

## Adsorption Equilibrium, Kinetic and Thermodynamic Parameter Studies of Reactive Black 5 Using Activated Carbon

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Adsorption experiments of Reactive Black 5 dye using activated carbon were investigated by using adsorbent amount, pH, initial concentration, contact time and temperature as adsorption variables. Adsorption equilibrium data were analyzed using Langmuir, Freundlich isotherm, Langmuir isotherm showed the best agreement. The adsorption of Reactive Black 5 by activated carbon from the evaluated Langmuir separation factor( $RL=0.027\sim0.493$ ) was confirmed to be a suitable removal method. As a result of applying the adsorption rate experimental data to the pseudo first - order kinetics equation and the second - order kinetics equation, kinetic experiments have been well described by a pseudo - second order kinetics equation. enthalpy (63.07 kJ / mol) indicate that the adsorption process is endothermic. Since the free energy of Gibbs decreased with increasing temperature, the spontaneous adsorption reaction increased with increasing temperature in the temperature range of 298K ~ 318K.