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## **WEVOPUR 403 FL PU encapsulating system**

Two-component encapsulating system based on polyurethane.

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### **Attributes**

After curing the resin has an excellent flexibility at low temperatures and thermal endurance. WEVOPUR 403 FL ist used with hardener WEVONAT 300 RE. Temperature range of use: -50 °C to +165 °C .

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### **Application**

Encapsulation of applications that require high thermal resistance and endurance, like coils, sensors or PCBs. Especially for automotive or ex-proof applications.

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### **Standards**

- Class F
- RTI 155 °C
- UL 94 V 0 (1.5 mm)
- UL File E 108835

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### **Delivery forms**

30 kg metal container and 250 kg barrel.

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### **Color**

WEVOPUR 403 FL: black (standard)

WEVONAT 300 RE: brown

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### **Storage**

6 months after production in closed original containers with dry storage between 15 and 25 °C.

- 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 than 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.

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### **Hardening**

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

Curing time: 12 - 24 h at room temperature

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Complete chemical curing: 10 - 14 days at room temperature

- 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 403 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.

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### Protection

Safety data sheets and the data sheet M044 of the German Chemical Industry Association (BG Chemie) when using the liquid resin.

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### Processing

Our processing instructions please find [here](#).

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### Cleaning

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

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| Mechanical          | Unit of measure   | Conditions | Value   | Test method                    |
|---------------------|-------------------|------------|---------|--------------------------------|
| Shore-D-hardness    |                   | 3 sec      | 40 - 50 | acc. ISO 7619-1                |
| Tensile strength    | N/mm <sup>2</sup> |            | 9       | ISO 527-2                      |
| Elongation at break | %                 |            | 40      | ISO 527-2                      |
| E module            | N/mm <sup>2</sup> |            | 110     | ISO 527-2                      |
| Water absorption    | %                 |            | 0.6     | after 30 days storage in water |
| Burning behaviour   |                   | 1.5 mm     | V-0     | UL 94                          |

| Thermal                      | Unit of measure | Condition | Value | Test method                |
|------------------------------|-----------------|-----------|-------|----------------------------|
| Thermal conductivity         | W/m*K           |           | 0.73  | DIN EN ISO 22007-2:2015-12 |
| Glass transition temperature | °C              |           | -6    | TMA ISO 11359-2:2021-11    |
| Coefficient of expansion     | ppm/K           | <-10 °C   | 42    | TMA ISO 11359-2:2021-11    |
| Coefficient of expansion     | ppm/K           | >5 °C     | 146   | TMA ISO 11359-2:2021-11    |
| Thermal class                |                 |           | F     | IEC 60085                  |

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| Electrical                                             | Unit of measure          | Value     | Test method           |
|--------------------------------------------------------|--------------------------|-----------|-----------------------|
| Dielectric strength                                    | kV/mm                    | 30        | DIN EN 60243          |
| Specific volume resistance                             | $\Omega \cdot \text{cm}$ | $10^{14}$ | DIN EN 62631-3-1:2016 |
| Surface resistivity at 23°C and 50 % r.h.              | $\Omega$                 | $10^{15}$ | DIN EN 62631-3-2:2016 |
| Dielectric constant $\epsilon$ ; at 50 Hz, 23 °C       |                          | 5.7       | DIN EN 60250          |
| Dielectric constant; at 1 kHz, 23 °C                   |                          | 5.3       | DIN EN 60250          |
| Dielectric constant $\epsilon$ ; at 1 MHz, 23 °C       |                          | 4.7       | DIN EN 60250          |
| Dielectric loss factor $\tan \delta$ ; at 50 Hz, 23 °C |                          | 0.04      | DIN EN 60250          |
| Dielectric loss factor $\tan \delta$ ; at 1 kHz, 23 °C |                          | 0.04      | DIN EN 60250          |
| Dielectric loss factor $\tan \delta$ ; at 1 MHz, 23 °C |                          | 0.03      | DIN EN 60250          |

| Liquid phase      | Unit of measure   | WEVOPUR 403 FL | WEVONAT 300 RE | Resin/hardener-mixture |
|-------------------|-------------------|----------------|----------------|------------------------|
| Mixing ratio      | Gew-%             | 100            | 14 weight-%    |                        |
| Viscosity (22 °C) | mPas              | 12.000-18.000  | 10-40          | 2,000-3,000            |
| Density (22 °C)   | g/cm <sup>3</sup> | 1.62-1.68      | 1.20-1.24      |                        |

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**Product datasheet**

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