

Effect of the Experimental Conditions on the Adsorption Capacities in the Removal of Pb²⁺ from Aqueous Solutions by the Hydroxyapatite Nanopowders

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Abstract : In this study, Pb²⁺ uptake by the hydroxyapatite nanopowders (n-Hap) from aqueous solutions was investigated by using batch adsorption techniques. The adsorption equilibrium studies were carried out as a function of contact time, adsorbent dosage, pH, temperature, and initial Pb²⁺ concentration. The results showed that the equilibrium time of adsorption was achieved within 60 min, and the effective pH was selected to be 5 (natural pH). The maximum adsorption capacity of Pb²⁺ on n-Hap was found as 565 mg.g⁻¹. It is believed that the results obtained for adsorption may provide a background for the detailed mechanism investigations and the pilot and industrial scale applications.

Keywords : nanopowders, hydroxyapatite, heavy metals, adsorption

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