

A study on the AC breakdown voltages of as-received palm oil and coconut oil under presence of TiO₂

ABSTRACT

This paper presents a study on the AC breakdown voltages of Palm Oil (PO) and Coconut Oil (CO) with presence of TiO₂. The type of PO used in this study is Refined, Bleached and Deodorized Palm Oil (RBDPO). TiO₂ was added into RBDPO and CO at volume concentration of nanoparticles ranging from 0.001% to 0.05%. In total, 50 measurements of AC breakdown voltages were recorded and analyzed by Weibull and normal distributions. Based on the test results and statistical analyses, it was found that the TiO₂ could improve the AC breakdown voltages of RBDPO and CO.

Keyword: AC breakdown voltage; Bleached and deodorized palm oil; Coconut oil; Dielectric insulating fluid; Refined; TiO₂; Transformers