

## 2. IMPREGNATING RESINS VUDAP/ Polyesterimide in diallylphtalate/ NH 91/2Z, NH 91 LV/2Z



CABLES



IMPREGNANTS



WIRES



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### Application:

Impregnating resins NH 91/2Z and NH 91 LV/2Z are suitable for trickling impregnation method for impregnation of high temperature stressed windings of stators and rotors of high speed electrical machines for domestic appliances and hand tools up to thermal class H according to IEC - Publication 216. Windings impregnated with impregnating resins NH 91/2Z and NH 91 LV/2Z provide good reliability of machines in reversing operation, good resistance to tropical climates, and good resistance to solvents, acids, oils, freons and radioactivity. Before using the impregnating resin must be mixed with the initiator Z 83 in mass ratio 100 : 2 or 100:2,5.

### Description:

Chemical base of two – component impregnating resins are modified unsaturated polyester resin diluted in diallylphtalate. They are typical for their short cure time between 130 - 150 °C for 15 min since the required temperature is reached in the winding.

### Processing data:

			NH 91/2Z	NH 91 LV/2Z
Density (DIN 53 217)	20 °C	[kg/m <sup>3</sup> ]	1130 – 1160	1120 - 1140
Flow time:				
DIN cup 4	25 °C	[s]	110 – 150	50 - 80
ISO cup 6			75 - 110	35 - 60
Shelf- life	max. 25 °C	[months]	12	12
Pot-life	max. 25 °C	days	Min. 20	Min. 20
Flash point STN EN 22592		[°C]	>145	>145
Reaction time	100 °C	[min]	7 - 12	7 - 12
Gel-time <sup>1</sup>	100 °C 130 °C	[min]	6 - 11 1,5 – 3	6 - 11 1,5 - 3
Exothermal temperature <sup>2,3</sup>	100 °C	[°C]	210 - 240	210 - 240
Cure time <sup>4</sup>	130 °C 140 °C	[min]	15 – 30 10 - 15	15 – 30 10 - 15
Effect of varnish on enameled wires <sup>5</sup> (IEC 317 – 3, -8, -13)			suitable	suitable

Polyesterimide in diallylphtalate



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### Properties after cure:

			NH 91/2Z	NH 91LV/2Z
Ability to cure in considerable thickness <sup>2,6</sup>			1.1.1.1. <sup>10</sup> 0.1.1.1.	1.1.1.1. <sup>10</sup> 0.1.1.1.
Curing time of test specimen	130°C	[h]	2	2
Dielectric strength <sup>2,7</sup>	23°C after immersion in water for 24 hrs	[kV/mm]	120 – 140 40 - 60	120 – 140 40 - 60
Volume resistivity <sup>2</sup>	23°C 180°C after immersion in water for 96 hrs	[Ω.m]	10 <sup>14</sup> 10 <sup>9</sup> 10 <sup>13</sup>	10 <sup>14</sup> 10 <sup>9</sup> 10 <sup>13</sup>
Twisted coil test <sup>8</sup> 23°C		[N]	250 – 350	250-300
	180°C		100 - 120	100 - 120
Thermal endurance <sup>9</sup> , Test criterion:		[°C]	180	180

1. DIN 16 945 Method A

2. IEC 464 48 Blatt 1

3. Fe-Ko thermoelement according to ASTM D 2471-71

4. after the winding has reached 130 (140) °C

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

6. 1 h at 100°C+2h at 130 °C

7. Test specimen A2, cylindrical electrode fi 6mm

8. IEC 61033 met. A

9. UL EE file 233982

### Packing a storage:

Impregnating resins are delivered in 25 kg drums. They have to be stored in tightly closed drums at temperature max. +25°C

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