

MATERIALS, COMPONENTS AND NEW TECHNOLOGIES

Test methods for validating instrument transformer performance during line discharge: Main principles, parameters and testing procedures

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How to optimize large power transformers for offshore applications

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Defining the limits of No load test parameters at over excitation to ensure no over-fluxing of core of Transformers based on a case study: A Perspective for Utilities

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Internal arc performance of instrument transformers filled with different dielectric liquids

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Gas generation of vacuum OLTC

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Effect of oil interventions in transformer solid insulation ageing markers

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Development of gas-insulated bushing for direct connection between transformer and gas-insulated switchgear

Taiki Ashikaga, Yoshikazu Senda, Shinichiro Nakauchi, Yuma Sakata, Hiroki Saito, Tsuyoshi Mori, Kenji Sasamori

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Dielectric properties of aramid pressboard in various insulating liquids

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Research on basic characteristics of thermally upgraded paper changes in hygroscopicity and tensile properties due to thermal deterioration

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Mitigation of fire due to high energy internal arc in bushing turrets

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Assessment and Approaches in the semantic modelling and inception of Transformer Digital Twins

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New transformer procurement concepts in times of high uncertainty and market instability

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Development of transformers with natural ester and cellulose or aramid insulation

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Investigation of potential benefits of using extensive hotspot-monitoring in power transformers

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Investigation of Short Circuit Occurrence in Distribution Transformer Windings

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Asset management system based on the condition and reliability of equipment installed in substations and primary cabins

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Containment of High Energy Internal Arc Failures in Transformers with On-Load Tap-Changer

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Automated measurement system of high accuracy for shunt reactors

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Estimation of mineral insulating liquid properties through spectroscopic measurements and machine learning

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Short-circuit withstand test of 400 MVA axial split dual MV offshore transformer

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Transformer diagnosis utilizing vibration analysis

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Characterizing the mechanical behavior of solid insulation used in power transformers

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Clamping pressure during cold start of power transformer with and without prior energization

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Simulated Thermal Fault: Assessing Dissolved Gas Analysis through Tube Heating Method on Mineral Oils and Natural Esters

Pär Wedin, Elena Minchak, Carl Wolmarans, Robert Fairholm, Jessica Singh, Kaveh Feyzabi, Thomas Norrby
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Application of adaptive finite focus beamforming method for localization of low-frequency transformer sound

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Electrical Grid Protection Based on Non-Conventional Instrument Transformers and Sensors

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Experimental verification of low-frequency signal injection through inductive voltage transformers for earth-fault detection

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Transformer Tank Before and During Vacuum Process – 3D Scanning and Simulation

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Biodegradability testing of different insulating liquids

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Chemistry in transformers: from materials to transformers and their diagnostics

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NUMERICAL MODELING

Transformer diagnosis and modeling using DC hysteresis measurements

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Application of Jaya algorithm in optimization of transformer insulation design

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Thermal Analysis of Large Distribution Transformers Filled with different Mineral Oil and Ester Liquids

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Simulations of Resin Impregnated Paper transformer bushings: from design to diagnostics

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Numerical and Analytical Calculations of Thermal Performance of Oil-Filled Distribution Transformers for Solar Applications

Ali Al-Abadi, Chunping Wang, Qingjun Sun, Wei Wu

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Integration Design Pattern for the Development of a Power Transformer Digital Twin

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Research on the Dynamics of Vacuum on-load tap changer in Oil

Shuqi Zhang, ke wang, Yao zhang

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Study on Dynamic Thermal Behavior of Power Transformer Filled with Natural Ester Liquid Operates in Cold Climate

Ali Al-Abadi, Ahmed Gamil

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Analytical and Numerical Electromagnetic-Thermal Coupling Approach for Dry-Type Transformers

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Numerical calculation and direct measurement of local hot spot temperatures in transformer clamping plates

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CFD analysis of oil flow patterns in OF cooled power transformers

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Consideration of Non-Standard Overvoltages Compared with Standard Overvoltages in Power Transformers

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Calculation of Earthquake Withstand Capability of Distribution Transformers

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Influence of Cooling Management to Transformer Efficiency and Ageing

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Development of Precise Winding Model Calculating Internal Oscillation

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Dynamic thermal modelling of power transformer with variable cooling stages

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Dynamic thermal modelling of power transformer with variable tap position

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Loading metrics for benchmarking and evaluation of dynamic transformer thermal models

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Turn-by-turn EMF Simulation Technology of Transformer Subjected to Short Circuit Current

Peng Li, Huaze Sui, Ke Wang, Shuqi Zhang, Zhigang Zhao, Zhengyu Xu, Jian Zhang

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Simulation and Testing of Ferroresonance Inception Possibility in Instrument Transformers

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A Generalized Formula for Calculating the Load Sound Level of Liquid-Filled Power Transformers

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Modelling of transformer clamping pressure under thermal cycling

Henrik Enoksen, Inge Madshaven, Knut Brede Liland

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Calculation of losses due to eddy currents in a laminated ferromagnetic core

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Electromagnetic properties analysis of autotransformers with low reduction factor and their influence on the design

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Neural Ordinary Differential Equations for Thermal Hybrid-modelling of Power Transformers

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A Digital Twin for a Dynamic Prediction of Maximal Permissible Transformer Overloads

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A Practical Approach for Modeling Multi-Winding, Multi-Phase, Core-Type Transformers for Low-Frequency Transients

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White-Box Transformer Modeling using Damping Factors

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Statistical Regularity in Reactance in Split-Winding Transformers During Non-Symmetrical Load

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Wind induced vibrations of radiator fins on offshore transformers

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Electromagnetic Transient Simulation and Arc Pressure Development Law of On-load Tap-Changer Interstage Short-circuit Fault

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Modeling and accuracy testing of inductive voltage transformers for transfer of higher harmonics

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Hybrid Analytical-FEM Approach for Power Transformer Transient Analysis

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Multi-Step Approach for Fast Calculation of Magnetic Field in Transformer Tank Shields

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Closed-Form Solution for Inductance of an Air-Core Reactor With Rectangular Cross-Section

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Comparison of empty and oil-filled transformer tank mode shapes using experimental and FEM modal analysis

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First steps towards automated transformer main insulation design

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Design criteria research for complex insulation systems using optimization algorithms and statistical techniques

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On the loss distribution in the foils of low voltage windings

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Design Optimization of Keypoints for 750kV/700MVA Transformer Based on Numerical Simulation of Electric Field and Short Circuit Force

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A Contribution to the Concept of Dynamic Thermal Model of Liquid Immersed Power Transformers based on detailed Thermal-Hydraulic Network Model

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Cooling of Winding with Radial Cooling Ducts without Washers in Liquid-Immersed Power Transformers with Natural Liquid Flow

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TRANSFORMER LIFE MANAGEMENT

Condition assessment of bushings to prevent unplanned outages of 400 kV transformers and shunt reactors in the Swedish national grid

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A proactive evaluation methodology for the Condition Assessment of a HV Power Transformer Fleet

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Dissolved Gas Analysis in Mineral Oils, Esters and Silicones - Similarities and Differences

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The Fault Activity Indicator - a new approach to online DGA monitoring

Alexander Alber

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Climate Change Impacting Distribution Transformer

Ali Haider Syed

Exelon/ComEd, United States of America

Insulating oil treatment assessment of coalesce high vacuum , versus vacuum thin film method

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Do we need to redefine or adjust DGA fault types for Esters?

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Estimation of Oil Quality of Power Transformers Based on Markov Chains

Niklas Schmidt¹, Petros Dalamaras¹, Markus Zdrallek¹, Alexei Babizki², Karlheinz Lindl²

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Analysis of Variable Frequency Dissipation Factor Violation at Low & High Frequency in Bushings

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A Study of Retro-filling of Aged Transformer with Ester Fluid (Rapeseed oil)

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¹Kitashiba Electric. Co., Ltd.; ²Toshiba Energy Systems & Solutions Corp.

Effects of selective gas sorption of insulating paper on the interpretation of dissolved gas-in-oil

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Development of 77kV Natural Ester Transformers and Consideration of Maintenance Management Criteria

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Vibration Monitoring of Distribution Transformer Cores and Tanks

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Development of an AI-based Fault Diagnosis System for Transformers through Prediction of Dissolved Gas Generation and Fault Location.

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Diagnostic tools for thermal fault analysis in transformers with aramid insulation

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Integration of Asset Performance Management with monitoring and mobility solutions

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Transformer Corrosive Sulfur Removal by Oil Reclaiming for Life Extension

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Impact of Synthetic Ester Ageing on its main Performance Indicators in Distribution Size Transformers

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Development and Application of a Capacitance, Tangent Delta and Partial Discharge Monitoring System for Transformers

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UHF Emission Spectra of Partial Discharges in Power Transformers

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An approach to Dissolved Gas Analysis in Power Transformers considering Thermo-Oxidative Stray Gassing

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Impact of Damage Analysis on Transformers Reliability

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Application of Pathfinding Algorithms in Partial Discharge Localization in Power Transformers

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The effectiveness of different Transformer maintenance strategies

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Investigation of Zig-zag 88 kV Transformer Failures Connected to a GIS in Brazilian Power System

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Measuring uncertainty in online bushing monitoring

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First Measurement Campaign by a Multi-Sensor Robot for the Lifecycle Monitoring of Transformers

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Improved energy efficiency and loadability of power transformer by reconsidering the tertiary shunt reactor placing strategy

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3D Acoustic Heat-Maps for Transformer Monitoring Applications

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Dissolved Gas Forecasting in Power Transformers using Monitoring Data

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Strategy for optimizing the service life of power transformers

Stephane Proulx, Patrick Piché, Claude Rajotte

Hydro-Québec, Canada

Review of Design Performance in Service of Power and Distribution Transformers for Renewable Energy (Solar PV) Power Stations- Discussions on In-service Experience with Case Studies

Gopalan Ramesh, Ashutosh Sharma, Arushi Arun

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Oil/SF6 RIP High Voltage Bushings on GIS Field Cases of Tests Onsite and Investigations

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Enhancement of Tan-delta values of Resin impregnated paper (RIP) Transformer bushing by employing various techniques - Case study

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The influence of preparation method of cellulose insulation samples on determining the degree of polymerization

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A unified Pentagon for mineral oil

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Improving the Reliability of Online Bushing Monitoring

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Can winding ageing be modelled? A scrapping investigation of transformer with stable load

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Transformer Monitoring and Tank Surface Temperature Based Life Estimation System -GENWISE

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Concept of Data Lake design for analyses of network faults caused by fast transients recorded by diverse monitoring systems in transmission network

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Arresting of oil leakage in different locations of Transformers/Reactor using thrifty techniques - Case study

Naveen Kumar, Siva Behara

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Power Transformer Online Monitoring System Implementation in PLN Indonesia

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Influence of temperature on onload tap changer (OLTC) monitoring

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Analysis of Major Failures of Power Transformers

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Automatic broadcast of power transformer fault and maintenance data on PLN decision support systems

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Partial Discharge Monitoring of Power Transformers by Calibrated UHF Measurements

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Development of an Online Partial Discharge Monitoring System for Power Transformers

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Cellulose condition assessment through transformer monitoring system measurements

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Artificial Neural Network in diagnosing and identification of faults in Power Transformer

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Non-Conventional PD Method together with Non-Electrical Method of PD Detection for on-line diagnosis of power transformers and reactors

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Evaluation of Harmonic Impact of a Solar Inverter Connected Power Transformer – A Case Study

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