

ADSORPTION OF CONGO RED USING CHITOSAN MONTMORILLONITE IN BATCH AND COLUMN METHOD

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ABSTRACT

The synthesis, characterization and application of chitosan/montmorillonite (Chi-MMT) for adsorption Congo red using batch and column method. The adsorbents were characterized by using Fourier transform infrared spectroscopy (FTIR), BET and XRD. Congo red was adsorbed under different operating conditions such as flow rate and mass sorbent. At lower flow rate, the quantity of treated water and adsorption capacity were found to increase. At higher mass sorbent, better adsorption capacity was observed. The theoretical service times evaluated from Thomas model for different flow rates and mass sorbent shows good correlation with the experimental data. Column regeneration, dye recovery and the possibility of reusing the regenerated Chi-MMT were also investigated.

KEYWORDS: Chi-MMT, Congo Red, Adsorption, Column Method, Thomas Model