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ABSTRACT

Assessment of power transformer conditions has become increasingly important in recent years. As an asset that represents one of the largest investments in a utility's system, detection of incipient faults in power transformers is crucial.

Dissolved Das-in-oil Analysis (DGA) is a successful technique to detect these potential faults and it provides wealth of diagnostic information. This project used two DGA methods which are Rogers Ratio and IEC Ratio to interpret the DGA results. However, there are situations of errors and misleading results occurring due to borderline and multiple faults.

Also among all the diagnostic approaches, Sweep Frequency Response Analysis (SFRA) is a powerful and highly sensitive diagnostic method. In this work, for the purpose of analysis of deformation on the transformer winding, a benchmark winding is considered which has already been validated for experimental studies.

Intelligence tools are used to get the type of the faults in transformers. The results explain the validation of software to detect the fault in transformer. Fuzzy logic is implemented here as an improved (DGA) and (SFRA) interpretation methods that provides higher reliability and precision of fault diagnosis.

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