



Chemical Analysis

Single Gases

This type of chemical analysis measures the concentration of single gases in emissions. There are some rare cases in which the odour pollution problem is due mainly to a single compound, such as ammonia or hydrogen sulphide. To assess the odour impact, the correlation between the compound concentration and the odour concentration must be known.

What is it?

There are some rare cases in which the odour pollution problem is due mainly to a single compound, such as ammonia or hydrogen sulphide. In such cases, by assessing the concentration of these single gases in emissions, it is possible to obtain a reliable quantification of odour emissions.

In general, for the measurement of single gases in emissions, such as ammonia and hydrogen sulphide,

specific technical norms exist defining the sampling and analysis method. Since concentrations are usually quite high (tens or hundreds of ppm), it is also possible to use electrochemical sensors, which are easy-to-use and cheap. When determining the concentration of single gases in emissions or immissions, it is important that the most suitable method is chosen in function of the expected concentration.

What can it be used for?

This type of chemical analysis allows the quantification of the concentration of single gases in emissions. This can be used to verify compliance to emission limits relevant of specific compounds. In those rare cases in which the emitted odour is directly correlated to one specific compound (tracer), then the determination of the compound concentration can be used to estimate the emitted odour concentration. In such cases, this datum can be used as input for dispersion modelling in order to evaluate odour impacts on the communities. For this purpose, it is necessary that a correlation between the compound concentration and the odour concentration has been preliminarily assessed.

What can it NOT be used for?

The chemical characterization of single gases is useless in the case of complex odorous mixtures, whereby odour concentration is not related to the concentration of one single component. This is unfortunately the most common case, since environmental odours typically are mixtures of hundreds of different compounds. This analysis doesn't give information about the composition of complex mixtures.

