

## **DELIVERING SILICONE COATED DS WITH SPECIAL CREEPAGE TO HEAVILY POLLUTED AREA- SEEGAL IN AFRICA**

**PROJECT NAME:** 225kV SWITCH YARD FOR 1 X 125 MW THERMAL  
POWER PLANT - SENEGAL

### **PROJECT SPECIAL REQUIREMENTS:**

The 225kV substation is subject to the

- heavily exposed marine atmospheres, close to the shore, with projections of spray;
- industrial atmospheres with strong sulphurous concentration

The silicone Coated Porcelain insulators shall be provided with 35kV/mm Insulation Level

### **KEY CHALLENGES:**

Design & Develop 245 KV Isolator with extra-large Insulators and 3 Second Short Circuit Performance Capability for polluted atmosphere.

Prove the short circuit performance of ES and Main Switch for extra-large insulator.

Development of Silicone Coated Insulator for Isolator with special height, very high creepage and coating qualification.

### **SUMMARY:**

New Disconnecter, Earth switch, Silicon coated Insulator developed successfully.

Type test - Mechanical Endurance test, Temperature rise test

Short Time, Peak withstand current test Completed successfully (Main Switch, 2000 A, 40 KA 3 sec)

Short Time, Peak withstand current test Completed successfully.

(Earth Switch 40 KA 3 Sec)

Customer Factory Acceptance Test completed & Project delivery met on time.

Benefits of RTV silicon coated Insulator:

### **Need of silicon coating**

*The risk of conventional insulators failing increases with the rate of pollution. Insulators can be made operationally reliable again by applying a subsequent silicone coating.*

### **Benefits of Silicone Coatings on Insulators**

#### **✓ Improved Electrical Properties**

*A pollution layer on insulators made of porcelain, cause pollution flashovers. This hazard can be prevented by regular cleaning. However, a more cost-effective and long-term alternative is a hydrophobic silicone coating on the insulator.*

#### **✓ A silicone coating improves the electrical properties, even on aged insulators.**

#### **✓ Higher operational reliability Low leakage current measured in microamps is the norm due to the outstanding hydrophobic properties. Pollution flashovers can thus be avoided, even if the surface is very dirty or even wet.**

#### **✓ Transmission reliability as well as environmental and resource conservation by efficiently utilizing generated power**

#### **✓ This saves the costs for periodic cleaning or for a replacement with insulators.**

#### **✓ Excellent self-cleaning characteristics and long-term resistance to weathering and difficult environments**

- ✓ Longer service life, Silicone coatings lengthen the service life of existing installations, thus contributing to effective resource management. Experience has shown that the service life of silicone coatings is 15 years or more

### MECHANICAL ENDURANCE TEST



### TEMPERATURE RISE TEST



## SHORT TIME WITHSTAND CURRENT TEST ON MAIN SWITCH



## SHORT TIME WITHSTAND CURRENT TEST ON EARTH SWITCH



## SILICON COATED INSULATOR

