



Exchange diffusion of Cu^{2+} , Ni^{2+} , Pb^{2+} and Zn^{2+} into analcime synthesized from perlite

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Abstract

The zeolite analcime was synthesized, in its sodium form, from a perlite (volcanic glass) deposit at Lopburi, Thailand. Particle size analysis was used to approximate the radius of the analcime particles as 3.87×10^{-6} m. XRD, XRF, ^{29}Si MAS NMR and thermal analysis confirmed the product as analcime of good purity. Diffusion exchange of Cu^{2+} , Ni^{2+} , Pb^{2+} and Zn^{2+} for $^{22}\text{Na}^+$ from the synthetic analcime was investigated in the temperature range 298–333 K. Diffusion coefficients (D) were calculated using the Barrer, Barri and Klinowski equation. E_a , ΔS^* and ΔG^* values showed that all the channel sites were involved in the observed diffusion processes.

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