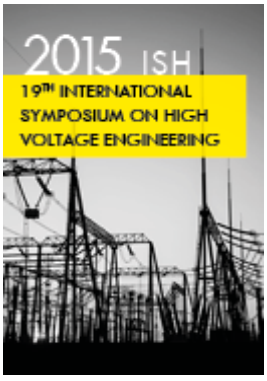
Reference: **ISH2015_565**



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Title:

Artificial pollution layer characterization on conventional and textured silicone-rubber insulators

Abstracts

Clean fog testing of artificially polluted insulators is an important tool in the design process of high voltage outdoor insulators. The new voltage ramp test in the clean fog chamber, which was recently proposed by the authors, allows differentiation of insulation materials and the assessment of insulators with and without textured surfaces, using the mean flashover voltage test results of 4 sequential ramps. The surface layer conductance is one of the key parameters that influences significantly the flashover level for a selected design and insulating material. In this work, salt deposit density (SDD) and the Non-Soluble Deposit density (NSDD), leakage conductance and the surface conductance were studied on 11kV silicone rubber insulators adopting conventional plain and textured surfaces. Each insulator was artificially polluted using the solid layer method and then tested within 24 hours after the slurry application. The conductance measurements were performed by measuring the voltage at the terminals of a shunt resistor in series with the insulator subjected to a low magnitude alternating voltage. The tests were repeated under different fog conditions and for a wide range of artificial pollution levels with both voltage and fog applied simultaneously. The selection of voltage level below 300 V permits to record the conductance of the pollution layer without the presence of dry-band or arcing. In addition, localised conductance measurements were performed using a conductance meter with a rod probe meter built according to IEC 60507. The localized measurements were performed during the layer conductance measurements at selected times after the start of the test. In conjunction with the full layer conductance measurements, it helps to characterize fully the variation trends of conductance and its distribution on the insulator surface. This contributes to better understanding of the improved flashover voltage performance of textured design when compared with conventional insulators.

More Informations :

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