عنوان مقاله:

Pb(II) ions removal from aqueous solution by an effective nano-composite

محل انتشار:

کنفرانس بین المللی جامعه و محیط زیست (سال: 1397)

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خلاصه مقاله:

The aim of this study is the investigation of the lead reduction from aqueous solution using sand– supported zero valent iron nanoparticles (S-nZVI). The synthesis of S-nZVI as based on the reduction of ferrous iron with borohydride, in which sand acted as support material. The structure of this nano-composite was characterized by Scanning electron microscope, Xray powder diffraction, and Brunauer-Emmett-Teller analysis. The SEM images revealed that nZVI particles immobilized on sand were spherical and uniformly dispersed on the surface of the stabilizer. Batch experiments indicated that the lead removal efficiency decreased with the increase in the initial Pb(II) concentration , but increased with the increase in the initial pH, contact time , temperature and sorbent dosage. The maximum adsorption capacity of the SnZVI for Pb(II) was 37.2 (mg $g{-1}$). In view of this, S-nZVI, as a low-cost nano-composite, has a great potential to be used as an economical and efficient adsorbent to remove lead from water and wastewater.

کلمات کلیدی:

Lead, Maximum adsorption capacity, Removal efficiency, Zero-valent iron nanoparticles

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