1. IMPREGNATING RESINS **VUPOS/** Polyesterimide in styrene/ **NK 50/60**

CABLES IMPREGNANTS WIRES RESEARCH

Application:

Two – component impregnating resin NK 50/60 is suitable for the following impregnation

- windings of low voltage electrical rotating machines
- explosion proof electrical machines
- standard motors
- medium size special machines
- motors for pumps and drives on continual impregnating equipment.

It is also suitable for dipping or flooding under vacuum and vacuum/pressure discontinue impregnation of windings especially from medium diameters enamelled wires, where impregnating resin with medium viscosity and good penetration is required, e.g. transformers.

Charakteristics:

Impregnating resin NK 50/60 is a solution of unsaturated polyesterimid in styrene. Before processing it must be mixed with a hardener TBP in the mass ratio 100:1. Curing time is 2 hours at the temperature 140 °C after the winding has reached this temperature. Elasticity of varnish film after curing is very high, so as bonding strength of winding at elevated temperatures. It is resistant to vapour solvents, transformer oils and refrigerator liquids.

Processing data:

Density (DIN 53 217)	20 °C	[kg/m^3]	1030-1050
Flow time(DIN Cup 4)	23 °C	[s]	65-70
Shelf- life	max. 23 °C	[months]	min. 6
Flash point (Cleveland)		[°C]	32
Gel-time [1]	100 °C	[min]	30-50
Pot life of impregnating resin with hardener by 10 % throughput of tank volume per week		max. 23 °C	Unlimited
Effect of resin on enamelled wires [2]			OK

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Properties after cure:

Curing of test specimen		140 °C	[h] 2
Ability to cure in considerable thickness [3]		[degree [8]]	S 1 U 1 I 1.1
Electric strength [3,4]	23 °C 155 °C after 24 h immersion in water at 23 °C	[kV/mm]	70-80 60-70 30-40
Volume resistivity [3]	23 °C 155 °C after immersion in water for 7 days at 23 °C	[Ω .m]	10^{14} 10^{11} 10^{13}
Twisted coil test [6]	23 °C 90 °C 155 °C	[N]	250-300 150-200 40 – 50
Bundle test [6]	23 °C 90 °C 155 °C	[N]	700-810 650 – 700 250 – 350
Flexibility [5] (Mandrel test, 3 mm diameter)	23 °C		no cracks up diameter to angle 180°
Thermal endurance [7] Test criterion:	Bond strength 22 N (Helical coil) Breakdown voltage 1500 V (Twisted pairs)*	[°C] [°C]	181 228

1. DIN 16 945 Method A
2. STN 67 3150 čl. 11, met. B after 60 min at 70 °C
3. DIN 46 448 Blatt 1
4. Test specimens A2, cylindrical electrode ø6 mm
6. IEC 61033 met. A, met. C
7. IEC 60216
8. The upper side: S – smooth
   The underside : U - non tacky
   The interior: I – hard , free of bubbles
9. UL test 1446 File E233982

Packing a storage:

Impregnating resin is delivered in drums. It have to be stored in tightly closed drums at temperature max. +23 °C.

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