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Effect of Copper Particle on the PD Characteristics in a Coaxial Duct with Mixture of SF6 (10%) and N2 (90%) Gases

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Abstract : Insulation performance of a gas insulated system is severely affected by particle contaminants. These metallic particles adversely affect the characteristics of insulating system. These particles can produce surface charges due to partial discharge activities. These particles which are free to move enhance the local electric fields. This paper deals with the influence of conducting particle placed in a co-axial duct on the discharge characteristics of gas mixtures. Co-axial duct placed in a high pressure chamber is used for the purpose. A gas pressure of 0.1, 0.2 and 0.3 MPa have been considered with a 10:90 SF₆ and N₂ gas mixtures. The 2D and 3D histograms of clean duct and duct with copper particle are discussed in this paper.

Keywords : coaxial duct, gas insulated system, gas mixtures, metallic particle, partial discharges, histograms
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