

**Kusmierek, K., Dabek, L., Kaminski, W., Swiatkowski, A. Evaluation of the Usefulness of Peat for Removal of Chlorophenols from Water Solutions. *Ochrona Srodowiska* 2013, Vol. 35, No. 2, pp. 51–55.**

**Abstract:** Three chlorophenols of various number of chlorine atoms in the molecule (4-CP, 2,4-DCP and 2,4,6-TCP) were selected for experiments. Removal of these compounds from aqueous solutions has been studied using commercially available Spill-Sorb peat from Parland County (Alberta, Canada). To describe the kinetic data pseudo-first and pseudo-second order models were used. The results showed that the adsorption of chlorophenols on the peat fitted well the pseudo-second order kinetic model. The values of the rate constants  $k_2$  decreased with the increase in the initial concentration of chlorophenol and with the increase in the number of chlorine atoms in the molecule. Adsorption was analysed as a function of solution concentration at equilibrium. The experimental data received were found to be well described by the Freundlich isotherm equation.  $K_F$  and  $n$  values increased in the order 4-CP < 2,4-DCP < 2,4,6-TCP. This suggests that the adsorption efficacy increases with increasing number of chlorine atoms in the chlorophenol molecule.

**Keywords:** Water treatment, chlorophenols, peat, adsorption kinetics, adsorption equilibrium.