

# Wepuran casting compound

## VU 4459/41 SV-HF



### Base: Polyurethane resin (PUR)

- blue
- free of halogen containing fire protection agents
- low heat generation and low shrinkage pressure while curing
- excellent mechanical strength
- best flame class: UL 94 V-0  
 Approbation No. File E 99285 (N)  
 registered trademark of Underwriters Laboratories Inc.; Northbrook, Illinois 60062

**Index:** **VU** = casting compound, opaque  
**41** = mixing ratio 4:1  
**SV** = self-extinguishing  
**HF** = halogen-free

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Please read this technical report, the material safety data sheet according to EEC 91/155 and the Technical Information TI 15/2 "Selection criteria and processing instructions for casting compounds/casting resins" (see item 7) carefully before using the product.

## 1. General information

The Wepuran casting compound **VU 4459/41 SV-HF** is a solvent-free, 2-pack casting compound based on polyurethane resin that already cures at room temperature. The casting compound **VU 4459/41 SV-HF** is halogen-free (index HF) and conforms to the best flame class UL 94 V-0.

## 2. Application

The Wepuran casting compound **VU 4459/41 SV-HF** is a casting resin system, specially developed for electronics/electrical engineering, which is field-proven as an embedding material and for the encapsulation of electronic components and assemblies for insulation as well as protection against corrosion and mechanical attack.

The Wepuran casting compound **VU 4459/41 SV-HF** is particularly suited for the following applications:

- Casting and embedding material for high-quality and shock-sensitive electronic components that must not be subjected to heat development in the curing phase or shrinkage/pressure load during operation, owing to thermal shocks (e. g. glass diodes, sensors),
- Casting compound for sensor technology,
- Sealing and embedding of heat detectors, cup condensers, mini and print transformers, cables and cable-end connections,
- Temperature resistant sealing compound,
- Protecting equipment and components from weathering and humidity attack,
- Casting compound for magnetic and transformer coils,
- Implosion protection for TV picture tubes,
- Bonding, sealing and coating battery and accumulator cases,
- Casting compound for lifting solenoids,
- Embedding compound for high tension cascades and cables for TV technology,
- Casting compound for HF parts, e.g. high frequency coils.

## 3. Special notes

The Wepuran casting compound **VU 4459/41 SV-HF** is free of halogen- and antimony- containing fire protection agents.

Besides the Wepuran casting compound **VU 4459/41 SV-HF**, a whole range of casting compounds based on polyurethane, epoxy and silicone-rubber in various colour, viscosity and elasticity adjustments as well as with self-extinguishing (UL registered) properties are available.

Special technical reports for these products are available upon request. In our report manual these reports are filed under group 3 and 4.

## 4. Safety recommendations

→ Please read our material safety data sheet according to EWG 91/155 where you will find detailed specifications of safety precautions, environmental protection, waste disposal, storage, handling, exhaust air regulations as well as other characteristics.

→ When using chemicals, the common precautions should be carefully noted.

## 5. Characteristics

Colour/appearance		blue
Viscosity* at 20 °C EN ISO 3219/ISO 3219	Component A	2,900 ± 300 mPas
	Component B	130 ± 30 mPas
	mixture	1,800 ± 200 mPas
Density at 20°C DIN 53 217, part 2	Component A	1.52 ± 0.05 g/cm <sup>3</sup>
	Component B	1.23 ± 0.05 g/cm <sup>3</sup>
	mixture	1.44 ± 0.05 g/cm <sup>3</sup>
Pot life of mixture at 18 – 23 °C (base temperature 20 °C; set-up quantity 500 g)		approx. 80 min

\* measured with Haake RS 100, C 35/1°, D = 100 s<sup>-1</sup>,  
Viscosity measuring unit supplied by:  
Haake Mess-Technik GmbH + Co  
Dieselstraße 4, 76227 Karlsruhe, Germany  
phone +49 7 21 40 94 – 0; fax +49 7 21 40 94 – 360

## 6. Properties

The Wepuran casting compound **VU 4459/41 SV-HF** is distinguished by the following properties:

### 6.1 General properties

- self-extinguishing, conforms to best flame class as per UL 94 V-0,
- halogen-free,
- solvent-free; thus no attack of solvent-sensitive plastics and almost no nuisance caused by odour,
- easy processing,
- good flow properties; thus also suitable for component geometries that are difficult to access,
- already cures even at room temperature with very low reaction heat,
- very low volume shrinkage,
- excellent adhesion to almost all materials,
- very good protection against shock, impact, vibration,
- good resistance to water, humidity and condensate,
- good resistance to numerous chemicals and acids,
- high tracking resistance.

### 6.2 Physical and mechanical properties

Properties	Test method	Result
Shore-A-hardness*	DIN 53 505	approx. 99
Shore-D hardness*	DIN 53 505	approx. 73
Insulation class	VDE 0530	Y = 90 °C (limit temperature)

\* After 14 days storage at room temperature (18-23 °C)

### 6.3 Electrical properties

Properties	Test method	Result
Dielectric strength*	VDE 0303, part 2	31 kV/mm
Surface resistance*	VDE 0303, part 3	$2 \times 10^{14}$ Ohm
Specific volume resistivity*	VDE 0303, part 3	$3.2 \times 10^{13}$ Ohm x cm
Tracking resistance*	IEC 112	CTI > 600

\* After 14 days storage at room temperature (18-23 °C)

## 7. Processing

→ Please read our **Technical Information TI 15/2 “Selection criteria and processing instructions for casting compounds/casting resins”** for more detailed information on processing. We would gladly send you this **TI 15/2** upon request. In our report manual, this Technical Information is filed under group 15.

### 7.1 Mixing

The components are mixed in the following ratio:

**Component A : Component B = 4 : 1 (parts by weight).**

The two components (resin component A and hardener component B) are already packed in the correct mixing ratio. The volume of the container of component A is sufficient to accommodate the total quantity of component B and to allow for perfect mixing.

For mixing, we recommend using mechanical stirring equipment. For more detailed information on correct mixing please read our **Technical Information TI 15/10 “Processing of 2-pack systems”**.

We would gladly send you this **TI 15/10** upon request. In our report manual, this Technical Information is filed under group 15.



**ATTENTION:**

**Components A and B must be stored in sealed containers. In order to avoid penetration of moisture close opened containers carefully after use and consume as soon as possible.**

## 7.2 Adjustment of viscosity

The Wepuran casting compound **VU 4459/41 SV-HF** is processed in the condition supplied.



**ATTENTION:**

**Do not add solvents or thinners to reduce the viscosity.**

## 7.3 Auxiliary products

- **Accelerating agent B 4400**

By adding the curing accelerator **B 4400** not only the curing time but also the pot life is reduced. On account of this interaction, the addition of accelerating agent **B 4400** is practically limited to operation with mixing and dispensing units. By adding just 1 % of the accelerator **B 4400** the casting is tack-free after only 45 to 60 minutes.



**ATTENTION:**

**The quantity to be added refers to the quantity of component A and is stirred into component A. Then component B is added.**

- **Sealing mastic EH 13.271**

For the sealing of casting moulds and for cable outlets, we recommend our sealing mastic **EH 13.271**, which is solvent-free, self-adhesive, permelastastic, easily deformable and highly temperature-resistant.

- **Mould release agent EH 13.650**

Polyurethane resins adhere well to almost all substrates. In order to be able to remove the casting compound from the mould after curing, the surfaces of the components to be casted must be pretreated with the mould release agent **EH 13.650**. **EH 13.650** is solvent-, silicone- and grease-free.

- **Cleaning agent R 13.780**

For cleaning work place and tools, we recommend using our cleaning agent **R 13.780**. Cleaning should take place immediately after processing, as cleaning becomes increasingly difficult the further the curing process progresses.



**ATTENTION:**

**Do not use cleaning agent for washing hands since solvents remove the natural grease from skin.**

Special technical reports for these products are available on request. In our report manual, these technical reports are filed under group 4 and 13.

## 7.4 Manual processing

- Choose compound quantity only as large as can be processed within the pot life (approx. 80 minutes). Viscosity increases extremely in this time period so that after this time period casting compound can no longer be processed.
- While mixing, ensure no air is stirred in since air inclusions influence final properties of casting compound.
- Mix components A and B thoroughly.
- In order to remove possible air inclusions, evacuate casting compound, if possible, before or after potting.

Reliable manufacturers of mixing and stirring units can be named upon request.

## 7.5 Mechanical processing

When using mixing and dispensing equipment the pot life is irrelevant.

For volumetric mixing and dispensing equipment:

→ Since the mixing ratio is indicated in parts by weight, the corresponding quantities to be dispensed must be converted with the help of the densities of component A and component B (see item 5).

Reliable manufacturers of such equipment can be named upon request.

## 8. Drying/curing

The curing time depends on the quantity of the casting compound applied per item. Smaller quantities require a longer period of time, larger quantities cure faster. After approx. 24 hours at room temperature (18 - 23 °C) a casting compound of 25 g is cured to such an extent that the item can be handled. However, final hardness (shore A approx. 99) is reached after 14 days.

Curing can be accelerated considerably by applying heat. However, when choosing the temperature, the heat sensitivity of the item in question must be taken into account.

The following specifications for a quantity of 25 g serve as a guideline:

	Room Temperature (18 - 23°C)	60 °C
Shore-A hardness (approx. 99)	14 days	6 h

## 9. Standard packaging

The Wepuran casting compound **VU 4459/41 SV-HF** is packed for delivery as follows:

Component A in one carton	Component B in one carton	Selling unit [kg]
4 buckets of 4 kg	4 cans of 1 kg	20

Partial lots of the selling unit may be ordered, but will entail surcharges to cover repackaging costs.

## 10. Storage

In a cool, dry place, sealed original containers can be stored for at least 9 months.

In accordance with EN ISO 9001, labels on containers show expiry dates.



### ATTENTION:

**Temperatures in excess of +25 °C and repeated opening of containers reduce durability. In order to avoid penetration of moisture close opened containers carefully after use. Consume opened containers as soon as possible.**

## Any questions?

We would be pleased to offer you advice and assistance in solving your problems. Free samples and technical literature are available upon request.

The above information as well as advice given by our Application Technology Department whether in verbal or written form or during product evaluations is provided to the best of our knowledge, but must be regarded as non-binding recommendations, also with respect to possible third-party proprietary rights.

The products are exclusively intended for the applications indicated in the corresponding technical data sheets.

The advisory service does not exempt you from performing your own assessments, in particular of our material safety data sheets and technical information sheets, and of our products as regards their suitability for the applications intended. The application, use and processing of our products and of the products manufactured by you based on the advice given by our Application Technology Department are beyond our control and thus entirely your responsibility. The sale of our products is effected in accordance with our current terms of sale and delivery.