ABSTRAK

UJI TEGANGAN TEMBUS DAN VISKOSITAS MINYAK SAWIT DENGAN PENAMBAHAN *BUTYLATED HYDROXYTOLUENE* (BHT) SEBAGAI ALTERNATIF ISOLASI MINYAK TRANSFORMATOR

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Minyak isolasi merupakan salah satu jenis isolator yang banyak digunakan sebagai isolasi pada peralatan listrik seperti transformator. Pada umumnya minyak isolasi yang digunakan saat ini berbahan dasar dari minyak mineral dimana tidak dapat diperbaharui sehingga ketersediaannya menjadi terbatas dan dapat habis dimasa depan. Dalam upaya mengurangi penggunaan minyak mineral sebagai bahan dasar minyak isolator diperlukan pengembangan terhadap bahan dasar pembuatan minyak isolasi dimana dapat menggunakan minyak nabati *seperti crude palm oil* yang ditambahkan zat aditif *butylated hydroxytoluene*. Dalam menguji kelayakan *crude palm oil* dengan penambahan zat aditif *butylated hydroxytoluene* sebagai minyak isolasi maka dilakukan pengujian tegangan tembus dengan menggunakan Megger OTS80Af dan viskositas. Berdasarkan hasil pengujian, didapatkan nilai tegangan tembus tertinggi pada minyak *crude palm oil* dengan penambahan *butylated hydroxytoluene* sebesar 10,285 kV dan viskositas sebesar 25,29 cSt. Dari hasil pengujian didapatkan bahwa efek penambahan zat aditif *butylated hydroxytoluene* terhadap nilai viskositas *crude palm oil* adalah memberikan efek perbaikan. Hal ini dapat dibuktikan dari semakin besar konsentrasi zat aditif *butylated hydroxytoluene* maka nilai viskositas *crude palm oil* semakin kecil.

Kata kunci : Minyak Sawit Mentah, Butylated Hydroxytoluene, Tegangan Tembus, Viskositas

ABSTRACT

DIELECTRIC STRENGTH AND VISCOSITY TESTING OF PALM OIL WITH THE ADDITION OF BUTYLATED HYDROXYTOLUENE (BHT) AS AN ALTERNATIVE TRANSFORMER OIL INSULATION.

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The insulation oil is one of the types of insulators widely used in electrical equipment such as transformers. Generally, the insulation oil used today is based on mineral oil, which cannot be renewed, leading to limited availability and potential depletion in the future. In an effort to reduce the use of mineral oil as the base for insulation oil, development is needed for the base material of insulation oil that can utilize vegetable oil, such as crude palm oil, with the addition of the additive butylated hydroxytoluene. To assess the feasibility of crude palm oil with the addition of butylated hydroxytoluene as insulation oil, breakdown voltage tests were conducted using the Megger OTS80Af, and viscosity tests were performed using an Ostwald viscometer. Based on the test results, the highest breakdown voltage value was obtained in crude palm oil with the addition of 10.285 kV butylated hydroxytoluene, and the viscosity was measured at 25.29 cSt. The test results indicated that the addition of the additive butylated hydroxytoluene had a positive impact on the viscosity of crude palm oil. This is evidenced by the fact that as the concentration of the additive butylated hydroxytoluene increased, the viscosity of crude palm oil decreased.

Keyword : Crude Palm Oil, Butylated Hydroxytoluene, Breakdown Voltage, Viscosity.