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SEMICONDUCTIVE COATINGS FOR OUTDOOR INSULATION

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The developed coatings consist of silicone based insulating matrix filled with conductive filler. Such coatings when applied on the surface of NPS insulator showed an ability to increase the temperature of the NPS insulator surface by 5 - 20°C above the temperature of ambient air. The measured values were obtained at the applied voltage of 12kV (rms) which resulted in flowing currents in the range of 0.5 - 2 mA (rms) . Additional observed property of the developed semi-conductive coating is a positive temperature co-efficient of expansion of resistivity (PTCR). This is due to significant difference between coefficients of thermal expansion of both: insulating coating matrix (silicon based) and the conductive filler which results in the decreasing conductivity of the coating at increasing temperatures. Therefore the obtained coatings are self-limiting in sense of the current which can be passed through. Thus the “thermal run-effect” which can appear in the case of conventional ceramic semi-conductive insulators is prohibited in the case of the developed polymeric coatings.