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Synthesis of sodium zeolites from natural and modified diatomite

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Abstract

This project is related with the synthesis of sodium zeolites using natural and modified diatomite as starting materials. The synthesis process consisted of conventional hydrothermal alkaline activation, using NaOH as reagent. The process was studied as a function of the starting material, temperature, time, solid/liquid ratio and activation reagent concentration. The resulting crystals were identified by X-ray diffraction, and characterized by Fourier transform IR and SEM, and they also determined the cation exchange capacity value (CEC). While Na-P1, analcime, cancrinite and hydroxysodalite were obtained under the same conditions, the highest yield was obtained when modified diatomite was used as a starting material. The solid/liquid ratio proved to have less effect on the type of zeolite obtained and the degree of zeolitization achieved.

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Keywords: Diatomite; Na-P1; Analcime; Cancrinite; Hydroxysodalite; X-ray diffraction
