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REMOVAL AND PRECONCENTRATION OF CADMIUM ON POLYSTYRENE-*GRAFT*-ETHYLMETHACRYLATE COPOLYMER

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Abstract

The removal and determination of toxic heavy metal ions in aqueous solutions has been given much more attention over the past few years. In this paper, a removal and separation/preconcentration method for cadmium species on Poly S₁₅-g-EMA₁₀₀ (a kind of polystyrene-*graft*-ethyl methacrylate copolymer) in water samples was developed. Some experimental parameters, such as solution pH, sample flow rate, type and concentration of eluent, amount of adsorbent and effect of common matrix ions were investigated. Under the optimum conditions, adsorption isotherms and adsorption capacities have been examined. Langmuir model had been shown to fit the experimental data well, with the correlation coefficient (R^2) of 0.997. The Langmuir monolayer adsorption capacity (q_{max}) and constant of the adsorption energy (K_L) were estimated as 9.7 mg/g and 0.15 L/g, respectively. The method was applied to different water samples such as wastewater, tap water and dam water.

Key words: adsorption, cadmium, graft polymer, preconcentration, removal, separation

Received: November, 2011; Revised final: June, 2012; Accepted: July, 2012
