

In recent years the emission of unpleasant odours from industrial areas to the surrounding environment has become one of the main problems of people living in nearby areas. The biggest number of complaints from the population is caused by the emission of odours to the atmospheric air in the vicinity of municipal waste landfills, municipal wastewater treatment plant, breeding areas and areas of industrial activity. These pollutants often have an unpleasant smell, which is perceived by the human using biological smell analyzer – olfactory. In order to ensure (a basis for assessing the emission of odorous substances common to the European Union countries) there is a regulation: European standard EN 13725. It is also valid in Poland since 2007. This document includes guidance of the method for determining the concentration of odourants in gaseous sample using dynamic olfactometry as well as a guidance for the team of assessors. The unit of measurement is called the European Odour Unit and odour concentration is expressed as a multiple of the odour threshold.

The project aims to identify point sources of emission of the most abundant sensory odours in the industrial areas of Pomeranian Voivodeship and to determine chemical compounds causing unpleasant odours in the atmospheric air over the areas located in the area nearby industrial plants. The investigations presented in this project belong to the fundamental type of research. Above-mentioned statement can be argued by three main elements included in this project, namely by: combination of field olfactometry and GC × GC-TOFMS technique for evaluation of odour nuisance of the atmospheric air with parallel identification of chemical compounds responsible for negative smell sensation; identification for the first time a new chemical compounds causing unpleasant smells using GC × GC-TOFMS system which gives unusual possibilities to provide qualitative and quantitative analysis; performing investigations using field olfactometry on the area of Pomerania Voivodeship, which was never been done on this territory. It also planned to determine a range of influence of the odour source, a value of the concentration of odour in the air and check whether the concentrations of the analyzed compounds exceed the maximum permissible level of concentration of odour c_{od} [ou / m³] in the air and to determine the impact of odour emissions on health and quality of life of society.

Describing more broadly a research issue, till this moment the field olfactometry were not used in the province of Pomerania for the evaluation of odour nuisance. Due to the lack of information on the methods of classification and categorization of emission sources of odorous substances there is a need for providing a research to develop methodologies for the identification of emission sources of odours in industrial areas.