EFFECT OF GRAPHENE OXIDE (GO) IN IMPROVING THE PERFORMANCE OF HIGH VOLTAGE INSULATOR

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A project report submitted in partial fulfilment of the requirements for the award of the degree of Master of Engineering (Electrical Power)

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JUNE 2015
Dedicate to my beloved family:

*Isa bin Puteh (father)*
*Aminah binti Othman (mother)*
*Farahida binti Isa (sister)*

You are all my inspiration and my strength.

What I have been through, you were there all the time.

and

*All my friends in MEP programme*

for their support and encouragement
ACKNOWLEDGEMENT

A l h a m d u l l a h i r a b i l a l a m i i n and thank to Allah SWT for blessing me for ensuring myself to be healthy to carry out my study and to complete this project. I wish to express my sincerest appreciation to my supportive supervisor Dr. Muhammad Abu Bakar Sidik for the guidance and persistent help given throughout the progress of this project. I like to express my thanks to Dr. Mat Uzir, deputy Director of Composite Centre and all IVAT staff and technicians who were involved in this project. Finally, I would also like to thank all my fellow friends for their support and assistance technically and mentally in various occasions. All your kindness would not be forgotten. And I am grateful to all my family members.
ABSTRACT

Research work of polymer nanocomposites in high voltage insulator becomes interest nowadays. Polymer based and nanofillers are the core components in polymer nanocomposites. In previous works, by adding such a big amount of nanofiller it will enhance the electrical and mechanical properties of polymers. However as for today, a little percentage of nanofiller concentration could dramatically enhanced the properties of the polymeric material. Partial discharge in insulator material is one of a big issue in high voltage system that leads to electrical degradation and thermal losses. Recent research of graphene oxide (GO) nanofiller has brought to this project interest. Hence, this work focused into the development and simulation of PMMA (poly methyl methacrylate)/GO nanocomposites followed by PD test according to CIGRE METHOD II. The PMMA/GO and pure PMMA was synthesized by using radical polymerization and solvent dissolution method meanwhile simulation process was conducted using COMSOL Multiphysics software. From this work it could be noticed that the PMMA/GO has better performance.
ABSTRAK