THE STUDY OF ADSORPTION ISOTHERM AND SELECTED OPERATING VARIABLES ON ADSORPTION OF REACTIVE AND DIRECT DYES ONTO $MgALNO_3$-LDH

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ABSTRACT

THE STUDY OF ADSORPTION ISOTHERM AND SELECTED OPERATING VARIABLES ON ADSORPTION OF REACTIVE AND DIRECT DYES ONTO $MgAlNO_3$-LDH

The potential of Magnesium Aluminium Nitrate layered double hydroxide ($MgAlNO_3$ LDH) as adsorbent for removal dye from aqueous solution was investigated. In this study, Mg/Al was synthesized by using co precipitation method. Two reactive dyes which are Reactive Red 120 (RR 120) and Reactive Orange 16 (RO 16) and one Direct Red 80 (DR 80) dye were used in this study. The effect of contact time, different initial concentration, particle sizes and dosage were observed. The results, adsorption for all dyes showed that the data was better fitted to the Langmuir isotherm rather than Freundlich isotherm. In term of maximum adsorption capacity, the value are 87.7193 mg/g, 85.4701 mg/g and 140.845 mg/g for Reactive Red 120, reactive Orange 16 and Direct Red 80 dyes respectively. The favourability of adsorption is indicated by the value of R_L. All the R_L values were between 0 and 1 for all dyes.