代表論文

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代表論文

代表論文中文譯名：二級動力學常數之僞等溫線


Abstract: The kinetics of four sorption systems, Cu/tree fern, Pb/tree fern, AB9/activated clay and BR18/activated clay have been studied based on the assumption of a pseudo-second order rate law. Pseudo-isotherms using the pseudo-second order kinetic expression constant have been developed to describe the four liquid-solid sorption systems. The experimental results have been analyzed using a pseudo-Langmuir and a pseudo-Redlich-Peterson isotherm. Both isotherms were found to represent the measured sorption data well. According to the evaluation using the pseudo-Langmuir equation, the monolayer sorption capacities were obtained to be 13.9, 46.6, 124 and 105 mg g\(^{-1}\) for copper, lead, AB9 and BR18 respectively.

Subject Categories:
Chemical Engineering: Impact Factor 0.590, 62/110 (2006)
Cited by papers as follows:


Abstract: Tree fern, an agricultural by-product, was used for the sorptive removal of copper ions from aqueous solution. The experimental data was analysed by Langmuir, Freundlich and Redlich-Peterson isotherms. The equilibrium sorption capacity of copper ions was determined from the Langmuir equation and found to be 11.7 mg/g. A batch sorption model, based on the assumption of the pseudo-second-order mechanism, was developed to predict the rate constant of sorption, the equilibrium sorption capacity and the initial sorption rate with the effect of initial copper ion concentration and the tree fern dose. Various thermodynamic parameters, such as $\Delta G^0$, $\Delta H^0$ and $\Delta S^0$, have been calculated. The thermodynamics of copper ion/tree fern system indicates spontaneous and endothermic nature of the process.

Subject Categories:

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82 (7), 632-636.


77. Lodeiro, P., Cordero, B., Grille, Z., Herrero, R. and Sastre de Vicente, M.E. (2004),


Abstract: The batch kinetic sorption of copper ions and dyes onto two low-cost biosorbents, peat and pith, has been studied. A model, based on the assumption of a pseudo-second-order mechanism, has been developed to predict the rate constant of sorption, the equilibrium capacity and initial sorption rate with the effect of initial concentration, particle size, temperature and sorbent concentration dose. An activation energy of sorption has also been evaluated as 7.13 kJ/mol for the sorption of BB69 onto pith.

**Subject Categories:**
Chemical Engineering: Impact Factor 2.008, 10/110 (2006)
Cited by papers as follow:


34. Ho, Y.S. (2006), Second-order kinetic model for the sorption of cadmium onto tree
15


37. Özcan, A.S. and Özcan, A. (2005), Adsorption behavior of a disperse dye on polyester in supercritical carbon dioxide. *Journal of Supercritical Fluids,* 35 (2), 133-139.


Abstract: This study is on sorption of lead ions on an agricultural by-product, tree fern. Equilibrium isotherms have been measured and modeled. The equilibrium sorption capacity of lead(II) was determined from the Langmuir isotherm and found to be 40.0 mg/g. Based on the assumption of the pseudo-second order mechanism, a batch sorption model was developed to predict the rate constant of sorption, the equilibrium sorption capacity and the initial sorption rate with the effect of initial lead(II) concentration and temperature. The sorption rate was found to increase with temperature, and an activation energy of approximately 87 kJ/mol was determined from the pseudo-second order rate constants. The findings of this investigation suggest that chemical sorption plays a role in controlling the sorption rate.

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Cited by papers as follows:


M.Sc. Thesis, Taipei Medical University, Taipei, Taiwan.
Ho, Y.S.* (2004), Citation review of Lagergren kinetic rate equation on adsorption reactions. *Scientometrics*, 59 (1), 171-177. (SCI, SSCI)

Abstract: This study presents a literature review concerning the preciseness of over 170 publications citing the original Lagergren’s paper in kinetics equation for solute adsorption on various adsorbents. This equation applies to a range of solid-liquid systems such as metal ions, dyestuffs and several organic substances in aqueous systems onto various adsorbents. The main objectives are to manifest different forms of citations presented and offers a correct reference style for citing the original Lagergren's paper published in 1898.

**Subject Categories:**


Ho, Y.S.* (2004), Citation review of Lagergren kinetic rate equation on adsorption reactions. *Scientometrics*, **59** (1), 171-177.

獲 ISI highly cited article
Cited by papers as follows:


15. Ofomaja, A.E. and Ho, Y.S. (2007), Effect of pH on cadmium biosorption by


Biological Macromolecules, **38** (2), 148-149.


47. Bekaş, N., Ağım, B.A. and Kara, S. (2004), Kinetic and equilibrium studies in


Abstract: A batch sorption system using tree fern as biosorbent was investigated to remove Basic Red 13 from aqueous solutions. The system variables studied include sorbent particle size and temperature and results revealed the potential of tree fern, an agriculture product, as a low-cost sorbent. The Langmuir isotherm was found to represent the measured sorption data well. The dye sorption capacity of tree fern increased as the sorbent particle size decreased. Maximum saturated monolayer sorption capacity of tree fern for Basic Red 13 was 408 mg/g. Various thermodynamic parameters such as $\Delta G^{\circ}$, $\Delta H^{\circ}$ and $\Delta S^{\circ}$ were calculated indicating that this system was a spontaneous and endothermic process. (C) 2003 Elsevier Ltd. All rights reserved.

**Subject Categories:**
Chemical Engineering: Impact Factor 2.008, 10/110 (2006)
Cited by papers as follows:


and Interface Science, 280 (1), 44-54.