
WEVOPUR 552 FL PU encapsulating system

Two-component encapsulating system based on polyurethane.

Attributes

The resin component contains a mineral filler providing the material with self-extinguish properties. The resin contains no halogenated flame-retardants and is tough elastic. WEVOPUR 552 FL ist used with WEVONAT 300. Temperature range of use: -40 °C to +130 °C.

Application

Encapsulation of electrical components like transformers, sensors, capacitors or PCBs.

Standards

Class B

RTI 130 °C

UL 94 V 0 (1.5 mm)

UL File No. E 108835

Colours:

WEVOPUR 552 FL: black (standard) or by choice

WEVONAT 300: dark brown

Delivery forms

30 kg metal containers and 250 kg barrel.

Storage

- In closed original container and dry storage between 15 °C and 25 °C, 6 months.
- Store resin (A component, polyol) and hardener (B component, Isocyanat) dry and at temperatures between 15 °C and 25 °C. Store on pallets or collecting tray and do not expose to draft.
- At temperatures below 15 °C the hardener can crystallise which can be seen by opacity and/or clumps/crystals (usually hardeners are clear, transparent liquids in spite of their dark brown colour). In this case the hardener should not be used anymore.
- At temperatures higher then 25 °C the sedimentation of fillers contained in the resin component is accelerated. As a consequence it is more difficult to prepare (stir) the resin.

Hardening

Pot life: 30 - 50 min at room temperature, depending on coat thickness and pouring volume.

Curing time: 12 - 24 h at room temperature

Complete chemical curing: 10 - 14 days at room temperature

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 04/24



-
- High air moisture may lead to forming of bubbles. Reference value: the rel. air humidity should not exceed 40 - 60 %, depending on the product. To avoid a reaction of the surface curing should be in an air conditioned room, a container with low air moisture or in an oven.
 - Elevated temperatures accelerate the curing. Curing temperature should not exceed 80 °C to avoid tensions of the resin.
 - Final hardness of WEVOPUR 552 FL will be attained after 7 - 14 days at room temperature.
 - This process can be accelerated by post curing at 60 - 80 °C for 16 - 24 h. This is relevant for potted components subject to qualification tests.
 - Electrical tests can usually be carried out straight after potting.

Protection

Observe the common protective measures acc. to EG safety data sheets and the data sheet M044 of the German Chemical Industry Association (BG Chemie) when using the liquid resin.

Processing

- Respect first in - first out principle.
- Transfer daily consumption close to the potting area well in advance to allow them to adjust to production hall temperature. Cold material has higher viscosity and flows slower/differently. This can lead to different material pressure on the mix meter machine and thus to inaccurate mix ratio.
- The filler of WEVOPUR 552 FL may sediment. Therefore WEVOPUR 552 FL needs to be homogenized (stirred) prior to use. Homogenize by using e.g. special stir gears (cup stir is better than blade mixing), a drilling machine with top-fitted stir piece or manually with a rod or spatula (no rough-textured wood, splints could get into the resin). Avoid air entrapment during stirring which may lead to humidity (drilling machine with top-fitted stir piece with 100 - 300 rpm). The sedimented filler needs to be completely homogenized (incl. possible bottom sediments).
- Without sufficient homogenization the top part of the container will contain too much resin (reactive component) and in the lower part too much filler. This leads to over/ under cross-linking. The resulting cured polyurethane will be too hard or too soft and shows different mechanical, thermal and electrical properties as indicated in the technical data sheet.
- Protect both resin and hardener against humidity.
- After homogenization the incorporated air can be removed by using vacuum. Place WEVOPUR 552 FL in the tank and apply vacuum (50 mbar is sufficient) for approx. 30 min while stirring.
- The mixing ratio should be checked and documented daily prior to start of production. Even after short breaks in production it might be useful to check the mixing ratio. Also, the density (dosage of WEVOPUR 552 FL through mixing head) should be checked. The mixing ratio indicated in the technical data sheets has to be adhered to. Deviations must not be more than 3 % referring to the hardener component.
- Excess hardener can react with humidity leading to formation of carbon dioxide and therefore to air

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 04/24



entrapments. Furthermore excess hardener usually leads to harder material. Excess resin acts as a softener. However, a minor low dosage of hardener is usually less critical than an overdosage. It is not recommended to deviate from the ideal mixing ratio to change the material properties.

Preparation of components

- Humidity adheres to every metal or plastic surface. Because humidity may lead to air entrapment during curing it might be necessary to dry components prior to encapsulating. It is sufficient to dry components for 1 - 2 hours at 60 – 80 °C in the oven. Pre-drying is particularly important for coilable materials.
- The sensitivity of encapsulating systems and hardeners against humidity and the humidity content of various plastic surfaces varies. Please consult with Synflex regarding isolated cases.
- Pre-heating of components has a positive influence on the flow behaviour of the resin. The warm component heats up the resin thus lowering viscosity. The resin penetrates the component faster and displaced air can ascent faster. The higher the component's temperature, the better the resin flows. Component temperatures of up to 80 °C do not affect the uncured resin.
- Pre-heated components do also accelerate curing.

Cleaning

Since the cured resin is practically insoluble, tools and equipment have to be cleaned in sufficient time.

Additional information

Technical data and processing instructions you will receive on request.

| Mechanical | Unit of measure | Values | Test method |
|---------------------|-------------------|--------|----------------------|
| Shore-D-hardness | | 60-70 | acc. to ISO 7619-1 |
| Tensile strength | N/mm ² | 6 | ISO 527-2 |
| Elongation at break | % | 62 | ISO 527-2 |
| E module | N/mm ² | 55 | ISO 527-2 |
| Water absorption | % | 0.4 | after 30 d immersion |

| Thermal | Unit of measure | Condition | Values | Test method |
|------------------------------|-----------------|-----------|--------|------------------|
| Thermal conductivity | W/m*K | | 0.61 | ISO 22007-2:2008 |
| Glass transition temperature | °C | | 15 | TMA |
| Coefficient of expansion | ppm/K | <10 °C | 58 | TMA |
| Coefficient of expansion | ppm/K | >20 °C | 142 | TMA |
| Thermal class | | | B | IEC 60085 |
| Curing shrinkage | % | | 1 | |
| Burning behaviour | | 1.5 mm | V-0 | UL 94 |

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 04/24



| Electrical | Unit of measure | Values | Test method |
|---|--------------------------|-------------|-----------------------|
| Dielectric strength | kV/mm | 29 | DIN EN 60243 |
| Volume resistance specific at 23 °C, 50 % r.h. | $\Omega \cdot \text{cm}$ | 10^{13} | DIN EN 62631-3-1:2016 |
| Surface resistivity at 23°C and 50 % r.h. | Ω | 10^{16} | DIN EN 62631-3-1:2016 |
| Dielectric constant ε; at 50 Hz, 23 °C | | 5.6 | DIN EN 60250 |
| Dielectric constant; at 1 kHz, 23 °C | | 4.6 | DIN EN 60250 |
| Dielectric constant ε; at 1 MHz, 23 °C | | 3.7 | DIN EN 60250 |
| Dielectric loss factor at (AC, 23 °C, 50 Hz) | | 0.117 | DIN EN 60250 |
| Dielectric loss factor tan δ ; at 1 kHz, 23 °C | | 0.0842 | DIN EN 60250 |
| Dielectric loss factor tan δ ; at 1 MHz, 23 °C | | 0.038 | DIN EN 60250 |
| Creep resistance | | CTI 600-0.1 | DIN EN 60112 |

| Glowing wire test | Unit of measure | Condition | Values | Test method |
|-------------------|-----------------|-----------|--------|---------------------------|
| Glowing wire test | °C | 3.5 mm | 960 | DIN EN 60695-2-11:2014-11 |

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 04/24



| Liquid phase | Unit of measure | WEVOPUR 552 FL | WEVONAT 300 | Resin-/hardener mixture |
|-------------------|-------------------|----------------|-------------|-------------------------|
| Mixing ratio | weight-% | 100 | 20 | |
| Viscosity (22 °C) | mPas | 6,000-7,000 | 70-120 | 1,000-1,600 |
| Density (22 °C) | g/cm ³ | 1.55-1.60 | 1.20-1.24 | |

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 04/24

