STUDY COMPARATIVE Al-MCM-41 CATALYST FROM PAITON IPMOMI CORP. COAL FLY ASH AND SODIUM METASILlicate AS SUPPORT OF ZnBr$_2$/Al-MCM-41 CATALYST

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Abstract

The high sillica content of Coal fly ash has potential used as raw material in catalyst synthesis. Silica extract of coal fly ash obtained from alkali fusion was compared with sodium metasillicate for the synthesis of Al-MCM-41 with Si/Al ratio 40 and ZnBr$_2$/Al-MCM-41 catalyst. The Al-MCM-41 catalyst were prepared by hydrothermal method at 100°C for 144 hours. The characterization results using XRD and FT-IR showed that all resulting catalysts had the same XRD diffractogram and FT-IR spectra with MCM-41. Measurement of acidity catalyst with pyridine FT-IR indicated that all catalysts had Lewis and Brønsted acid sites. The order of acidity was as follows : Al-MCM-41 (S) < Al-MCM-41 (CFA) < ZnBr$_2$/Al-MCM-41 (S 8) < ZnBr$_2$/Al-MCM-41 (S 16) < ZnBr$_2$/Al-MCM-41 (CFA 8) < ZnBr$_2$/Al-MCM-41 (CFA 16).

Key word: coal fly ash, alkali fusion, sodium metasillicate, acidity, ZnBr$_2$/Al-MCM-41