

Kusmierrek, K., Swiatkowski, A. Influence of the Number of Chlorine Atoms in the Molecules of Chlorophenoxyacetic Acids on its Adsorption from Aqueous Solutions on Activated Carbon. *Ochrona Srodowiska* 2013, Vol. 35, No. 1, pp. 47–50.

Abstract: Three phenoxyacetic acids of various number of chlorine atoms in the molecule (PA, 4-CPA, 2,4-D) were selected to adsorption experiments. Adsorption of these compounds from aqueous solutions has been studied using commercial activated carbon F300 (Chemviron). The kinetic data were examined with the pseudo-first-order and pseudo-second-order models, and were found to follow closely the pseudo-second-order kinetic model. With increase in the initial solution concentration rate constants k_2 diminish for each adsorbate and with increase in the number of Cl atoms in phenoxyacetic acid molecule rate constants k_2 decrease for each initial solution concentration. Adsorption equilibrium data were analyzed and were fitted well using Freundlich isotherm in the studied concentration range. With increase in the number of Cl atoms in phenoxyacetic acid molecules the Freundlich equation constants K_F and n decrease. Presence of electrolyte (Na_2SO_4) in aqueous solutions of phenoxyacids enhances their adsorption.

Keywords: Herbicides, phenoxyacetic acids, adsorption kinetics, adsorption isotherm.