

Use of Jordanian natural zeolite as sorbent for removal of cadmium from aqueous solutions

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ABSTRACT

This study considers Jordanian zeolite as adsorbent for the removal of cadmium from aqueous solution. Zeolite collected from a geographic zone in Jordan valley was assessed for its ability to adsorb heavy metal after preliminary treatment. Kinetics and equilibrium of cadmium uptake by this new adsorbent were followed in this investigation. The experimental results showed that the adsorption of Cd²⁺ ions on zeolite sands was dependent on the pH and temperature. The uptake of cadmium ions increased with increasing pH, temperature and initial adsorbate concentration. Cadmium per unit adsorbent decreased with the increase in the amount of adsorbent used; while the percentage of cadmium removal increased with the increase in the amount of adsorbent. Addition of electrolyte, as NaCl, to zeolite-metal suspension decreased metal uptake by the zeolite.

Keywords: Natural zeolite; Cadmium; Adsorption

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