

**TECHNICAL DATA**

**CORONASHIELD® P 8001**  
**Conductive Air-Drying Varnish**

**DESCRIPTION**

8001 is an air-drying varnish consisting of a phenolic resin with a semi-conductive filler suitable for use up to 155°C (Class F). 8001 is intended for use in resin rich (RR) and vacuum pressure impregnated (VPI) high voltage machines for end corona protection (stress grading).

**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.

**End Corona Protection (Stress Grading)**

There is an increase of electric field strength at the slot exit of the stator which can cause flashovers on the surface of the coils or bars. This can be prevented by applying end corona protection materials. These materials have a non-linear current-voltage characteristic and show a stress grading effect on the main wall surface.

**Scope of Application**

The addition of 8001 provides a semi-conductive layer at the slot exit of high voltage coils. Thus electrical stress outside the core is reduced, where the electrical field strength would otherwise lead to damage of the insulation.

**PHYSICAL PROPERTIES**

Resin Type	Phenolic polyester with semi-conductive additives
Density (ISO 2811-2)	1.28g/m <sup>3</sup>
Solids content (IEC 60464-1/-2)	52 ± 3%
Viscosity @ 20°C (DIN 53019)	1000 ± 100 mPas
Flash point (ISO 1523)	≥ 14°C
Thinner	9139
Shelf life @ 25°C in original closed containers	12 months
Pack sizes	1, 2, 5, 10, 20 & 25 Kg

**CURE SCHEDULE**

Surface dry @ 23°C (DIN 46449)	30 minutes
Completely dry @ 23°C (DIN 46449)	10 hours

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**CORONASHIELD® P 8003****PROCESSING INSTRUCTIONS**

8001 contains high density pigments which settle to the bottom of the container. The varnish should therefore always be thoroughly stirred prior to application.

8001 can be applied via brush to all surfaces. The viscosity can be adjusted with 9139 Thinner.

8001 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.

The varnish should overlap the conductive layer by 20mm. The recommended axial length of the stress grading varnish can be calculated using the following formula:

→ Length in cms from slot exit = Maximum test voltage of a coil in kV/2.

Example:

→ For an 11kV coil, the test voltage =  $11\text{kV} \times 2 = 22\text{kV} = 22000\text{V}$

→ Length =  $22000 / 2 = 11000\text{V} = 11\text{.}0\text{cms}$

**RESIN RICH (RR) APPLICATIONS**

For RR applications, either Epoflex® 215.01 or 219.61-10 finishing tapes should be applied over the semi-conductive tape as a protective covering layer.

**VACUUM PRESURE IMPREGNATION (VPI) APPLICATIONS**

For VPI applications, either a shrinkable woven polyester tape or Epoflex® 324.03 are recommended as finishing tapes.

**HEALTH & SAFETY**

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

**COMPLIMENTARY CORONASHIELD® PRODUCTS**

→ 8004 Conductive Mastic (Internal corona protection).

→ 8003 Conductive Varnish (External corona protection)

→ 215.55 Conductive Polyester Fleece Tape (Internal/external corona protection)

→ 215.51 Conductive Polyester Fleece Tape (External corona protection)

→ 215.51-03 Conductive Polyester Fleece Tape (External corona protection)

→ 432.10-01 Conductive Vetronite® Sheet (Slot packing)

→ 432.11 Conductive Vetronite® Sheet (Slot packing)

→ 92.200 Conductive Vetronite® Side Ripple Springs (Side wall slot wedging in generators)