

ANALISIS MINYAK NYAMPLUNG SEBAGAI BAHAN ISOLASI LISTRIK CAIR ALTERNATIF UNTUK MENGGANTIKAN MINYAK TRAFODAYA

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Abstract

In the operation of electric power distribution, the transformer can be said to be the heart of the transmission and distribution of electric power. In recent years the use of vegetable oil is increasing. The purpose of this study was to test and analyze a mixture of transformer oil and nyamplung oil (*Calophyllum Inophyllum*) as transformer insulation and also to obtain the best composition of nyamplung oil which can be used as an alternative to transformer oil. This research method tested the parameters of nyamplung oil and a mixture of nyamplung oil and mineral oil (Shell Diala S4), such as; viscosity, flash point, density, pour point, acidity, moisture content and breakdown voltage. The sample test results are then compared with standard mineral oil according to IEC 60296-2003. From the analysis conducted, it was found that TRNY10 oil mixture (10% transformer oil and 90% mineral oil) has the best potential as power transformer oil.

Keywords: *Power Transformer; Nyamplung Oil (Calophyllum Inophyllum); Mineral Oil; Breakdown Voltage; Viscosity; Flash Point; Density; Pour Point; Acidity; Moisture Content.*

Introduction

In an era of increasingly advanced world economic development the need for electricity will also increase. In the operation of distributing electric power, the transformer can be said to be the heart of transmission and distribution. Transformer failure creates the biggest problem for transmission and distribution (Mustaghfiroh, 2020). In this condition a transformer is expected to operate optimally continuously without stopping. Given the hard work of a transformer like this, the best way to care and maintain it is also required (Nurhayat, 2016).

There are two types of transformers when viewed from the cooling system, namely dry transformers using air as a cooling medium and wet transformers using oil as a cooling medium (YAQIN & MUHAINI, n.d.). The wet transformer has several advantages over the dry type. Wet transformers have a greater level of energy

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