Study on adsorption of octenylsuccinate by sepiolite

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Received 26 May 2014; Accepted 1 March 2015

\textbf{ABSTRACT}

Sepiolite was selected and studied for the adsorption of octenylsuccinate in the waste solution resulting from the production of octenylsuccinic starch. Scanning electron microscopy showed that sepiolite had a high surface area, and Fourier transform infrared spectroscopy indicated the formation of bonds between sepiolite and octenylsuccinate. The effects of reaction temperature, initial octenylsuccinate concentration, pH, adsorption time, and sepiolite dosage on adsorption efficiency (%AE) were examined by single-factor experiments. Significant parameters were further optimized by Box–Behnken response surface methodology. The theoretical optimum value of 100% was obtained when the initial octenylsuccinate concentration, pH, adsorption time, and sepiolite dosage of 20 mL solution were 0.048 mol/L, 3.12, 5.40 h, and 771.32 mg, respectively. Under these optimum conditions, the real %AE was 99.07%.

\textit{Keywords:} Sepiolite; Adsorption; Octenylsuccinate; Response surface methodology (RSM)

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