

NH 91/Z and NH 91 LV/Z



VUDAP IMPREGNANTS

Characteristic

NH 91 is a single-component impregnating resin based on unsaturated polyester resin dissolved in reactive diallyl-phthalate. It has a clear to slightly cloudy appearance of glowing coloration. There is little emission (VOC) released during curing. Does not pollute the work environment, does not create a fire hazard, with no odor. Waste air does not need to be cleaned.

Impregnation is characterized by the following properties:

- excellent thermal resistance
- resistance to freon and transformer oils
- very good mechanical strength
- the cleanliness of the systems surface after impregnation
- minimum losses during curing
- short curing time
- customizable processing properties according to customer requirements

Field of application

NH 91 is designed for trickling impregnation of high-mechanically and thermally loaded alternator windings and high-speed electric rotary machines for household appliances and hand tools. It is in temperature class H (180 °C).

Processing

NH 91 can be processed on closed impregnation devices at atmospheric pressure by trickling, while ensuring good suction of the vapor produced during curing. Exact instructions for processing will be provided depending on the customer's processing method.

Since it is a one-component system, mixing of additional additives are not required before use. To reach the maximum life of the impregnant, its operating temperature is recommended to be max. 23 °C.

When handling the impregnator, follow the safety instructions in the **Safety Data Sheet**.

To clean the equipment and work tools from undamaged impregnant it is recommended to use VUKI thinner T5.

Hardening

Curing conditions:

- Conventional curing: 15 – 30 min from reaching 130 °C in windings
 10 – 15 min from reaching 140 °C in windings
- Oven has to be equipped with vapor extraction



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Processing properties

Parameter	Standard	Condition	Value	Unit	Description
Density	STN EN ISO 2811-1	20 °C	1130 – 1180	kg/m ³	
Flow time	DIN 53 211 (DIN cup 4)	25 °C	110 – 150 50 – 80 *	S	* valid for NH 91 LV/Z
Stability		23 °C	min. 6	month	
Flash point	STN EN ISO 2592		>145	°C	
Saturated steam pressure		25 °C	0,0013	mbar	
Reaction time	STN EN 60455-2	100 °C	7 – 12		
Exothermic temperature	STN EN 60455-2	130 °C	210 – 240		
Gel time	DIN 16 945	100 °C 130 °C	6 – 11 1,5 – 3	min	
VOC			3 – 4,5	%	
Hardening time		130 °C 140 °C	15 – 30 10 – 15	hour	from reaching mentioned temperature in the winding
Effect on enameled wires	STN EN 60851-4,5 STN EN 60317		suitable		compatible with all commonly used wires

Parameters after hardening

Parameter	Standard	Condition	Value	Unit	Description
Drying in thick layer	STN EN 60464-2	1 h at 100 °C + 2 h at 130 °C	I 1.1 S1 U1		sample solid, no cracks and bubbles, surface smooth, non-stick
Electrical strength	STN EN 60243-1	23 °C 180 °C after 24 h in water	> 120 > 80 > 100	kV/mm	cylindrical electrodes ø 6 mm
Volume resistivity	STN EN 62631-3-1	23 °C 180 °C after 96 h in water, 23 °C	10 ¹³ 10 ⁸ 10 ¹¹	Ω.m	
Twisted coil strength	STN EN 61 033 art. 2.1 method A	23 °C 180 °C	> 250 > 90	N	
Temperature index	STN IEC 60 216	helical coils twisted pairs	130 180	°C	



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Packing, storing and manipulation

Impregnating resin is supplied in non-returnable, clean, metal drums with weight 10 kg, 25 kg and 200kg. Alternatively, other packaging can be used according agreement. Impregnating resin is stored in tightly closed containers in a dry, ventilated place at + 5 ° C to + 23 ° C. When the storage conditions are met, the quality of the impregnating resin is guaranteed 6 months from the date of manufacture.

CAUTION: Extreme heat or contamination may result in the polymerization and deterioration of the impregnant!

Impregnating resin is classified as a dangerous product, class 9, UN: 3082.

Safety

Impregnant contains a reactive solvent diallyl-phthalate, which acts poorly toxic and in direct contact with skin and mucous membrane. Impregnant is Liquid IV. hazard class in accordance with STN 65 0201.

Safety and health instructions are given in the MSDS.

Certificates

- twisted pairs: 180 °C, thermal class H (UL file E233982)
- helical coils: 130 °C, thermal class B (UL file E233982)

NOTE

The information in this document is consistent with our best knowledge of the date of publication. This information can be a subject of revision without prior notice if new knowledge and experience are available. The data provided falls within the normal range of product properties and relates only to the specified material. These data may not apply to materials used in combination with other materials or ingredients or other processes, unless expressly stated otherwise. The data provided should not be used to set limits or used separately as a basis for the sample: they are not intended to compensate for any testing that may be necessary to make a decision as to whether the specific material is suitable for your particular purpose. Because VUKI cannot predict all variants of end-use product conditions, VUKI does not provide guarantees and has no responsibility with respect to any use of this information. Nothing in this publication is considered to be a use or recommendation to violate any patent rights.

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