

عنوان مقاله:

Removal of Pb(II) by Modified Natural Adsorbent; Thermodynamics and Kinetics Studies

محل انتشار:

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خلاصه مقاله:

In the current work, the natural zeolite was modified with cobalt hexacyanoferrate and employed for adsorbent of Pb(II) ions from aqueous solution. The modification was approved by XRD and FTIR techniques. The Pb(II) adsorption capacity enhanced by 1.8 times from 60 mg/g (natural zeolite) to 100 mg/g (modified zeolite) at optimal conditions. Factors such as time, pH, temperature, adsorbent dosage and initial concentration were investigated to optimize the adsorption condition. A fast sorption was observed in the initial contact time and equilibrium was achieved in less than 120 min. The optimum pH for lead removal was between 3 and 6. The adsorption capacity was increased and reached the maximum of 90 % at 2 g/L adsorbent dosage. Also, the adsorption increased as the concentration increased up to 500 mg/L and the sorption became constant at higher concentration. It was found that the double-exponential model describes the lead sorption kinetics and the Langmuir-model describe the isotherms.

کلمات کلیدی:

Adsorbent, Cobalt-Hexacyanoferrate, Lead, Modified-Zeolite, Zeolite

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