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Kinetic adsorption of application of carbon nanotubes for Pb(II) removal from aqueous solution

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Abstract

The capability of carbon nanotubes (CNTs) to adsorb lead (Pb) in aqueous solution was investigated. Batch mode adsorption experiment was conducted to determine the effects of pH, agitation speed, CNTs dosage and contact time. The removal of Pb(II) reached maximum value 85% or 83% at pH 5 or 40 mg/L of CNTs, respectively. Higher correlation coefficients from Langmuir isotherm model indicates the strong adsorptions of Pb(II) on the surface of CNTs (adsorption capacity $X_m = 102.04$ mg/g). The results indicates that the highest percentage removal of Pb (96.03%) can be achieved at pH 5, 40 mg/L of CNTs, contact time 80 min, and agitation speed 50 r/min. © 2009 The Research Centre for Eco-Environmental Sciences, Chinese Academy of Sciences.

Author keywords

adsorption; carbon nanotubes; kinetic modeling; lead removal

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