

Thermal behaviour of natural ester based oil used in distribution transformers

Torregroza-Rosas, M.I., Pimenta, T.C., Arrieta-Martinez, E., Silva-Ortega, J.I.

Abstract

This work compares the thermal behavior of a distribution transformer when using as dielectric liquid a mineral oil or natural esters. These cases have been analyzed using Finite Elements Method (FEM) at the software COMSOL Multiphysics® with a 3D-symmetrical model through the Heat Transfer in Solid module. The results of simulations show a higher values of maximum temperature in mineral oil submerged transformer than in natural ester, for the same operational conditions.

Keywords

COMSOL Multiphysics, Finite Elements Method (FEM), Heat Transfer in Solid interface, Natural Ester