SYNTHESIS OF MESOPOROUS TS-1 USING NANOCLUSTER PRECURSOR WITH VARIATION OF HYDROTHERMAL TIME

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Abstract
Mesoporous TS-1 catalyst were successfully synthesized using nanocluster method with variation of hydrothermal time. Hydrothermal was carried out at 80°C for 0.5; 1; 2 and 3 days. Cetyltrimethylammonium bromide was used as template for the formation of meso phase. The solid were characterized by X-ray diffraction (XRD), nitrogen adsorption-desorption, and Fourier Transform Infrared spectroscopy techniques. XRD patterns showed that crystalinity increased as the hydrothermal time increased. Analysis of nitrogen adsorption-desorption showed that samples have pore size between 3,05-3,80 nm. The samples were catalytically tested in the hydroxylation of phenol. Chromatogram of the product indicated that the TS-1 sample were selective in the formation of benzoquinone.

Keywords: Mesoporous TS-1, hydrothermal time, hydroxylation of phenol