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Absorption of Sm (III) and Nd (III) ions from aqueous solutions

By Imad Hamadneh

LAP Lambert Academic Publishing Jul 2016, 2016. Taschenbuch. Book Condition: Neu. 220x150x6 mm. This item is printed on demand - Print on Demand Neuware - Jordanian diatomaceous earth (JDA) and standard diatomaceous earth (SDA) were used for the adsorption of Samarium (Sm(III)) and Neodymium (Nd(III)) ions from aqueous solutions. Both JDA and SDA were characterized by cation exchange capacity (CEC), surface area (SA), Fourier Transform Infrared (FTIR), x-ray diffraction (XRD), x-ray fluorescence (XRF) and scanning electron microscope (SEM). The adsorption behavior of the JDA and SDA towards Sm(III) and Nd(III) was studied by batch equilibrium technique as a function of adsorbent dose, pH, ionic strength, contact time and temperatures. The maximum adsorption capacity by JDA and SDA was at pH = 5.0. The adsorption isotherms were also investigated. The metal ions uptake properties on the JDA and SDA fit Langmuir, Freundlich, Temkin and Dubinin-Radushkevich (D-R) adsorption isotherms. The order for increasing adsorption capacity was as the following: Sm(III)/JDA Nd(III)/JDA Sm(III)/SDA Nd(III)/SDA. These experiments fitted pseudo second-order model for both JDA and SDA. Thermodynamic functions, DeltaG, DeltaH and DeltaS were determined for each metal ion. The determination of metal ion loading capacity and desorption studies were also reported. 100 pp. Englisch.



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