

Gawdzik, J.I. Speciation of Heavy Metals in Sewage Sludge: A Case Study. *Ochrona Srodowiska* 2010, Vol. 32, No. 4, pp. 15–19.

Abstract: Samples of aerobically stabilized sewage sludge from the municipal sewage treatment plant in Busko-Sieslawice were analyzed for the presence of the following heavy metals: zinc, cadmium lead, nickel, chromium and copper. The form of heavy metal occurrence was determined by extraction analysis (BCR) according to the Tessier method. The results have revealed that in comparison to other municipal sewage treatment plants, the heavy metal content of the sludge from the Busko-Sieslawice plant was low. The results of sequential extraction have revealed the presence of heavy metal ions in all of the fractions, but metallo-organic compounds and aluminosilicates (fractions III and IV) were found to be the dominant forms of heavy metal occurrence. The heavy metal content of the mobile fractions (I and II) was insignificant, since in no instance did any of the metals examined exceed 18.2% of the over-all content. From those findings it can be inferred that the sewage sludge being analyzed was dominated by immobile forms of heavy metal occurrence. The study has also demonstrated that the overall heavy metal content of the sewage sludge fails to be a reliable criterion for assessing the potential risk to the soil and water environment. That is why the heavy metal ions belonging to fraction III are likely to pose environmental hazards if the sewage sludge is intended for use in soil recultivation.

Keywords: Sewage sludge, heavy metals, sequential extraction, metal speciation.