

Synthesis and Characterization of Zeolite P using Technical-grade Materials

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Abstract Research attempts on zeolites show structural and industrial importance of these inorganic compounds. In this regard, the synthesis of zeolites is of great importance, because their natural occurring counterparts are often impure. Zeolite Na-P with a silicon to aluminium ratio of one has a better ion exchange capacity than Na-A and can be used as a detergent builder. In this work, zeolite Na-P of high purity was successfully synthesized using commercial silica and alumina sources. Parameters such as $H_2O:Al_2O_3$, $Na_2O:Al_2O_3$ and $SiO_2:Al_2O_3$ molar ratios and crystallization temperature and time were investigated. So that the optimum condition was obtained. X-ray powder diffraction, infrared, scanning electron microscopy and elemental analysis were utilized for the characterization of the product.