

Solutions for powder grid efficiency: SÄKAPHEN's cleaning pastes reduce maintenance costs by 75%

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The cleaning pastes SÄKA 80 and SÄKA 83 and the silicone grease SÄKA 81 developed by SÄKAPHEN GmbH offer three advantages in one product: through excellent cleaning, sealing, and protection, they can reduce the maintenance costs of ceramic, metal, resin, and plastic high-voltage insulators placed in highly contaminated and polluted environments by 75%.

High-voltage insulators are subject to ever-increasing chemical attacks from particulate matter, exhaust gases, corrosives, salts, and other airborne impurities such as sulphur dioxide or hydrofluoric acid, as well as erosion. Insulators with roughened, dirty surfaces, in particular, provide an ideal substrate for the growth of airborne contaminant deposits. Under dry conditions, such deposits reduce the devices' insulating power; in the presence of condensation or wet substrates, a thin layer of water can form that favours the crystallisation of salts: once a high concentration of salts is reached, its combination with conductive solid particles leads to discharges, with severe consequences for plant operation.





The product range consisting of the SÄKA 80 and SÄKA 83 cleaning pastes and the SÄKA 81 silicone grease ensures rapid cleaning and protection of high-voltage insulators.

The SÄKA 80.750 paste can be applied with a cloth and only needs to be polished to achieve excellent surface waterproofing and protection.



The product range consisting of the cleaning pastes SÄKA 80 and SÄKA 83 and the silicone grease SÄKA 81, developed by SÄKAPHEN GmbH and distributed in Italy by Donelli Alexo Srl, ensures the rapid cleaning and protection of high-voltage insulators, preventing electrical discharges and guaranteeing increased operational efficiency and safety for operators. The result of extensive tests and practical experience, these products have been formulated to effectively clean and protect ceramic, glass, plastic, and metal insulator surfaces even after just one treatment. That is why their fields of application have expanded over the years to cover multiple sectors: power plants, steel mills, transformer stations, railway lines, and industrial plants.

SÄKA 80.750 cleaning paste: cleaning, sealing, and protection of ceramic and metal high-voltage insulators

The SÄKA 80.750 cleaning paste was formulated and designed to protect high-voltage insulators against electrical flash-over caused by the combination of dust and moisture in the atmosphere. In addition to enabling the removal of any paint drips from pylons and other equipment in the vicinity, it forms a protective film of UV-resistant silicone resin that does not dry and creates a hydrophobic layer sealing the treated surfaces. Maintenance cycles are thus extended, and costly downtimes are significantly reduced. The SÄKA 80.750 paste is therefore the ideal product for cleaning and waterproofing smooth and abrasion-resistant surfaces in one step: it can be applied with a cloth and only needs to be polished to provide waterproofing and protection. Solvent-free and dermatologically tested, the SÄKA 80.750 cleaning paste is non-hazardous, and no special equipment or extensive personal

protection equipment (PPE) is needed during its application process. Therefore, it complies with regulations such as the following:

- Regulation (EC) No. 1907/2006 (REACH);
- Directive 67/548/EEC (dangerous substances);
- Directive 1999/45/EC (dangerous preparations);
- Annex I to Directive 76/769/EEC (component limitation and technical guidelines for dangerous goods);
- German Technical Rules for Hazardous Substances TRGS 200, 220 (classification, identification of goods, preparation, products, and safety data sheets).



A high-voltage porcelain insulator partially treated with the SÄKA 80.750 cleaning paste.



The SÄKA cleaning pastes are composed of oils that attack the layer of dirt, abrasives that pick it up, and greases that form a thin sealing layer on the treated surface.

SÄKA 83.750 cleaning paste: cleaning, sealing, and protection of plastic, resin, and silicone insulators

The SÄKA 83.750 cleaning paste was formulated and developed initially as a tailor-made solution for cleaning the delicate plastic, resin, and silicone insulators of company Uniper, mainly used in underground tunnels connecting power station generators with electrical substations, where components are exposed to high levels of dust and moisture that combine to form thick layers of contaminants. High-voltage insulators treated with the SÄKA 83.750 cleaning paste emit 35 kV at the point of partial

discharge, compared to 32 kV when using common cleaners. Additionally, this product ensures a reduced loss factor of $\tan(\delta) = 0.2\%$. It is also solvent-free and dermatologically tested. As it contains physiologically safe abrasives, oils, and greases, it is non-hazardous, and no special equipment or extensive personal protection equipment (PPE) is needed during its application process.

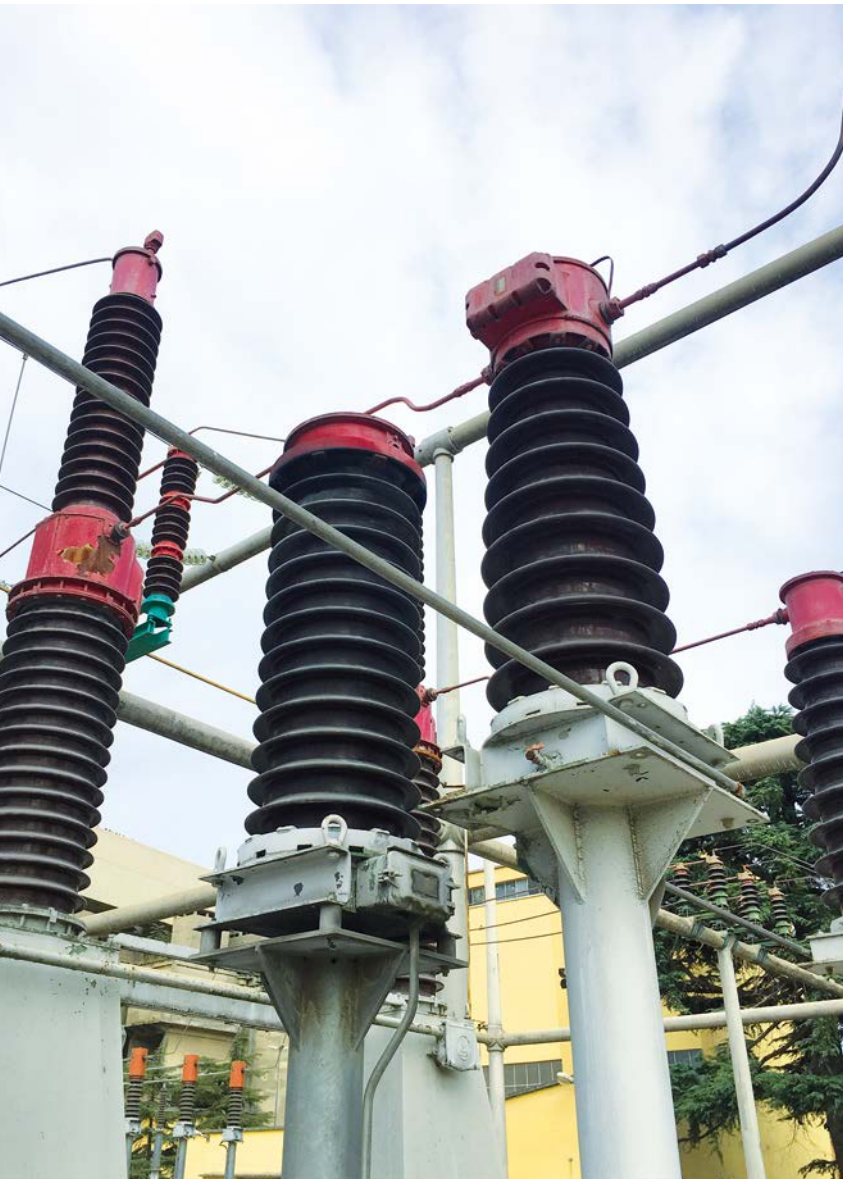
SÄKA 81.750: a dirt-repellent sealer for enhanced protection in areas with high contamination and pollution

Developed through numerous long-term tests, the high-purity methylsiloxane-based silicone grease SÄKA 81.750 is the dirt-repellent sealant of SÄKAPHEN's cleaning system, guaranteeing high protection in highly contaminated environments. Its unique viscosity properties, controlled through the presence of inorganic thickeners, prevent the formation of a water film on insulators in areas characterised by high humidity and high particulate contamination (such as areas polluted by fly ash or salts), protecting them against flash-over and irreparable damage by forming a uniform, abrasion-resistant, water-repellent protective layer.

This product can be applied with a soft brush or cloth to an approximate thickness of 0.3 mm (300 microns) and fully polished until the surface is non-stick and almost shiny, at operating temperatures ranging from -40 to +200 °C. As with the other products in this range, SÄKA 81.750 is solvent-free and contains physiologically harmless greases. Therefore, it is non-hazardous, and no special equipment or extensive personal protection equipment (PPE) is needed during its application process.



A high-voltage porcelain insulator thoroughly cleaned with the SÄKA 80.750 cleaning paste and sealed with the SÄKA 81.750 silicone grease.



Different sectors, same performance

SÄKAPHEN, therefore, can meet the multiple needs of different, ever-evolving sectors and their corrosion protection requirements thanks to the constant development of high-quality materials and advanced application methods. Its system's excellent resistance to the most aggressive acid and alkaline agents results in maintenance cost savings of up to 75%. The cleaning pastes and silicone grease of which it consists are therefore already used, as well as the power generation industry, in numerous markets including as follows:

- Railway industry – Cleaning of traction unit insulators and warning signs;
- Steel and cement production – Cleaning and maintenance of machinery and transformers subject to deterioration due to the deposition of contaminants and dust;
- Biomass and wood chip power plants – Cleaning of electrical filters for dust removal.

Multiple combinations for effective and long-lasting protection

The SÄKA cleaning pastes are composed of oils that attack the layer of dirt, abrasives that pick it up, and greases that form a thin sealing layer on the treated surface. The SÄKA silicone grease, on the other hand, is a pure grease mixture that creates a slightly thicker protective and sealing layer. Therefore, in environments with high humidity or atmospheric pollution conditions, for instance from particulate matter and pollen, it is possible to combine the cleaning paste SÄKA 80.750 with the silicone grease SÄKA 81.750 to provide ceramic insulators with additional protection, thus significantly reducing the electrical permittivity of their surfaces. On the other hand, the combined use of the sealing grease and the paste SÄKA 83.750 guarantees the same excellent results on plastic, resin, and silicone insulators. ■

SÄKAPHEN – 70 years of experience in corrosion protection

SÄKAPHEN GmbH is a family-owned company recognised internationally for the quality of its coating systems. Founded in Gladbeck (Germany) in 1954 and currently led by the third generation, it has unparalleled experience in the formulation, in-house laboratory development, and field application of corrosion protection products suitable for even the harshest environments and cleaning systems for high-voltage insulators. Through constant research and development, it continues to strive for excellence with customised, high-quality coating solutions capable of withstanding any operating conditions and meeting any customer requirements. With an extensive network of authorised applicators using its baked and cold-cured coatings and distributors of its insulator cleaning system, SÄKAPHEN serves customers all over the world, from Europe to Asia and from the Middle East to North America, enabling them to take full advantage of their assets effectively and economically through efficient resource consumption.