



# TECHNICAL DATA SHEET

## VILEPOX<sup>®</sup> NP-9 and NP-9LV casting and laminating systems

### Application:

Production of glass- or carbonfiber reinforced laminates, castings of small electrical parts and impregnation of coils. It hardens at room temperature, but it demands additional post-curing at elevated temperature.

### Benefits:

- excellent mechanical properties
- excellent wetting properties of glass or carbon fibers and fillers.
- very good chemical resistance
- excellent dielectric properties
- very good thermal stability and Martens heat distortion temperature
- solvent free system

### Specification of the components

	Vilepox <sup>®</sup> NP-9 „A”	Vilepox <sup>®</sup> NP-9LV „A”	Vilepox <sup>®</sup> NP-9 „B”
<b>Characteristics</b>	Oldószermentes, közepes viszkozitású epoxigyanta	Oldószermentes, alacsony viszkozitású epoxigyanta	Cikloalifás poliamin
<b>Appearance</b>	colourless, opalescent liquid	colourless, opalescent liquid	colourless or slightly yellowish, clean, homogenous liquid
<b>Density at 25 °C, g/cm<sup>3</sup></b>	1,14 - 1,18	1,14 - 1,18	0,92-0,96
<b>Viscosity at 25°C, mPas</b>	10 000-14 000	5 000 – 7 500	5-40
<b>Flash point, °C</b>	> 200	> 200	
<b>Non-volatile matter content, %</b>	99,6	99,6	99,8
<b>Epoxy equivalent, g/mol</b>	182-194	182-194	
<b>Storage</b>	min. 12 months*	min. 12 months*	min. 12 months
<b>Shelf-life</b>	in tightly closed, original containers at 5-20°C, in a dry place far from heaters **		
<b>Inflammability</b>	III. grade	III. grade	III. grade

### Specification of the mixture

#### **Mixing ratio:**

VILEPOX NP-9 or NP-9LV component „A”  
VILEPOX NP-9 or NP-9LV component „B”

100,0 parts of mass (kg)  
23,0 parts of mass (kg)



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**Curing conditions:** This system hardens at room-temperature, but needs post-curing for **2 hours at 120 °C**. Post-curing may be done any time later on, e.g. when a certain amount of pieces is ready for curing. However the system reaches its best properties with the following curing cycle: **2 hours at 60 °C + 2 hours at 120 °C!**

	Properties of the mixture
Initial viscosity at 25 °C, mPas	1500-2500
Potlife at 25°C, hours	appr. 1
Gel time at 25°C, 100 g, min	100-180

	Properties of the hardened material*
Tensile strength , N/mm <sup>2</sup>	min 80
Compression strength, N/mm <sup>2</sup>	min. 120
Bending strength, N/mm <sup>2</sup>	min. 100
Water absorption, at 25°C, %:	max. 0,2
Martens valuet** of NP-9, °C	min. 140
of NP-9LV, °C	min. 120
Specific surface resistivity, Ohm	min. 10 <sup>15</sup>
Specific volume resistivity, Ohmxcm	min. 10 <sup>14</sup>
Dielectric strength at 25°C, kV/mm	min. 12

\* The above-specified curing times are calculated from the moment, when the total volume of impregnated element reaches the curing temperature. Thus the actually needed curing time elongates by the time needed for warming up the pieces. The curing time should be determined individually for each impregnated element, depending on its size, shape, specific weight and dryer type.

Therefore the curing time and temperature may be different and the technical properties may be also vary accordingly.

\*\*Martens value slightly depends on the baking temperature, thus higher baking temperature causes a few degrees higher Martens-value as well.

## Labour safety information

**During work:** Closed working-clothes, safety-goggles and gloves have to be worn.

**Skin protection:** A skin-protective cream has to be applied on hands before starting work.

**Removing the material from the skin:** The material has to be absorbed with a dry clothe or paper and the skin has to be washed with soapy warm water and dried, then a protective cream should be applied.

**Ventilation:** The working place has to be ventilated 3-5 times an hour. Workers should avoid breathing in the vapours.

**First-aid:** In case the material gets to the eyes, they should be rinsed thoroughly with water for 15 minutes and the injured person should see a doctor as soon as possible. From skin the material should be removed as above. Contaminated clothes should be taken off immediately.



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In case somebody feels unwell after breathing in vapours he has to be taken on open air and see a doctor as soon as possible.

For detailed safety and environmental information see the „Safety data sheets” of the products.

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## **Information on application**

- Temperature of the components should stay between 15-25 °C during mixing.
- Recommended mixing ratio must be kept.
- Components have to be mixed thoroughly to get absolute homogeneity. The mixture can only be used within the potlife.
- In case of production of glass- or carbonfiber reinforced composites the wetting should be made at 40-60 °C to get a decreased viscosity, which ensures the perfect wetting of fibers.
- The composite must be baked after impregnation. The suggested curing cycle: 2 hours at 60 °C + 2 hours at 120 °C.
- Heat distortion temperature of the resin is appr. 140 °C, while with glassfiber it is 10-30 °C higher. The higher the glassfiber content the higher is the heat distortion temperature.
- In case of production of castings, the parts should be prepared in an amount, that can be casted within the potlife.
- For cleaning the tools and brushes Vilepox® H-1 should be used.

The information contained in this data sheet has been collected on the basis of our best engineering knowledge, however, it is not intended to provide any legal commitment.

May 2008.

Vilepox® NP-9 and NP-9LV ENG 4.