

Product Information

Electrical Insulation System

Impregnating resin

Dobeckan[®] ST NV 075-4475

Single component, solventless, without styrene, usable by VPI, thermal class 200

Product description

Dobeckan[®] ST NV 075-4475 is a single component impregnating resin without solvents and reactive thinners like styrene and vinyltoluene, that combines rapid cure with excellent tank stability.

Dobeckan[®] ST NV 075-4475 has been designed to give very high bond strength at typical machine operating temperatures together with a high degree of resilience to absorb thermal and mechanical shocks, which make it an ideal impregnant for Class 'H' systems (when used in conjunction with other suitable conductor and insulation products).

Dobeckan[®] ST NV 075-4475 is classified as a non hazardous material, enabling simple transport, storage and handling.

The components fulfil the directives 2011/65/EU, 2003/11/EC and 2006/121/EC. The raw materials of the components are pre-registered according to the directive No. 1907/2006/EC (REACH). The system does not contain by recipe substances listed in Article 57/Anex XIV 1907/2006/EC from 9th October 2008 (SVHC).

Areas of application

Typical applications for Dobeckan[®] ST NV 075-4475 are:

- Motors
- Generators
- Transformers

of different sizes.

Properties of the cured resin

The fully cured material has very good mechanical and dielectric properties, in particular high bond strength, even at elevated temperatures. The cured material also displays good chemical resistance.

Due to the product's thermal properties this resin type can be used for thermal class 200 acc. DIN EN 60085.

Viscosity / Gel Time

When delivered, the viscosity of the resin compound comes to 1000 ± 150 mPa.s. In tanks it should be regularly monitored and maintained within the recommended limits. A Tank Sample Testing is available upon request.

The value of the gelltime will be 6 ± 1 min at 130 °C, when the resin compound is produced. Due to time and temperature this value can decrease to 50 % of the starting value, then it will be necessary to add stabilizer.

Processing methods

Dobeckan[®] ST NV 075-4475 can be processed in all conventional impregnating plants used for the above mentioned applications, like dip, trickle and flood methods, and VPI (Vacuum Pressure Impregnation).

When using this resin system care should be taken to ensure the resin is not exposed to components with surface temperatures in excess of 40°C.

With a resin consumption of >15% per week and with the addition of fresh material, Dobeckan[®] ST NV 075-4475 can be processed almost indefinitely. Since the resin is highly reactive the temperature during storage should not exceed 25°C.

During storage and processing the resin compound should also be kept away from direct sunlight and other sources of heat.

Curing of the resin should be carried out with current or by a preheated convection oven. When the trickle or dip-roll process is used, the rotation of the objects has to be continued until the resin compound has been gelled, to avoid imbalances.

The indicated curing times are valid after the object has reached the curing temperature.

It is necessary to follow the instructions of the Material Safety Data Sheet (MSDS) for this product.

Properties of component as supplied

Property	Value	Unit
Shelf life at 23 °C	6	months
Appearance	Clear amber liquid	-
Flow time at 23°C, Beck-test V 22 following ISO 2431	-	s
Viscosity at 23 °C, Beck-test V 18 following DIN 53019	1000 ± 150	mPa.s
Density at 23 °C, Beck-test S 11 following ISO 2811-2	1.13 ± 0.05	g/cm ³

Gel time and curing conditions

Temperature	100	120	130	140	150	160	°C
Gel time, Beck-test H 17b-1 initial value when produced			6 ± 1				min
Curing time				2 - 3	1 - 2	0,5 - 1	h

Mechanical properties in cured condition

Test criterion	Condition	Value	Unit
Condition in thick layer, Beck-test M 1 following IEC 60464 part 2	Upper side	S 1	-
	Under side	U 1	
	Interior	I 1.1	
Bond strength, Beck-test M 2 following IEC 61033, method A (Twisted Coil)	23 °C	-	N
	155 °C	170	
	180 °C	110	

Temperature index

Test criterion	Limiting value	TI
Proof voltage, Beck-test M 15 following IEC 60172 (Twisted Pair)	1000 V	207
Bond strength, Beck-test M 16 following IEC 61033, method B (Helical Coil)	22 N	228

Dielectrical properties in cured condition

Test criterion	Condition	Value	Unit
Volume resistivity after water immersion, Beck-test M 5 following IEC 60464 part 2	Initial value	$> 10^{16}$	$\Omega \cdot \text{cm}$
	7 d storing	$> 10^{15}$	
Volume resistivity at elevated temperatures, Beck-test M 13 following IEC 60464 part 2	155 °C	$> 10^{15}$	$\Omega \cdot \text{cm}$
	180 °C	$> 10^{11}$	
Electrical strength after water immersion, Beck-test M 6b following IEC 60464 part 2	Initial value	135	kV/mm
	24 h storing	138	
Electrical strength at elevated temperatures, Beck-test M 6a following IEC 60464 part 2	155 °C	-	kV/mm
	180 °C	-	
Temperature at relative permittivity $\tan\delta=0,1$ Beck-test M 3b following IEC 60250	50 Hz, 1 V	97	°C
	1 kHz, 1 V	136	
	10 kHz, 1 V	180	

Effect of liquid chemicals, including water

Test criterion	Condition	Result, Value	Unit
Resistance to vapour of solvents, storage 7 days, Beck- test M 7 following IEC 60464 part 2	Acetone	not resistant	-
	Xylene	resistant	
	Methanol	resistant	
	Hexane	resistant	
Water absorption after storing, Beck-test M 9 following ISO 62	24 h at 23 °C	4,3	mg
	0,5 h at 100 °C	3,6	
Effect of liquid chemicals after 7 d storing, Beck-test M 10 following ISO 175	Ammonia solution 10 %	-	mg
	Acetic acid 5 %	5	
	Sodium hydroxide 1 %	-	
	Hydrochloric acid 10 %	13	
	Sulfuric acid 30 %	37	
	Iso-octane	1,1	
	Toluol	11,3	
	Transformer oil (mineral)	3	
	BecFluid® 9902	-	
Solution of detergent	113		

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