

**TECHNICAL DATA**

**CORONASHIELD® P 8003**  
**Conductive Air-Drying Varnish**

**DESCRIPTION**

8003 is an air-drying varnish consisting of an alkyd resin with conductive graphite filler suitable for use up to 155°C (Class F). 8003 is intended for use in resin rich (RR) and vacuum pressure impregnated (VPI) high voltage machines for external corona protection of the main wall insulation.

**APPLICATION**

A corona discharge (also called a partial discharge) is an electrical discharge caused by the ionisation of a fluid surrounding a conductor. This occurs when the potential gradient exceeds a certain value, but conditions are insufficient to cause a complete electrical breakdown or arcing. Precautions must be taken to prevent the onset of corona, otherwise free radicals and ions generated in corona reactions will rapidly destroy organic materials such as binder resins and polymer films. These materials are necessary to provide sufficient mechanical strength in a coil or bar and a tight fit in the slot. Erosion of organic materials in the insulation may be regarded as one of the initial steps leading to failure of a machine. The use of corona protection material is recommended for machine with rated voltages >5kV.

**Slot External Corona Protection**

The corona discharge occurs between the main wall insulation and the laminated stator core if the voltage exceeds a certain level. This is most critical because the erosion of the organic components of the main wall insulation will sooner or later cause a loosening of the coil or bar in the slot. Mechanical abrasion caused by vibration of the loose coil adds to the erosion caused by corona. According to statistics this failure mechanism is one of the most frequent causes for the breakdown of rotating machines.

External corona has to be prevented by applying a conductive coating on the main wall insulation.

**Scope of Application**

It is recommended a conductive layer be added to the straight portion of the high voltage coil to control electric stress and to dissipate and corona discharge that may occur. The air gap is thus shorted out and hence all of the electric stress will occur across the solid insulation.

**PHYSICAL PROPERTIES**

Resin Type	Polyester alkyd with graphite
Colour	Dark grey pigmented
Density	1.12g/m <sup>3</sup>
Solids content (DIN 46456)	54 ± 3%
Viscosity @ 23°C (DIN 53211)	80 ± 10 seconds
Viscosity @ 20°C (DIN 53211)	90 ± 10 seconds
Viscosity @ 23°C (ISO 2431)	300 ± 30 seconds
Flash point (ISO 1523)	≥ 20°C
Surface resistivity (SIB 12.04)	150 - 650 ohms
Thinner	9112 (Ethanol)
Shelf life @ 25°C in original closed containers	12 months
Pack sizes	1, 2, 5, 10, 20 & 25 Kg

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**CURE SCHEDULE**

Surface dry @ 23°C (DIN 46449)	10 - 15 minutes
Non tacky @ 23°C (DIN 46449)	15 - 30 minutes
Dry for handling @ 23°C (DIN 46449)	30 - 60 minutes
Completely dry @ 23°C (DIN 46449)	5 - 10 hours
Oven curing @ 70 - 100°C (DIN 46449)	1 - 3 hours

**PROCESSING INSTRUCTIONS**

8003 contains high density pigments which settle to the bottom of the container. The varnish should therefore always be thoroughly stirred prior to application.

8003 can be applied via brush to all surfaces. The viscosity can be adjusted with 9112 Thinner (Ethanol).

8003 should be applied in thin layers, with a recommended final film thickness of 0.20mm - 0.50mm. A drying time of 30 minutes @ 23°C should be allowed between coats to allow full solvent release.

**VPI APPLICATIONS**

For VPI applications, it is important that compatibility between 8003 and the VPI resin is verified prior to use. Curing time should be increased to 96 hours @ 23°C, or preferably a baking cycle of 3 hours @ 70 - 100°C.

**HEALTH & SAFETY**

Before use, please refer to Material Safety Data Sheets (MSDS).

**COMPLIMENTARY CORONASHIELD® PRODUCTS**

- 8004 Conductive Mastic (Internal corona protection).
- 8001 Semi-conductive Varnish (End corona protection)
- 217.01/217.21 B-stage Semi-conductive Tape (End corona protection)
- 217.02/217.22 B-stage Semi-conductive Tape (End corona protection)
- 217.31 Fully Cured Semi-conductive Tape (End corona protection)