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The effect of mechanical stress on differently thermal aged Kraft paper

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Kraft paper, as a main kind of insulation statistic in power transformer, is enduring various effects form outside all the time. These effects contain heat, mechanical stress, water and etc. The main influence factor has been pointed to be heat. The cellulose chain in paper degrades under the effect of heat, which turns to the result that Kraft paper become crisper. At this condition, if paper get stress or friction, it can fracture easily. And that announces the end of the power transformer's life. To analyze this condition, paper simulates the mechanical stress on different thermal aging paper. The experiment based on pulsed current method used needle-plate structure at partial discharge test. Under step-up applied AC voltage, developing processes of partial discharge and the characteristic of discharge were found from experiment. The results show that the mechanical stress has different influence on the different thermal aging pressboard. Especially for the middle thermal aging paper. The results can provide some help to further study on combined effect of mechanical and thermal stress for oil-immersed Kraft paper.

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