

Removal of malachite green from aqueous solutions using talc: Consideration of malachite green alkaline fading

김진영, 이영철, 신현재*
조선대학교
(shinhj@chosun.ac.kr*)

Malachite green (MG) primarily used as cationic dye was classified a Class II Health Hazard because of its toxicity. We demonstrated that batch experiments were carried out to remove MG from aqueous solution using talc. The operating variables studied were solution pH (initial and final), adsorbent concentration, contact time, temperature, and initial dye concentration. General pH adjustment method for MG analysis was suggested to calibrate the removal efficiency calculation based on UV-Vis spectrophotometer analysis. Adsorption experiments showed that the process was strongly pH-dependent. Zeta potential value of talc was found to be negative charge within the pH range 4-10. MG is removed above pH 6.5 using talc by the effect of alkali precipitation. Due to the pH effect, the removal data were not fitted well by the linear form of Langmuir and Freundlich isotherms. Kinetic studies showed that the process reached equilibrium within 12 hours above pH 6.5. The data were fitted well using the pseudo-second-order kinetic equation.