SYNTHESIS AND CHARACTERIZATION OF MESOPOROUS ZSM-5: INFLUENCE OF AGING TIME

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Abstract
Mesoporous ZSM-5 with variation of aging time i.e. 24, 12, and 6 h have been successfully synthesized. Mesoporous phase of ZSM-5 was synthesized using template cetyltrimethylammonium bromide (CTABr). Synthesis was carried out using hydrothermal method with aging and crystallization temperature at 60°C and 150°C, respectively. Characteristic diffraction peaks of ZSM-5 appeared at $\theta = 7-9^\circ$ and $\theta = 23.02^\circ$. Crystallinity increased as aging time increased. The result of nitrogen sorption analysis showed that all samples have pore size about 3.8 nm. The porosity of ZSM-5 decreased with shorter of aging time. Synthesized ZSM-5 with 6 h aging time has the highest porosity. Aging time had also affects the particle size, whereas the particle size will become smaller along with the longer of aging time.

Keywords: Synthesis of Mesoporous ZSM-5, Aging Time