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INFLUENCE OF WATER TREES CONDUCTIVITY ON CURRENTS DENSITY AND PRESSURES EMERGING IN POLYETHYLENE INSULATION

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Abstract

The analysis of the local amplification of low-frequency electric field (EF) in nonlinear polyethylene (PE) insulation with water trees (WT), which have thickening of spheroids type and cylindrical areas with different conductivity has been made. The influence of specific non-linear electrical conductivity of PE insulation, as well as its amplitude- and frequency-dependent dielectric permittivity on the EF distribution and such multi-physical degradation mechanisms of insulation as tensed volumes, total current density and electromechanical pressures at different trees conductivity has been determined. References 11, figures 2.

Key words: electric field, insulation, nonlinearity, water trees, total current, pressure, degradation.

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