Zarczynski, A., Stopczyk, A., Zaborowski, M., Gorzka, Z., Kazmierczak, M. Removal of Chloroorganic Compounds from Industrial Effluents Using Various Methods: Advantages of Thermocatalytic Oxidation. *Ochrona Srodowiska* 2010, Vol. 32, No. 1, pp. 49–54.

Abstract: A characteristics is given of the following methods for the separation of chloroorganic pollutants from wastewater: desorption with inert gas or water vapour, extraction with solvents, adsorption onto active carbon, and ion exchange. The processes can be used as prior steps either to the recovery of valuable substances or, if their recovery is not cost-effective, to the thermocatalytic or thermal oxidation of the pollutants already concentrated. The organic chlorine compounds chosen for the thermo-catalytic oxidation investigated within the scope of the present study included tetrachloromethane, 1,1,1-trichloroethane, 1,1,2,2-tetrachloroethane and propylene chlorohydrin. Experiments were carried out using platinum- or palladium-based granular catalysts, as well as a monolithic platinum-rhodium catalyst. The findings of the study can be itemized as follows: (1) In the presence of the catalysts tested, complete oxidation was achieved over the temperature range of 325–550 °C; (2) oxygen compounds were easier oxidable than non-oxygen compounds, and TChE displayed the lowest oxidability; (3) the activity of the granular catalysts (KP-910 and Pd) was higher than that of the monolithic (Pt-Rd) catalyst, and (4) none of the catalysts tested was deactivated. The application of the catalysts enabled the PCDD/Fs content of the reaction gases to be maintained below the admissible value established for the EU Member States (0.1 ngTEQ/m^3). The data reported in the literature, as well as the authors' own results, indicate that the temperature at which the chloroorganic wastes undergo catalytic oxidation can be reduced nearly threefold as compared to the temperature presently applied (1300 to 1350 °C).

Keywords: Chloroorganic wastes, stripping, extraction, adsorption, thermocatalytic oxidation.