



TECHNICAL DATASHEET

VILEPOX®/VILTER® systems Vilepox® NP-11 AC baking epoxy system

Temporary data sheet

Application:

Baking epoxy system for production of glass- or carbonfiber reinforced laminates using pultrusion technology.

It gives the advantage of H class, wide range of application, very high Martens value and good wetting properties of glass or carbon fibers and fillers.

Characteristics:

- excellent thermal resistance and Martens heat distortion temperature
- excellent dielectric properties
- excellent mechanical properties
- very good chemical resistance
- excellent wetting of glass- or carbon-fibers at 40-80 °C
- solvent and halogene free system
- satisfies the requirements of RoHS

Specification of the components:

CHARACTERISTICS	STANDARD	UNIT	VALUE	
			VILEPOX NP-11 AC component „A”	VILEPOX NP-11 AC component „B”
Description	-	-	modified epoxy resin	mixture of special polyamines
Appearance	HSZ 003	-	pale yellow, clear, transparent liquid	yellowish-brown, clear, transparent liquid
Density (25 °C)	HSZ 004 (ISO 1675)	g/cm ³	1,14 - 1,18	1,00 - 1,04
Viscosity (25°C)	HSZ 010 (ISO 2555)	mPas	10000 - 14000	250 - 450
Solid content	ISO3251:2003	%	>99,8	>99,8
Flash point	ASTM D93	°C	>165	>130
Storage conditions	-	-	in a dry place far away from direct heat, in tightly closed containers at 5-25°C	
Storage stability	-	month	min. 12	min.12
Packaging*	-	kg	30	7,5
Transport	-	-	metal can	metal can
Inflammability	-	class	III.	III.

* Other packaging is also available on request



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Specification of the mixture:

Mixing ratio: **VILEPOX NP-11 AC component „A”** **100 parts of mass (kg)**
VILEPOX NP-11 AC component „B” **25 parts of mass (kg)**

CHARACTERISTICS	STANDARD	UNIT	VALUE
Gel time (at 120 °C, 100 g)	HSZ 012	minutes	21 - 36
Gel time (at 150 °C, 100 g)	HSZ 012	minutes	12 - 24
Gel time (at 180 °C, 5 g)	HSZ 012	minutes	2 - 5
Density (at 25 °C)	HSZ 004 (ISO 1675)	g/cm ³	1,10 - 1,15
Initial viscosity (at 25 °C)	HSZ 010 (ISO 2555)	mPas	7000 - 9000
Initial viscosity (at 50 °C)	HSZ 010 (ISO 2555)	mPas	100 - 300
Potlife at 50 °C: Time of doubling of viscosity, 100 g, at 50 °C Time of tripling of viscosity, 100 g, at 50 °C Viscosity up to 1500 mPas, 100 g, at 50 °C	HSZ 010 (ISO 2555)	minutes	> 35 > 70 > 180

Properties of the hardened material:

Suggested curing conditions:** 2,5 hours at 90 °C and 5 hours at 160 °C*

CHARACTERISTICS	STANDARD	UNIT	VALUE
Tensile strength	MSZ EN ISO 527-1,2:2012	N/mm ²	>90
Flexural strength	EN ISO 178:2010	N/mm ²	>110
Compression strength	EN ISO 604:2003	N/mm ²	> 255
Glass transition temperature, Tg	ISO 11357-2	°C	160-170
Martens value**	ISO 14577	°C	>170
Dielectric strength at 25°C	IEC 243	Kv/mm	>12
Surface resistivity	IEC 93	Ω (Ohm)	>10 ¹⁵
Volume resistivity	IEC 93	Ω x cm	>10 ¹⁴
Water absorbance, at 25°C-on, 10 days	ISO 62	%	max. 0,2

* 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.

The curing time and temperature may be different, then the technical properties may also vary accordingly. However curing temperature always should be above 100 °C.

**Martens value slightly depends on the baking temperature, thus higher baking temperature might cause a bit higher Martens-value.



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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 best results can be obtained at elevated temperature, e.g. at 40-80 °C. It provides low viscosity necessary for perfect wetting.
- The composite must be baked after impregnation. The suggested curing cycle: 2,5 hours at 90 °C + 5 hours at 160 °C.
- Martens value of the resin is appr. 170 °C, while with glassfiber it is 10-30 °C higher. The higher the glassfiber content the higher the Martens value.
- For cleaning the tools and brushes Vilepox H-1 should be used.

Labour safety information:

- **During work:** Closed working-clothes, safety glasses and gloves have to be worn.
- **Skinprotection:** 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 clothes or paper and the skin has to be washed with soapy warm water and dried, then creamed with a protective cream afterwards. The dirty paper or clothes used for absorption should be disposed to a plastic container or sack.
- **Ventilation:** Give adequate ventilation to the premises where the product is stored and/or handled. 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 worker should see a doctor as soon as possible. From skin the material should be removed as above.
- Contaminated clothes should be taken off immediately. 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.
- **Labour safety and environmental information is detailed in the „Safety data sheets” of the components.**

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.



April, 2016.

Vilepox NP-11 AC EN 1.