

## 3. IMPREGNATING RESINS **VUDAC/** Polyesterimide in diacrylate/ **1K-NAH 99/800**



CABLES



IMPREGNANTS



WIRES



RESEARCH

### Application:

Impregnating resin is suitable for impregnation of windings of electrical rotating machines and transformers from big diameter enameled wires and from rectangular wires.

### Characteristics:

Impregnating resin is one component solution of diluted unsaturated polyesterimide in diacrylate. Only a small amount of volatile substances avoid during curing. It is resistant to vapour solvents, transformer oils and refrigerator liquids

### Processing data and properties of liquid resin:

Density (DIN 53 217)	20 °C	[kg/m <sup>3</sup> ]	1050-1150
Viscosity	25 °C	[mPa.s]	700-1000
Shelf- life	5 - 25 °C	[months]	min. 12
Flash point (Cleveland)		[°C]	>112
Gel-time <sup>1</sup>	130 °C	[min]	2,5-4,5
Gel-time <sup>1</sup>	100 °C	[min]	8-17
Reaction time <sup>2,3</sup>	100°C	[min.]	9,5-17,5
Maximum temperature <sup>2,3</sup>	100°C	[°C]	200-240
Curing time <sup>4</sup>	130°C	[h]	2-3
Effect of resin on enameled wires <sup>5</sup>			OK



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### Properties after cure:

Curing of test specimen		150 °C	[h]	1
Ability to cure in considerable thickness <sup>2,6</sup>			[degree <sup>10</sup> ]	S 1 U 1 I 1.1
Electric strength <sup>2,7</sup>		23 °C 155 °C after 96 hrs at 92 % relative humidity at 23 °C	[kV/mm]	80-100 60-80 40-60
Volume resistivity <sup>2</sup>		23 °C 155 °C after immersion in water for 96 hrs at 23 °C	[Ω .m]	10 <sup>14</sup> 10 <sup>9</sup> 10 <sup>13</sup>
Twisted coil test <sup>8</sup>		23 °C 155 °C 180 °C	[N]	230-260 55-65 50-60
Thermal endurance <sup>9</sup>			[°C]	160-180
Thermal endurance Test criterion:		Breakdown voltage 1500 V (Twisted pairs) <sup>11</sup>	[°C]	180

1. DIN 16 945 Method A

2. DIN 46 448 Blatt 1

3. Fe-Ko after ASTM D 2471-71

4. from reached temperature 130 °C in winding

5. STN 67 31 50 part. 11, met. B after 60 min at 60 °C

6. 1 h at 100 °C + 2 h at 130 °C

7. Test specimens A2, cylindrical electrode ø6 mm

8. IEC 61033 met. A,

9. IEC 60216-1,-2

10. : S – smooth

The underside : U - non tacky

The interior: I – hard , free of bubbles

### Packing a storage:

Impregnating resin is delivered in drums. It have to be stored in tightly closed drums at temperature from +5°C to +25°C.

In terms of traffic regulations impregnating resins are not classified as hazardous product.

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