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# FUZZY BASED DIAGNOSIS OF INSULATION OF 6.6 kV HIGH VOLTAGE ROTATING MACHINE

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**Abstract**

The useful life of a large motor (or) generator is primarily determined by the condition of its insulation systems. These insulation systems gradually degrade under the influence of thermal, mechanical and electrical stresses. Eventually insulation failure results, requiring major repairs, rewinding or complete machine replacement. Determining the condition of the machine insulation systems is not a trivial task for non-experts. There are a large number of failure mechanisms as a result of the variety of insulation materials, design practices and operating environments. Furthermore, there is no single test or inspection which is sensitive to all possible failure mechanisms. Expert system software technology is well suited for helping users of motors and generators. This paper describes the development of an expert system to assist rotating machine maintenance personnel in assessing the insulation condition of their machines. It provides diagnostic advice about necessary repairs or replacement of components.

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**Keywords:** Rotating Machine Insulation, Insulation Resistance, Capacitance, Dissipation Factor, Partial Discharge Magnitude and Fuzzy Logic.