AXALTA COATING SYSTEMS
Energy Solutions

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Chemical Base

Modified unsaturated polyester resin, low emission

Product Description

Single component, one pack ready to use impregnating resin, thermosetting.

Voltabas 0302 is compliant with:

- Regulation (EC) No 1907/2006 (REACH)
  - including Annex XIV (SVHC's, PBT/vPvB)
  - including Annex XVII and Regulation (EU) No 2017/1000 (PFOA)
- Directive 2011/65/EU (RoHS)
- Regulation (EU) 2019/1021 (persistent organic pollutants)

Characteristics

- single component
- free of styrene and vinyltoluene
- low emission
- very low viscosity
- no risk of fire and explosion hazards
- no dangerous good in acc. with ADR (street), RID (rail), IMDG (sea) and IATA (air) transport regulations

The cured resin compound is characterized by:

- high thermal and mechanical strength
- good resistance to solvent gases

UL-Approval

UL-File-No.: E101752 (M) Underwriters Laboratories Inc, USA

Typical Applications

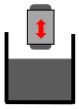
- transformers, especially with thick wires and shaped conductors
- electric motors and large drives

Ready to use; no mixing required

Voltabas 0302 is supplied ready to use and does not require the addition of hardener, accelerator or thinner.

Voltabas 0302 Impregnating Resin

Technical Data Sheet



Processing

The impregnating resin can be applied by using:

- all kind of conventional dip & bake equipment
- continuous dip machines and vacuum or vacuum pressure equipment

As we cannot foresee and mention all possible designs and applications in this Data Sheet, please get in contact with our technical service team for further advice and support if appropriate, such as trials in our technical laboratory as well as our expertise to equipment design and production scale-up. Please see the contact details on the last page.

Stability

A virtually unlimited tank stability can be achieved Voltabas 0302 is kept below 25°C and at least 20 % of the tank contents are consumed monthly and replaced by fresh resin.

Example:

Tank contents: 1,000 kg

Resin refreshment: 200 kg per month

Voltabas 0302 is **sensitive to light** and therefore must be protected accordingly! If not consumed completely opened containers have to be closed immediately again after taking out the required amount of resin.

Curing

Voltabas 0302 is a low emission product. Nevertheless, to minimise evaporation of reactive components while curing, the impregnated objects should be heated up to the curing temperature in the shortest possible time. The air exchange in the curing zone should be kept to the minimum permitted by safety considerations.

If **active cooling** after the curing process is included in the process, please ensure to not exceed a temperature reduction on the part of maximal 5 °C (5 K) per minute to minimise cracking.

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Cleaning

Once cured Voltabas 0302 is almost insoluble. Therefore, all application equipment should be cleaned in time with cleaner **Voltatex® T050** or **Voltatex® T060** (data sheets available on request).

All cleaning and maintenance of the impregnating equipment should follow operational needs and must be carried out in accordance with the equipment manufacturer's instructions.

Packaging / Stock Items

Voltabas 0302 is available in:

- 20 kg cans (non-returnable)
- 200 kg drums (non-returnable)
- upon request: 1,000 kg containers (returnable - return service provided by the IBC manufacturer; not for oversea export)

Storage

A temperature range of above -20 °C and below 25 °C is recommended as storage temperature, at lower temperatures please consult us. In originally closed delivery items, the product has a **shelf life of 12 months** if the storage temperature doesn't exceed 25 °C. We recommend storing the product between 20 – 25 °C.

Health & Safety

Completely cured Voltabas 0302 is biologically inactive and not dangerous to health.
When processing the liquid resin, please consult the Material Safety Data Sheet (MSDS) of Voltabas 0302 and follow the regulations of your local authorities.

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Product Specifications

Table 1: Specifications of the Liquid Product

Viscosity at 25 °C acc. to DIN 53019 [1)]	1100 – 1600 mPas
Storage Stability / Shelf Life at 25 °C **[2)]**	12 months
Gel Time in acc. with Company Standard Energy Solutions 014 **[1), 3)]**	
100 °C	30 – 50 min
110 °C (part of material specification)	10 – 16 min
120 °C	5 – 8 min

1) The values refer to the time of manufacturing. As the product is chemically reactive, both reactivity and viscosity can change during storage depending on the local storage conditions. Especially inside impregnating machines the product can take on individual values in dependence of material consumption / turnover and processing parameters.
2) As the product is chemically reactive, the shelf life is considered from the date of manufacturing, not from the delivery date. The shelf life of the delivered product batch is printed on the label of the delivery item or can be taken from the delivery papers.
3) Company Standard - Energy Solutions 014 „Reactivity Determination“ in acc. with DIN 46448

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Product Specifications

Table 2: Specifications of the Cured Product

Curing Condition: 2 h at 150 °C [4)]

Dielectric Strength in acc. with IEC 60455-2
Test Method in acc. with IEC 60243-1

at room temperature	≥ 40 kV/mm
at 155 °C	≥ 40 kV/mm
at room temperature, after 96 h storage at 92 % rel. humidity	≥ 40 kV/mm
at room temperature, after 96 h storage in oil at 105 °C	≥ 50 kV/mm

Volume Resistivity in acc. with IEC 60455-2,
Test Method in acc. with IEC 60093

at room temperature	≥ 10^{15} Ω·cm
at 155 °C	≥ 10^{09} Ω·cm
at room temperature, after 96 h water storage at room temperature	≥ 10^{14} Ω·cm

4) The curing condition of 2h at 150 °C refers to all measurements of the cured product and is to be understood as temperature and time on the test specimen. Other curing conditions can lead to different values than given in this data sheet.

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Typical Characteristics

Table 3: Typical Characteristics of the Liquid Product

Appearance	yellow-brown, clear (up to slightly cloudy)
Emissions while Curing in acc. with IEC 60455-3-5: 2006	approx. 0.4 % (weight) [5)]
Curing Time	
Dip & Bake Process at 130 °C	7 – 8 h
Dip & Bake Process at 150 °C	1,5 – 2 h

5) The country-specific VOC value is available on request.

The curing conditions stated here are to be understood as examples and recommendations based on best practice. They are considered from the time when the part reaches the indicated temperature. The required time to heat up the part to the curing temperature is not included. It is recommended to adapt the curing conditions to the requirements of the end product.

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Typical Characteristics

Table 4: Typical Characteristics of the Cured Product

Curing Condition: 2 h at 150 °C [4)]

Bond Strength of Twisted Coils in acc. with IEC 60455-2,
Test Procedure in acc. to IEC 61033, Method A [6)]

at room temperature	310 – 410 N
at 155 °C	130 – 190 N
at 180 °C	100 – 150 N

6) Magnet wire quality used for the preparation of the test specimen: MW 35 C, diameter 0,315 mm, grade 2, no lubricant

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Typical Characteristics

Table 5: Chemical Resistance

Solvent Vapours in acc. with Company Standard - Energy Solutions 019	resistant to: • acetone • xylene
Liquid Chemicals in acc. with Company Standard - Energy Solutions 017	resistant to: • transformer oil

Table 6: UL-Approval

Temperature Class in acc. with UL 1446

Twisted Pair	ASTM D2307	MW 35	180
Helical Coil	ASTM D2519	MW 35	200

Voltabas 0302 Impregnating Resin

Technical Data Sheet

Contact

Axalta Coating Systems Germany GmbH & Co. KG
Energy Solutions
Christbusch 25
D-42285 Wuppertal

E-mail: electricalinsulation@axalta.com

www.electricalinsulation.com

Function	Name	Desk Phone +49 202 529 -	Mobile Phone	E-Mail
Sales	Dirk Gurol	-2436	+49 173 276 4737	dirk.gurol@axalta.com
Sales	Ulrich Laubner	-2553	+49 172 290 2570	ulrich.laubner@axalta.com
Technical Service	Thorsten Heinrichs	-2492	+49 173 264 2768	thorsten.heinrichs@axalta.com
Technical Service	Ulf Koschmieder	-2321	+49 173 976 4027	ulf.koschmieder@axalta.com
Technical Service	Lars-Göran Rohrbeck	-2208	+49 173 396 9046	lars-goeran.rohrbeck@axalta.com
Technical Service	Horst Sobieroy	-2387	+49 173 650 1803	horst.sobieroy@axalta.com