

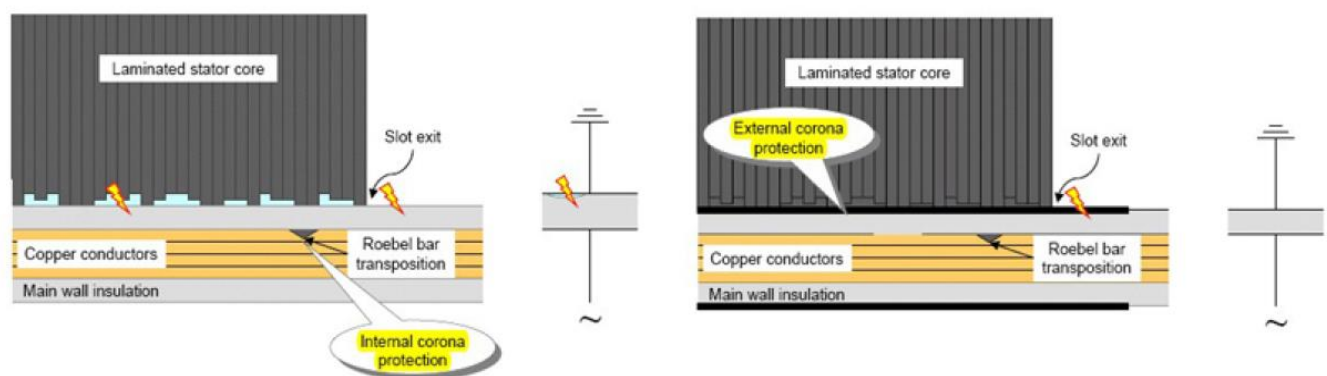
Anti corona

CoronaShield® P 8003

- Conductive varnish for slot corona protection
- Surface resistivity 150 – 650 Ω
- Suitable for RR as well as VPI
- Compatible with epoxy anhydride systems

General description

CoronaShield® P 8003 is a alkyd resin with a conductive graphite filler, for use up to class F (155°C), suitable for Resin Rich and can also be used for VPI processed machines.



Application

In electricity, a corona discharge - also called partial discharge - is an electrical discharge caused by the ionization of a fluid surrounding a conductor. This occurs when the potential gradient exceeds a certain value but conditions are insufficient to cause 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 a sufficient mechanical strength of the coil or bar and to give 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 the machine.

The use of corona protection materials is recommended for machines with a rated voltage ≥ 1 kV.

Slot respectively External Corona Protection:

The corona occurs between the outside of 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 induced 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 varnish or tape on the main wall insulation.

Properties	Unit	Value	Test norm
Density	g/cm ³	ca. 1.20	ISO 2811-2
Viscosity at 23°C	s	80 ± 10	DIN 53211
Solid content	%	54 ± 3	IEC 60464-1/-2
Viscosity at 20°C	s	90 ± 10	DIN 53211
Flash point	°C	≥20	ISO 1523
Viscosity at 23°C	s	300 ± 30	ISO 2431
Thermal class	°C	155	IEC 60085
Surface resistivity	Ohm	150 - 650	SIB 12.04
Drying time at 23°C - Surface	minutes	10 - 15	DIN 46449
Drying time at 23°C – non-tacky	minutes	15 - 30	DIN 46449
Drying time at 23°C – able to be handled	minutes	30 - 60	DIN 46449
Drying time at 23°C – Complete dry	h	5 - 10	DIN 46449

Scope of Application:

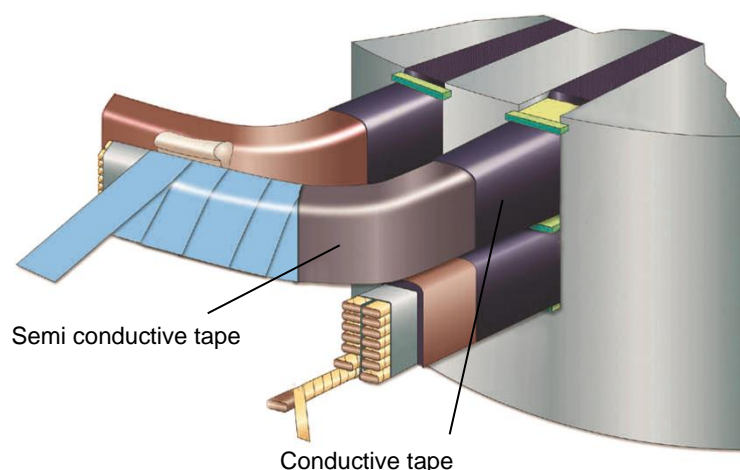
With the product, we add a conductive layer on the straight portion of high voltage coils, to control electric stress and to dissipate any surface corona discharge which may occur. The air gap is thus shorted out and hence all of the electrical stress will occur across the solid insulation.

The varnish is intended for use in Resin Rich and VPI processed machines.

Basis for selection

The selection of suitable materials depends on the type of high-voltage machine that is to be deployed as well as the insulation system and techniques that are used (VPI or RR).

Processing



Processing instructions

Because of the high density of the pigment, it settles quickly at the bottom of the container, therefore the varnish must always be stirred thoroughly before use.

The varnish can be applied with a brush to all surfaces. The viscosity can be adjusted by using the appropriate thinner 9112 or 9114.

We recommend to apply individual thin coatings, resulting in a final layer thickness of 0.2 - 0.5 mm. Between the different coatings at least 30 minutes must elapse, enabling the previous layer to dry.

Important:

For VPI applications, a compatibility test with the impregnating resin or varnish is a must. We recommend an increase of the room temperature drying to 4 days or preferably a drying 1h at 80 – 100°C.

Related products

Other End Corona Products:

- 215.51 / 215.51-03 / 215.55 Conductive polyester fleece tape (Internal/External Corona Protection)
- 215.71 Conductive glass fabric tape (Internal/External Corona Protection)
- 8004 / 8019 Conductive mastic (Internal Corona Protection)
- 432.10-01 / 432.11 Conductive Vetronite® sheet (slot packing material)
- 92200 Conductive Side Ripple Springs-Vetronite® (for side walls of slot wedges in generators)

Complementary products:

- 8001 Semi conductive varnish (mainly for maintenance)
- 217.01 / 217.21 Semi conductive tape (B-stage "slight" stress-grading characteristic)
- 217.02 / 217.22 Semi conductive tape (B-stage "strong" stress-grading characteristic)
- 217.24 Semi conductive tape (B-stage "medium" stress-grading characteristic)
- 217.31 Semi conductive tape (C-stage "medium" stress-grading characteristic)

Storage conditions

CoronaShield® P 8003 varnish should be stored in sealed original containers. Pigmented varnishes tend to settle and must be stirred before use.

Shelf life

At least 12 months at 20 – 25 °C

At least 18 months at 5 °C

Form of delivery

CoronaShield® P 8003 varnish is supplied ready for use in cans of 1, 2, 5, 10, 20, or 25 kg.

Health and safety

CoronaShield® P 8003 varnish is non toxic. We recommend however, that good hygiene practices be adopted, including hand washing and the use of barrier and cleansing creams.

The product properties set forth in this data sheet are based on the results of testing of typical material produced by the affiliated companies of Von Roll Holding Ltd. (underneath referred as Von Roll). Some variation in product properties is typical. Comments or suggestions relating to any subject other than product properties are offered only to call the end-user's or other person's attention to considerations which may be relevant in the independent determination of the use and/or manner of use of product. Von Roll does not claim or warrant that the use of its product will have the results described in this data sheet or that the information provided is complete, accurate or useful. The user should test the product to determine its properties and its suitability for the intended use. Von Roll expressly disclaims any liability for any damage, harm, injury, cost or expense to any person resulting directly or indirectly from that person's reliance on any information contained in this data sheet. Nothing contained in this data sheet constitutes representation or warranty as to any matter whatsoever. Von Roll makes no warranties whatsoever in this data sheet, expressed or implied, including any implied warranty or fitness for a particular use or purpose. Von Roll shall in no event be liable for incidental, exemplary, punitive or consequential damages