SYNTHESIS OF ZnO/Fe_3O_4 AS A COMPOSITE CATALYST USING HYDROTHERMAL METHOD FOR SONO CATALYTIC DEGRADATION OF PHENOL IN POME

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AUTHOR'S DECLARATION

I declare that the work in the thesis was carried out in accordance with the regulation of Universiti Teknologi MARA. It is original and is the results of my own work, unless otherwise indicated or acknowledged as reference work.

I, hereby acknowledge that I have been supplied with the Academic Rules and Regulations, Universiti Teknologi MARA, regulating the conduct of my study and research.

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ABSTRACT

The present study has synthesized composite ZnO/Fe_3O_4 using hydrothermal technique at temperature of 170°C in order to be used as a sonocatalyst. The VSM and FTIR have been applied to characterize the magnetization and chemical properties of the composite ZnO/Fe_3O_4. Based on the observations, the prepared composite ZnO/Fe_3O_4 has low saturation magnetization (8.66 emu/g) and low coercivity (20.85 Oe). The ZnO/Fe_3O_4 was successfully prepared in this study. Moreover, the experimental of sonocatalytic degradation has been fully examined by using a ultrasonic bath with 50 kHz in frequency. The result demonstrates a relatively low catalytic degradation efficiency of the phenol solution which was only 22 %.