

SÄKAPHEN Cleaning Systems

3 in 1 insulator maintenance: cleaning, sealing, protecting



Agenda

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1. Introduction
 2. Application procedure
 3. Chemistry
 4. Application in Power Generation
 5. Application in Railways
 6. Application in Metal Industries

Introduction

The need of having a safer workplace in many industrial fields results in a higher number of maintenance cycles to limit accident loss times. This is where **SÄKAPHEN®** provides significant value to the industry.

SÄKAPHEN® offers two products for cleaning and contamination protection:

SAEKA Cleaning Paste 80750
Reinigungsmasse
für Hochspannungsisolatoren

SAEKA Silicone Grease 81750
Silikonfett
für Hochspannungsisolatoren



Introduction

SAEKA Cleaning Paste 80750
SAEKA Silicone Grease 81750

are used to

- fight the threat of strongly-soiled functional equipment or machinery
- provide a sealing function to ensure easy re-cleaning
- avoid accident loss times in functional equipment

Introduction

SAEKA Cleaning Paste 80750
SAEKA Silicone Grease 81750

are used in the following segments

- Power generation
- Railways
- Industries



Introduction



- **SAEKA Cleaning Paste 80750** protects high voltage insulators from electrical flash-over due to the combination of dust and moisture
- **SAEKA Cleaning Paste 80750** is applied on the surface of the insulator and forms a hydrophobic layer to prevent flash-over

Without cleaning
and sealing



- **SAEKA Silicone Grease 81750** is additionally recommended in areas with extremely high dust contamination

Flashover due to
contamination at
~180kV, 50Hz

Introduction



Before maintenance with
SÄKAPHEN®

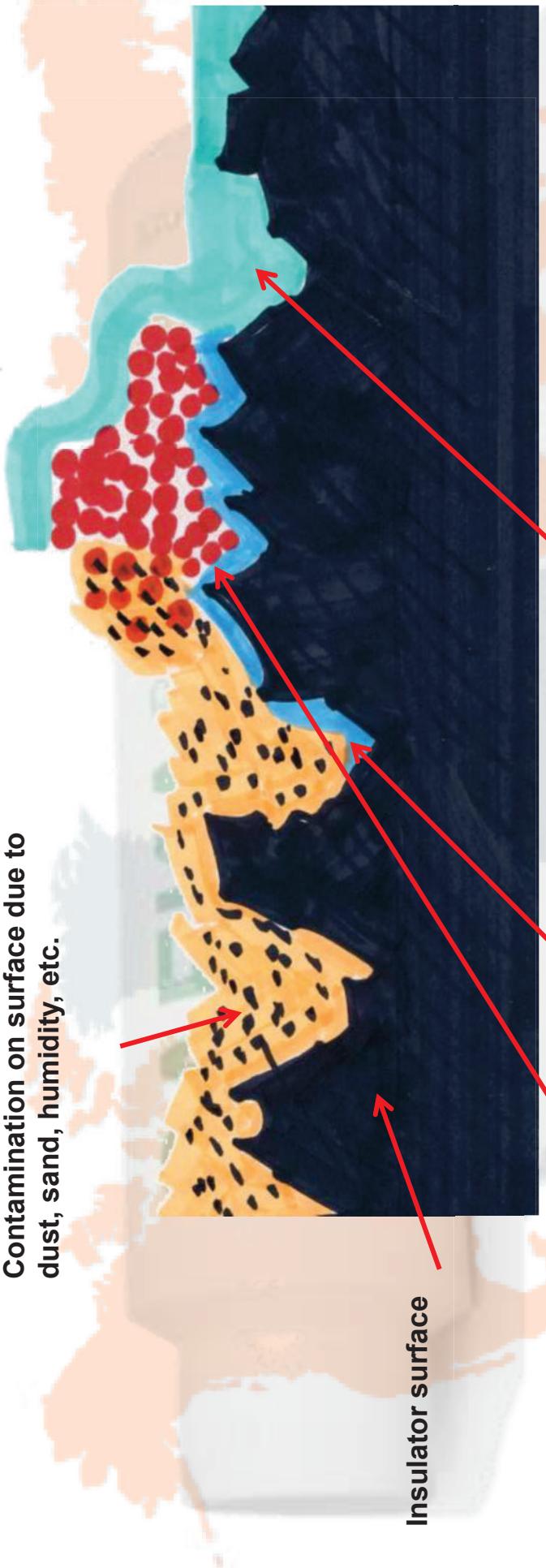


After maintenance with
SÄKAPHEN®

Practical example of a professional cleaning
and sealing exercise in electrical applications

Introduction

Contamination on surface due to
dust, sand, humidity, etc.



- **SAEKA Cleaning Paste** is a solvent free composition of various abrasives (**RED**), oils (**BLUE**) and greases (**GREEN**). The oils will undermine the dirt layer. The abrasives scrub and pick up the dirt. Finally the greases will build up a thin sealing layer.
- The **SAEKA Silicone Grease** is pure grease-mix (**GREEN**) allowing to build up a slightly thicker protection and sealing layer.

Introduction

KV	Tgδ (%) permittivity	C (pF)	GΩ surface resistance
63,5	63,5	3,52	0,042
100	100	3,60	0,043
130	130	3,75	0,043
200	200	4,25	0,043
Before	After	Before	After

1. Cleaning the insulators with **SAEKA Cleaning Paste 80750** and **SAEKA Silicone Grease 81750** significantly reduces the permittivity of the insulator surface
2. Cleaning the insulator with **SAEKA Cleaning Paste 80750** and **SAEKA Silicone Grease 81750** significantly improves the surface resistance of the insulator

Introduction

Properties of the protection film after cleaning and sealing

Density at 20° C	approx. 1 g / cm 3
Flame point	> 300°C
Drop point up to 220° C acc. to Ubbelohde	no drop point
Acid value	approx. 0.5
Dielectric constant	about 3.0 at approx. 50 Hz and 20°C
Specific resistance 20° C	10^15 7cm
Dielectric loss factor tan at 20°C	less than 0.002
Disruptive strength at 50 Hz and 20° C	approx. 100 KV / cm
Ash content	33%
Solidification point	approx. -40° C
Weight loss after 30 hrs. of heating to 200° C	less than 3 %

Application procedure



Apply a thin layer with a soft piece of cloth or rags and rub/polish. Start with the **SAEKA Cleaning Paste 80750** followed by **SAEKA Silicone Grease 81750**.

Chemistry

SAEKA Cleaning Paste 80750 and **SAEKA Silicone Grease 81750** are non-toxic (see their MSDS, sect. 2., 3. & 8.).

They are in accordance to:

1. Regulation 1907/2006 (REACH)
2. Guide line 67/548/EWG – hazardous components
3. Guide line 1999/45/EG – hazardous preparation
4. Addendum I of Guide line 76/69 EWG Component limitation
5. Technical Guide line for hazardous goods TRGS 200 – classification, identification of goods, preparation and products
6. Technical Guide line for hazardous goods TRGS 220 – Safety Data Sheet

Chemistry

SAEKA Cleaning Paste 80750 and **SAEKA Silicone Grease 81750**

are not based on wax and solvents.

- + No VOC
 - + No personal protection equipment for applicator needed
 - + No drying out of the protection layer
 - + UV resistant protection layer
 - + Good value for money: spreading rate is approx. 10sqm per tube, depending on contamination
- SAEKA Cleaning Paste 80750** 10sqm per tube
SAEKA Silicone Grease 81750 15sqm per tube

Power Generation



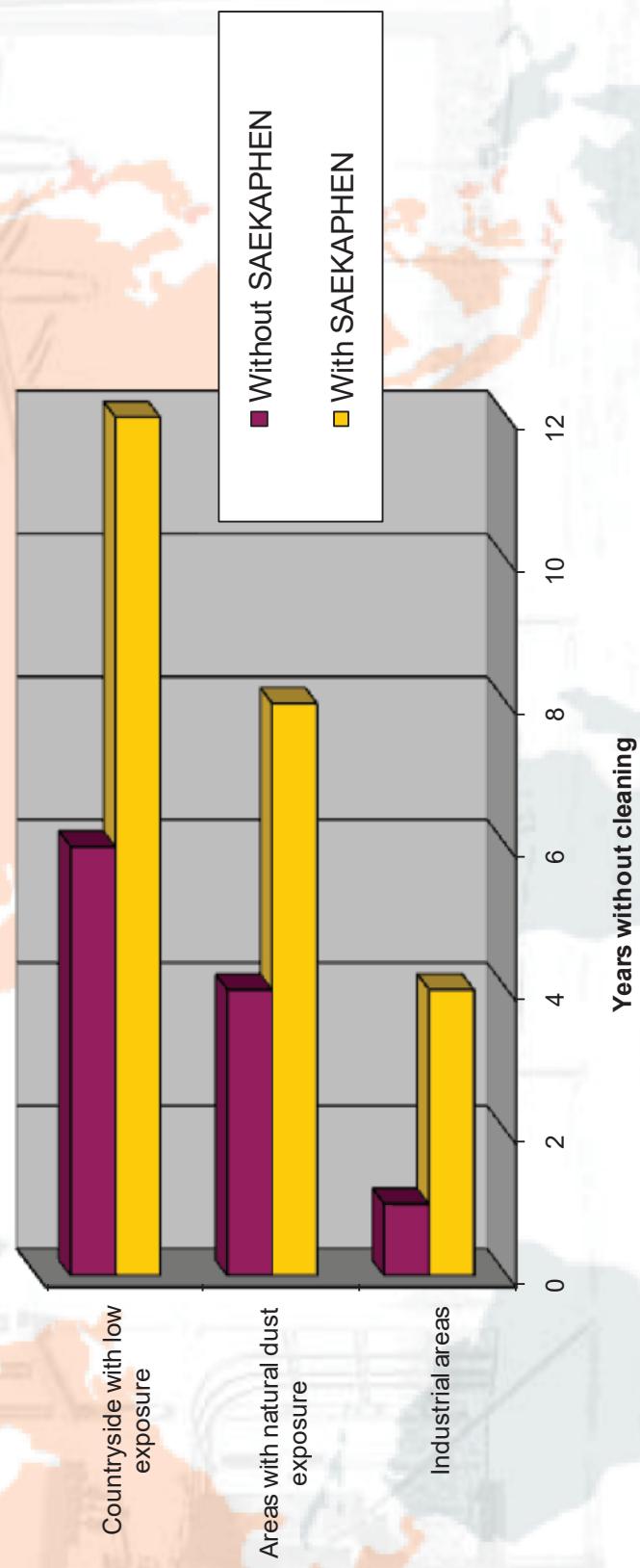
Power Generation

Application areas in the electricity industry

- The main application area is the high voltage transmission network (110 kV up to 765 kV in the US), in particular in transformer stations
SAEKA Cleaning Paste 80750 and
SAEKA Silicone Grease 81750 ensure a reliable electricity supply through a safe electricity flow
- Electrical service devices used in the industry like transformer rectifiers and switches/switchboards are also cleaned with the two products

Power Generation

Effect of SÄKAPHEN® cleaning paste on cleaning cycles of high voltage insulators



Power Generation

Commercial benefits in the electricity industry

SAEKAPHEN cleaning agents

- ensure a higher reliability of the power transmission network due to less flash-over accidents
- reduce the cleaning cycles per period due to the cleaning and sealing function of the **SAEKA Cleaning Paste 80750**
- reduce down times due to extra protection in severe environment with **SAEKA Silicone Grease 81750**



Both benefits overcompensate the price for the Cleaning agents used:

The use of **SAEKAPHEN Cleaning Agents** enables the industry to save **50 to 75 % of their maintenance cleaning costs due to the lower number of cleaning cycles required.**

Railways



Railways

The SAEKAPHEN Cleaning Agents
are used in three major segments
within the railways:

- railroad infrastructure
- railway locomotive maintenance
- high voltage transmission network



Railways

Railroad infrastructure

The **SAEKA Cleaning Paste 80750** (combined with **SAEKA Silicone Grease 81750** in case of very high pollution) makes cleaning of signs and signals easy and reliable.

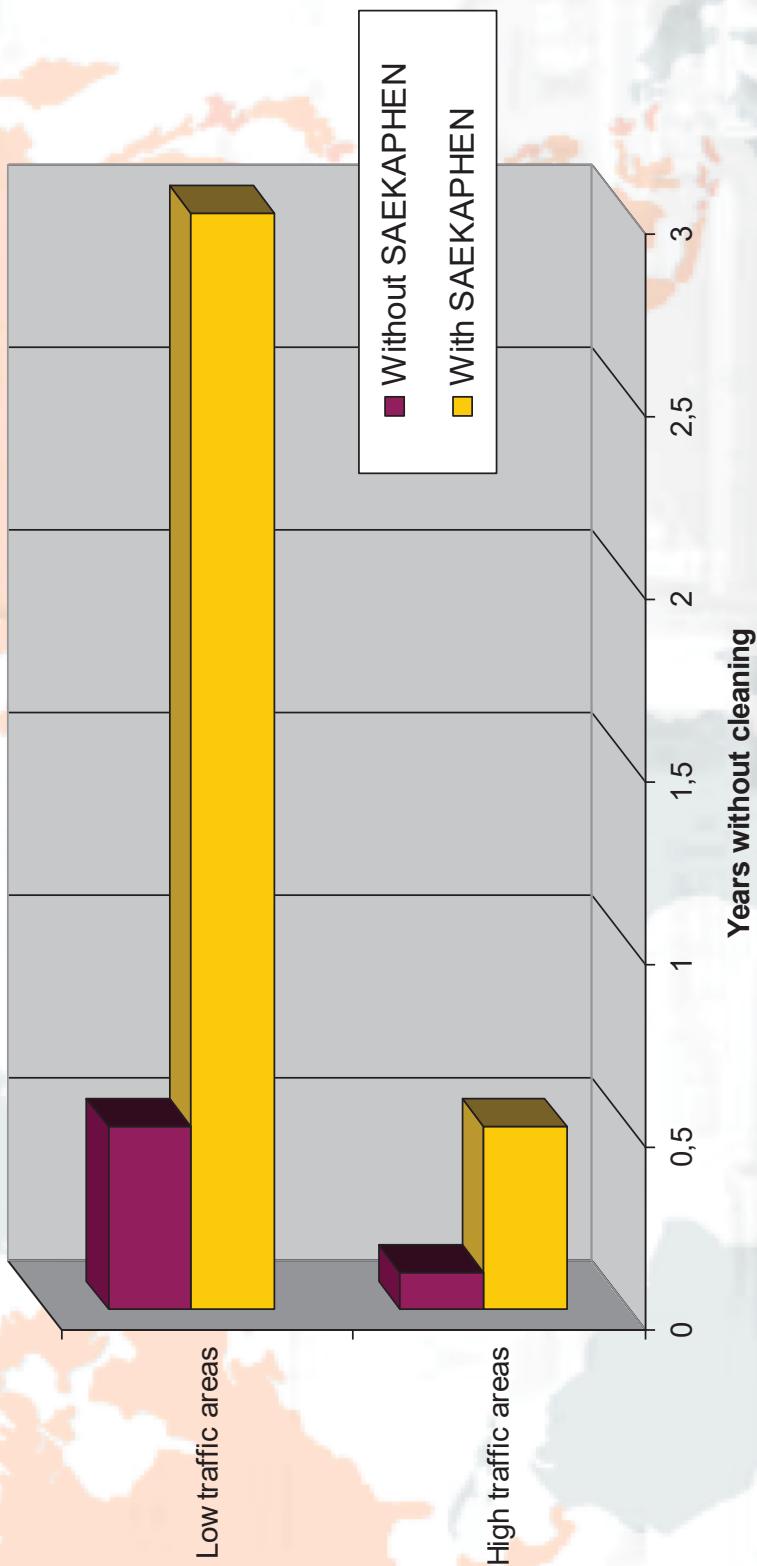


As the **SAEKA Cleaning Paste 80750** offers both a cleaning and sealing function, the product has a clear advantage compared to conventional liquid cleaning systems.

The cleaning cycles within the railroad infrastructure are dependent on the traffic volume.

Railways

Effect of SAEKAPHEN cleaning paste on cleaning cycles of signs and signals within the railways



Railways

Railway locomotive maintenance

- Insulators on top of electric locomotives and motor coaches are under higher threat of contamination by industrial and non-industrial dust than insulators in the electricity industry
- Beside flashovers a lack of efficiency is the consequence of this contamination
- As these insulators are “moving targets” for contamination, short cleaning cycles are required.

The use of **SAEKA Cleaning Paste 80750** and **SAEKA Silicone Grease 81750**

- keeps and enhances the performance of electric insulators
- keeps up a fast and efficient railway travel

Industrial application



Industrial application

SAEKAPHEN cleaning agents are used in the industry in a wide range of strongly-soiled equipment or machinery for a safe working environment.



The **SAEKA Cleaning Paste 80750** in combination with **SAEKA Silicone Grease 81750** protects and cleans electricity transformers in an industrial production environment from dust and flash rust. Again the key function is to clean and seal.

Advantages

- 3 in 1 function: cleaning, sealing, protecting
- Easy to apply: no special equipment needed. Cloth/Rags are enough. No special training is required
- Fast application: no drying time, no pre-treatment
- Physically harmless: There is not special protection needed
- No environmental pollution: The product does not contain any harmful ingredients such as solvents, detergents, etc.
- No atmospheric pollution: No emission during or after the application



3 in 1 insulator maintenance: cleaning, sealing, protecting

Reference

