

عنوان مقاله:

Removal of Pb(II) from aqueous solutions by natural nano hydroxyapatite

محل انتشار:

هفتمین کنگره ملی مهندسی شیمی (سال: 1390)

تعداد صفحات اصل مقاله: 8

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خلاصه مقاله:

Natural nano hydroxyapatite powder with an average particle and crystallite size of 80 and 60 nm was produced from bovine bone by employing heat treatment and mechanical activation method. Mechanical activation was performed by employing high energy planetary ball mill. The resulted powder was characterized by X-ray diffraction (XRD), SEM and TEM analysis. Ability of natural nano hydroxyapatite powder to remove PbP2+P from aqueous solutions was investigated for the first time and the results were compared to hydroxyapatite powder. Batch adsorption experiments for PbP2+P were carried out using a solution concentration of 900 mg.LP-1P at initial pH = 5 and the effects of contact time was investigated on the adsorption properties of prepared adsorbents. Mechanical activation method by producing nanoparticles and nanocrystals, 148% increased sorption capacity of natural hydroxyapatite. Kinetic experiments were also performed and good correlation coefficients were obtained for the pseudo second-order kinetic model.

کلمات کلیدی:

Hydroxyapatite, nano powder, adsorbent, sorption kinetic model

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