

Adsorption of Chromium Ions from Aqueous Solution by Carbon Adsorbent

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Abstract : Rapid industrialization has led to increased disposal of heavy metals into the environment. Activated carbon adsorption has proven to be an effective process for the removal of trace metal contaminants from aqueous media. This paper was investigated chromium adsorption efficiency by commercial activated carbon. The sorption studied as a function of activated carbon particle size, dose of activated carbon and initial pH of solution. Adsorption tests for the effects of these factors were designed with Taguchi approach. According to the Taguchi parameter design methodology, L9 orthogonal array was used. Analysis of experimental results showed that the most influential factor was initial pH of solution. The optimum conditions for chromium adsorption by activated carbons were found to be as follows: Initial feed pH 6, adsorbent particle size 0.412 mm and activated carbon dose 6 g/l. Under these conditions, nearly %100 of chromium ions was adsorbed by activated carbon after 2 hours.

Keywords : chromium, adsorption, Taguchi method, activated carbon

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