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KINETIC AND EQUILIBRIUM STUDIES ON NITRATE ADSORPTION FROM AQUEOUS SOLUTION BY LEWATIT FO 36

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Abstract

The adsorption characteristics of nitrate ions from aqueous solution using Lewatit FO 36 was investigated as a function of pH, biomass dosage and contact time. Results showed that optimum conditions were obtained at pH 8, adsorbent dosage of 160 mg/L and contact time of 60 min. At the optimized experimental parameters, the maximum nitrate adsorption capacity of Lewatit FO 36 was 200 mg/g and nitrate adsorption followed Freundlich model. Among seven kinetic models used in this study, the adsorption kinetic was better explained by the type 1 pseudo second order kinetic model, which indicates that chemisorption controls the adsorption process. Moreover, intraparticle and Boyd models showed that film diffusion is the possible interaction, which governs the adsorption of nitrate from aqueous solution using Lewatit FO 36.

Key words: adsorption, isotherm, kinetic, Lewatit FO 36, nitrate

Received: May, 2012; Revised final: March, 2013; Accepted: March, 2013
