

**Variability of the Non-methane Volatile Organic Compounds (NMVOC) Composition in Biogas from Sorted and Unsorted Landfill Material** – Małgorzata Pawłowska, Jacek Czerwiński, Witold Stepniewski

Summary

The landfill gas (LFG), produced during decomposition of the organic fraction of waste is a major source of air pollutants. It consists mainly of methane and carbon dioxide, but also contains additional gases, such as nitrogen, oxygen, hydrogen, carbon monoxide, hydrogen sulphide, and a large number of trace components. Aliphatic and aromatic hydrocarbons, halogenated hydrocarbons, heterocyclic compounds, alcohols, aldehydes, ketones, terpenes and siloxanes belong to this group. This work presents the results of field studies concerning the concentration of over fifty non-methane organic compounds in municipal solid waste landfill gas. The sites examined were located in the Middle-East macroregion of Poland. The landfills were different in the respect to size, morphology, and age of stored waste. The results reveal that the highest concentrations of the majority of the examined compounds were observed in gas released from the largest landfill at which the waste was not pre-treated prior to deposition. Concentrations often exceeded those found in the literature data. Deposition of waste after separation of biofraction and recyclable materials significantly decreased concentrations of the majority of NMOCs in the LFG.