Desalination and Water Treatment
www.deswater.com
25 (2011) 25–30
January
1944-3994 / 1944-3986
doi: 10.5004/dwt.2011.1872

Treatment of textile wastewater using organically modified bentonite

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Received 26 February 2010; Accepted in revised form 31 May 2010

ABSTRACT

The use of anion-cation organobentonite for the treatment of wastewater generated during a textile dyeing and printing process was studied. It was found that the color removal of the organobentonite was higher than that of the natural bentonite. The maximum color removal was obtained by the anion-cation organobentonite with the mass ratio 4:1 of cetyl trimethyl ammonium bromide (cation) to sodium dodecyl sulfate (anion). The concentrations of target constituents, such as chemical oxygen demand (COD) and suspended solids (SS), in the wastewater post-treated by using this organobentonite were determined and summarized. In addition, the pseudo-first-order and pseudo-second-order kinetic equations were rearranged to expediently investigate the adsorption process. The results show that the color removal of the wastewater treated by the organobentonite followed the pseudo-first-order model.

Keywords: Anion-cation organobentonite; Textile wastewater; Color removal; Kinetic model

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