

## Equilibrium, Kinetic and Thermodynamic Properties of Adsorption of Direct Red 81 onto Activated Carbon

고승환, 김재혁, 이종집<sup>†</sup>  
공주대학교

(jjlee@kongju.ac.kr<sup>†</sup>)

In this study, adsorption equilibrium, dynamics and thermodynamic properties of direct red 81 using activated carbon were studied. The effect of various parameters, such as initial concentration, contact time, and high r model. The correlation coefficient and temperature comparison of Langmuir and Fr were investigated. The adsorption equilibrium relationship has been confirmed that Freundlich isotherm( $r=0.9468\sim0.9984$ ) is more suitable than Langmuir isotherm( $r=0.895\sim0.9934$ ). At this time, the slope of Freundlich isotherm is  $0.8099\sim0.928$  and it is easy to absorb. The experiment was conducted by fixing the activated carbon at 100 mg, fixing the temperature at 298 K, and varying the concentration (10, 20, 30 ppm). At this time, the error rate of the pseudo-first reaction equation was 38.72% from 30 ppm, and the pseudo-second reaction formula was 1.35% from 30 ppm. Under the same conditions as above, this time the concentration was fixed at 20 ppm and the temperature was changed (298, 308, 318 K) to conduct the experiment. At this time, the error rate of the pseudo-first reaction equation was 38.72% at 308 K, and the pseudo-second reaction equation was 6.34% at 298 K.