

NK 50/1K



VUPOS IMPREGNANTS

Characteristic

NK 50/1K is a low to medium viscosity single-component solution of unsaturated polyesterimide resin in styrene. It has a clear appearance without mechanical impurities of yellow to yellow-red coloration. It can be prepared in variations with different viscosities: NK 50 / 1K-30, NK 50 / 1K-50 and NK 50 / 1K-90

It is characterized by the following properties:

- after curing, it is characterized by an elastic lacquer film while at the same time high mechanical strength of the winding
- purity of system surfaces after impregnation and curing
- resistance to solvent vapors, transformer oil and freons

Field of application

NK 50/1K is designed for the impregnation of electric machines of temperature up to class C (220°C). It is intended for impregnation:

- winding of electric rotary machines of general use
- transformers
- traction motors
- dynamos

Processing

NK 50/1K is intended for continuous impregnation by dipping in continuous impregnating devices. However, it is also possible to use it for discontinuous impregnation of windings, especially from low diameter, enameled wires, at atmospheric pressure and vacuum, in those cases where a low-viscosity impregnant with a high penetration capacity is required. Exact instructions for processing will be provided depending on the customer's processing method.

To achieve the maximum lifetime of the impregnant, its operating temperature is recommended max. 23 °C

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

To clean equipment and work tools from non-hardened impregnant, it is recommended to use VUKI thinner T5.

Hardening

Hardening conditions:

- Conventional curing: 2 hours from reaching 140°C inside the windings
- The oven has to be equipped with a suction device and must be non-explosive



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Processing properties

Parameter	Standard	Condition	Value			Unit	Description
			NK 50/1K-30	NK 50/1K-50	NK 50/1K-90		
Density	STN EN ISO 2811-1	23 °C	1017 – 1019	1018 – 1025	1028 – 1055	kg/m ³	
Flow time	DIN 53 211	23 °C	25 – 35	45 – 55	85 – 95	S	DIN cup 4 mm value adjustable according to customer requirements
Gel time	DIN 16 945	100 °C	15 – 30	15 – 30	15 – 30	min	
Shelf life		max.23 °C	6			month	
Flash point	STN EN ISO 2592		32			°C	
VOC			15 – 25			%	
Hardening time		140 °C	2			hour	from reaching of required 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		I 2.1 S1 U1		
Dielectric strength	STN EN 60243-1	23 °C 155 °C after 24 h in water at 23 °C after 96 h in 92 % rel.h.	70 60 35 50	kV/mm	cylindrical electrodes ø 6 mm
Volume resistivity	STN EN 62631-3-1	23 °C 180 °C after 168 h in water 23 °C	10 ¹⁴ 10 ⁹ 10 ¹³	Ω.m	
Twisted coil strength	STN EN 61 033 art. 2.1 method A	23 °C 155 °C 180 °C	> 150 > 30 > 25	N	
Bundle of wires strength	STN EN 61 033 art. 2.1 method C	23 °C 90 °C 155 °C	700 - 810 650 - 700 250 – 350	N	
Temperature index	STN IEC 60 216	helical coil twisted pairs	180 220	°C	Reinforced strength 22 N (helical coil) Test voltage 1500V (twisted pair)

Packing, storing and manipulation

Impregnating resin is supplied in non-returnable, clean drums with weight 200kg or another according agreement. Impregnating resin is stored in tightly closed containers in a dry, ventilated warehouse of max. 6 months at **max. 23 °C**.

CAUTION: Extreme heat, contamination or exposure to direct sunlight may result in the polymerization and deterioration of the impregnant!

In terms of transport regulations, the impregnating resin is classified as a dangerous product class 3, UN: 1866.



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Certification

- twisted pairs: 220 °C, thermal class C (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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