



### Characteristic

NK 50 is a low to medium viscosity 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 50/30, NK 50/60 and NK 50/90.

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

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

### Processing

NK 50 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.

The impregnant is a two component, therefore it must be mixed with the TBP initiator (tert-butylperbenzoate) before mixing in a weight ratio of 100: 1 and **mixed thoroughly**.

To achieve the maximum lifetime of the impregnant, its operating temperature is recommended max. 23 °C and weekly change of impregnating resin in impregnating tank in amount of 10% is recommended.

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

# NK 50



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## Processing properties

Parameter	Standard	Condition	Value			Unit	Description
			NK 50/30	NK 50/60	NK 50/90		
Density	STN EN ISO 2811-1	23 °C	1017 – 1020	1030 – 1055	1030 – 1055	kg/m <sup>3</sup>	
Flow time	DIN 53 211	23 °C	25 – 35	65 – 70	85 – 95	S	DIN cup 4 mm value adjustable according to customer requirements
Gel time	DIN 16 945	100 °C	15 – 30	30 – 50	30 – 50	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	70 60 35	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 <sup>14</sup> 10 <sup>11</sup> 10 <sup>13</sup>	Ω.m	
Twisted coil strength	STN EN 61 033 art. 2.1 method A	23 °C 155 °C	> 150 > 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 pair	181 228	°C	Reinforced strength 22 N (helical coil) Test voltage 1500V (twisted pair)

## Packing, storing and manipulation

Impregnating resin is supplied in non-returnable, clean barrels with weight 200kg or according to agreement. Each individual package is supplied with an appropriate amount of TBP initiator in irreversible PE bottles. Impregnating resin is to be 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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## Safety

The impregnant contains a reactive solvent.  
Safety and health instructions are given in the SDS.

## 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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## Version

2019-06-10

