

### Adsorption of Reactive Red dye 120: efficient anionic dye adsorption on modified organoclay

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This research is mainly focused on the improvement of polluted industrial waste water causing destruction in ecosystem from a variety of plants an operation. Most of dye released during fabric coloring processes are considered as hazardous material and toxic compound. 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. One type of organoclay (Mg-APTES) was synthesized as reported. Several experimental factors concerning adsorption were varied such as initial dye concentration, initial Mg -clay dosage, initial solution pH, temperature, contact time, and ionic strength. The maximum removal is observed at acidic pH from 8 to 10. 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.