

Title: Study on Palm-Oil Based Insulation Oils Conductivity Using PDC Measurement Technique

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Abstract: Biodegradable oil as insulation in transformer currently starts being used as alternative to mineral oil due to its dielectric properties and availability. However, moisture content in these types of insulation oil is the real challenge especially for high voltage application. Malaysian researchers currently try to develop biodegradable insulation oil from palm oil based. This paper present comparative analysis on conductivity behavior of different types of oil which are biodegradable oil (Refined Bleached Deodorized Palm Oil (RBDPO) and Red Palm Oil) and mineral oil (Hyrax Hypetrans and FR3). Polarization and Depolarization Current (PDC) measurement test was conducted on the oil sample compromised with various thickness of insulation pressboard paper (0.2mm, 0.5mm and 1.0mm) was done in lab. In the analysis, the PDC curve was plotted in log scales and the DC conductivity of the oil was calculated. Based on the analysis result the different and variation of the conductivity identify the best palm oil type that have high potential to be commercialized as transformer insulation oil.