

Adsorption of Bezanyl Red and Nylomine Green from aqueous solutions by natural and acid-activated bentonite

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Abstract :

The adsorption of two acid dyes, namely, Red Bezanyl and Green Nylomine, onto natural bentonite and acid activated bentonite from aqueous solutions were studied in a batch system. The kinetic data show that at the equilibrium, the acid-activated bentonite fixes more Bezanyl Red and Nylomine Green than the natural bentonite. Adsorption equilibrium was reached within 2 h. The results also showed that the kinetics of adsorption is best described by a pseudo second-order expression than a first or second-order model. Adsorption isotherms of acid dyes onto bentonite and acid-activated bentonite were determined and correlated with common isotherm equations such as the Langmuir and Freundlich models. The Langmuir model agrees very well with the experimental data. For better explanation of these results, the natural bentonite and acid-activated bentonite have been examined in detail through FTIR, BET and XRD analyses.

Key Words :

Adsorption; Bentonite; Activated bentonite; Acid dyes; Kinetics; Equilibrium.

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