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RESEARCH HIGHLIGHTS

Nanotechnologies in Dielectric Insulating Fluids for Application in High Voltage Equipment

The aim of this research is to examine the dielectric and physiochemical performances of either mineral or vegetable based nanofluids with and without surfactants. Several objectives are identified for the research.

- 1) To examine the AC and withstand breakdown voltages of either mineral or vegetable based nanofluids with and without surfactants and identification the suitable nanoparticles that can provide the optimum improvement.
- 2) To investigate the lightning breakdown voltage and streamer properties of either mineral or vegetable based nanofluids with and without surfactants under uniform and non-uniform fields.
- 3) To examine the partial discharge properties of either mineral or vegetable based nanofluids with and without surfactants with consideration on the light analysis.
- 4) To evaluate the heat transfer properties of either mineral or vegetable based nanofluids with and without surfactants and its impact on the thermal ageing of paper and pressboard.

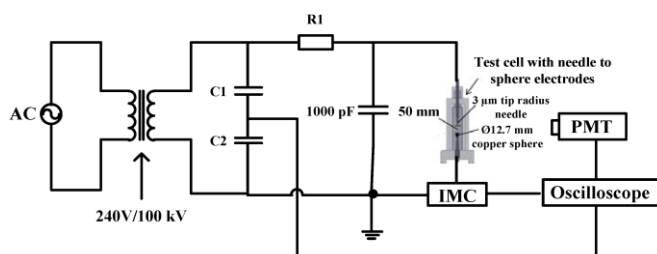


Figure 1. Configuration for partial discharge (PD) and photo multiplier tube (PMT) measurement.

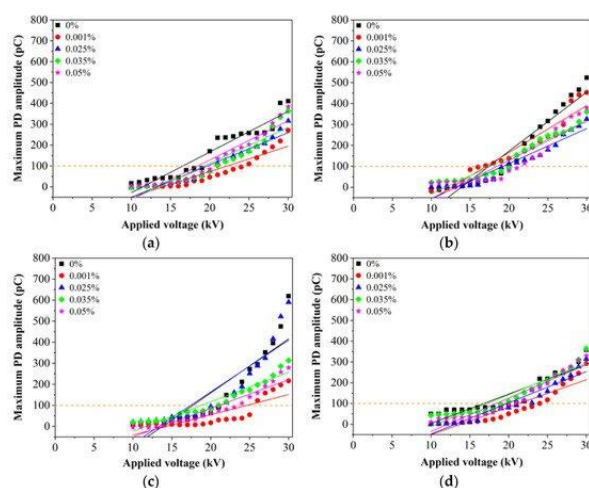


Figure 2. Maximum PD amplitude versus applied voltage for (a) RBDPOA, (b) RBDPOB, (c) CO and (d) MO based Al_2O_3 with SDS.