

Siebielska, I. Comparative Analysis of the Methods Used for Polycyclic Aromatic Hydrocarbons Extraction from Sewage Sludge. *Ochrona Środowiska* 2008, Vol. 30, No. 1, pp. 51–54.

Abstract: The presence of polycyclic aromatic hydrocarbons (PAHs) in wastewater sludge is attributable primarily to industrial discharge, the contribution of municipal sewage being of minor significance. This paper includes a comparison of two methods for PAHs extraction from wastewater sludge: the multistep method using the Soxhlet apparatus and the method involving ultrasounds. In both the methods, quantitative and qualitative determinations are carried out by gas chromatography. The samples used for the purpose of relevant studies contained stabilized sludge and came from a municipal sewage treatment plant. The findings of the investigations can be itemized as follows. The ultrasound extraction method was more efficient with PAHs of a higher number of rings (with the exception of benzo(a)pirene and dibenzo(a,h)anthracene). PAHs with a low number of rings (except anthracene) were more efficiently extracted from sewage sludge when use was made of the Soxhlet apparatus. The ultrasound method outclassed the Soxhlet technique in extracting high-toxicity PAHs; it also had the added advantages of being more moderate in solvent demand, and providing shorter times of extraction. The sensitivity of the method (0.01 mg/kg) to the determination of PAHs in wastewater sludge failed to enable reliable assessments of extraction efficiency in the case of low-molecular-weight PAHs.

Keywords: Wastewater sludge, PAHs, extraction, Soxhlet, ultrasounds.