

Dielectric Recovery Characteristics of High Voltage Gas Circuit Breakers Operating with CO₂ Mixture

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Abstract : CO₂-based gas mixtures exhibit huge potential as the interruption medium for replacing SF₆ in high voltage switchgears. In this paper, the recovery characteristics of dielectric strength of CO₂-O₂ mixture in the post arc phase after the current zero are presented. As representative examples, the dielectric recovery curves under conditions of different gas filling pressures and short-circuit current amplitudes are presented. A series of dielectric recovery measurements suggests that the dielectric recovery rate is proportional to the mass flux of the blowing gas, and the dielectric strength recovers faster in the case of lower short circuit currents.

Keywords : CO₂ mixture, high voltage circuit breakers, dielectric recovery rate, short-circuit current, mass flux

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