

Cd²⁺ Ions Removal from Aqueous Solutions Using Alginite

Authors : Vladimír Frišták, Martin Pipiška, Juraj Lesný

Abstract : Alginate has been evaluated as an efficient pollution control material. In this paper, alginate from maar Pinciná (SR) for removal of Cd²⁺ ions from aqueous solution was studied. The potential sorbent was characterized by X-Ray Fluorescence Analysis (RFA) analysis, Fourier Transform Infrared Spectral Analysis (FT-IR) and Specific Surface Area (SSA) was also determined. The sorption process was optimized from the point of initial cadmium concentration effect and effect of pH value. The Freundlich and Langmuir models were used to interpret the sorption behaviour of Cd²⁺ ions, and the results showed that experimental data were well fitted by the Langmuir equation. Alginate maximal sorption capacity (Q_{MAX}) for Cd²⁺ ions calculated from Langmuir isotherm was 34 mg/g. Sorption process was significantly affected by initial pH value in the range from 4.0-7.0. Alginate is a comparable sorbent with other materials for toxic metals removal.

Keywords : alginates, Cd²⁺, sorption, Q_{MAX}

Conference Title : ICCEBE 2014 : International Conference on Chemical, Environmental and Biological Engineering

Conference Location : Lisbon, Portugal

Conference Dates : April 17-18, 2014