

## **FREQUENCY DOMAIN SPECTROSCOPY MEASUREMENTS FOR ESTIMATING MOISTURE CONTENT IN POWER TRANSFORMERS**

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Moisture in oil-paper insulated power transformers has an immense effect on their performance. Therefore, early identification of moist insulation using on-site electrical measurements, which is fast and easy compared with chemical analyses, is vital for avoiding sudden failures in transformers.

The results presented in this paper are from measurements on field-aged power transformers and well-defined pressboard samples. Dielectric properties (capacitance and losses) in frequency domain (0.001 – 1000 Hz) were measured on a number of field installed power transformers, which belong to Ceylon Electricity Board, Sri Lanka. Oil samples taken from those transformers were used for chemical analyses (Karl Fischer titration) and further dielectric tests. The data obtained from the pressboard samples were used for modeling the frequency responses of the transformer insulation and for estimating their moisture content. The estimated moisture contents were compared with the results from the chemical analyses.

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