungen | Value | Test method |
|-------------------|-----------------|-------------------------------------|-------|-------------|
| Heat conductivity | W(m*k)^-1 | at 23 °C, 130 °C, 155 °C, 180 °C | 0.22 | ASTM E1530 |

| Chemical | Conditions | Values | Test method |
|------------|-------------------------------------|-----------|--|
| Resistance | distilled water, transformer oil | resistant | Factory standard Energy Solutions 017 |
| Resistance | Hexane, methanol, acetone, xylol | resistant | Factory Standard Energy Solutions 019 |

| Liquid phase | Unit of measure | Values | Test method |
|------------------------------|-----------------|--|-------------------------------|
| Viscosity | mPas | 1800-2700 | at 25 °C acc. DIN 53019 |
| Gel time | min | 7-13 / 10±3 | typ. value |
| Reaction time | min | 12±4 | typ. value |
| Curing time | min | 120 | at 150 °C - dipping method |
| Curing time | min | 60 | at 130 °C - dipping method |
| Impact on enamelled wires | | compatible with all common enamelled wires | |

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 02/19

Voltatex® is a registered trademark of Axalta Coating Systems LLC., Philadelphia PA 19103, USA.



| Electrical | Unit of measure | Values | Test method |
|--|-----------------|------------------------------------|---|
| Dielectric strength at 23 °C after 96 h storage at 90 % r.h. | kV/mm | 40-90 | IEC 60455-2 test method acc. IEC 60243-1 |
| Dielectric strength at 23 °C and 50 % r.h. | kV/mm | 70-90 | IEC 60455-2 test method acc. IEC 60243-1 |
| Dielectric strength at 155 °C | kV/mm | 65-105 | IEC 60455-2 test method acc. IEC 60243-1 |
| Dielectric strength at 105 °C after 168 h oil immersion | kV/mm | 85-130 | IEC 60455-2 test method acc. IEC 60243-1 |
| Specific volume resistance at 155 °C | Ω*cm | 10 ¹⁰ -10 ¹² | acc. IEC 60455-2 test method acc. IEC 60093 |
| Specific volume resistance at 180 °C | Ω*cm | 10 ⁹ -10 ¹¹ | acc. IEC 60455-2 test method acc. IEC 60093 |
| Specific volume resistance at 200 °C | Ω*cm | 10 ⁹ -10 ¹¹ | acc. IEC 60455-2 test method acc. IEC 60093 |
| Specific volume resistance after 7 d water immersion | Ω*cm | 10 ¹⁴ -10 ¹⁶ | acc. IEC 60455-2 test method acc. IEC 60093 |

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 02/19

Voltatex® is a registered trademark of Axalta Coating Systems LLC., Philadelphia PA 19103, USA.

