

Adsorptive removal of Reactive Red 120 by soluble nano-sized organoclays

김용운, 신현재^{1,*}

조선대학교; ¹조선대 생명화학공학과

(shinhj@Chosun.ac.kr*)

This research is mainly focused on the improvement of polluted industrial waste water causing destruction in ecosystem from a variety of plants an operation. This study is about the efficient adsorption of anionic dye Reactive Red 120 (RR 120) by soluble nano-sized organoclays prepared by sol-gel methods. Four different types of organoclays were synthesized as follows: Mg-ATPES, Mg-TTMS, Ca-APTES, and Ca-TTMS. Several experimental factors concerning adsorption were varied such as initial dye concentration, initial solution pH, temperature, contact time, and ionic strength. The maximum removal is observed at acidic pHs from 2 to 4. The adsorption kinetics followed the pseudo-second-order and Langmuir isotherm equation were best models that the fitted adsorption procedure compared with Frenlich isotherm equation. Moreover the thermodynamic activation parameters such as enthalpy and entropy were determined. Overall, this study indicated that an appropriate removal methodology should be considered in advance using organoclays as a control scheme for harmful wastewater containing dye component.