

1. IMPREGNATING RESINS VUPOS/ Polyesterimide in styrene/ **NK 50/1K-90**



CABLES



IMPREGNANTS



WIRES



RESEARCH



Application:

Impregnating resin NK 50/1K-90 is suitable for impregnation of windings of electrical rotating machines to temperature class C (220°C UL tested E233982)

- explosion proof electrical machines
- standard motors
- small and medium size special machines
- motors for washing machines on continual impregnating equipment. It is also suitable for dipping or flooding under vacuum and vacuum/pressure discontinue impregnation of windings especially from small diameters enamelled wires, where impregnating resin with low viscosity and good penetration is required, e.g. transformers.

Characteristics:

Impregnating resin NK 50/1K-90 is a solution of unsaturated polyesterimid in styrene. 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] | 1017-1020 |
| Flow time(DIN Cup 4) | 23 °C | [s] | 85 - 95 |
| Shelf- life | max. 23 °C | [months] | min. 6 |
| Flash point (Cleveland) | | [°C] | 32 |
| Gel-time ¹ | 100 °C | [min] | 15 - 30 |
| 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 °] | S 1 U 1 I 1.1 |
| Electric strength ^{3,4} | 23 °C | [kV/mm] | 70 |
| | 155 °C | | 60 |
| | after 24 h immersion in water at 23 °C | | 30 |
| Volume resistivity ³ | 23 °C | [Ω .m] | 10 ¹⁴ |
| | 155 °C | | 10 ¹¹ |
| | after immersion in water for 7 days at 23 °C | | 10 ¹³ |
| Twisted coil test ⁶ | 23 °C | [N] | 170-200 |
| | 90 °C | | 130-150 |
| | 155 °C | | 25 – 35 |
| Bundle test ⁶ | 23 °C | [N] | 700-810 |
| | 90 °C | | 650 – 700 |
| | 155 °C | | 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) | [°C] | 181 |
| | Breakdown voltage 1500 V (Twisted pairs) * | [°C] | 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

5. IEC 60464-2

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

* 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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