

Dielectric Strength, Breakdown Voltage and Acidity Test with Respect to Transformer Insulating Oil

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Abstract

This paper presented the qualitative assessment of transformer insulating oil. The breakdown voltage, dielectric and acidity tests were electrically and chemically carried out on sixteen samples of transformer insulating oil collected from various serving distribution transformers in Ilorin Metropolis in Nigeria, through the supply authority. The adequacy of the obtained results was determined by comparing experimental values with American Society for Testing and British Standard (BS4705) pre-requisites. About seventy five percent (75%) of the tested samples failed at least one of the tests, indicating inadequacy in the routine checks. Economic impacts of the obtained results and major causes and prevention of insulating oil degradation were also presented.

Keywords: Acidity, Breakdown Voltage, Dielectric Strength, Insulating Oil, Power Transformer