

3 Spatial pollutants distribution - diffusive sampling

3.1 Methods of Diffusive Sampling

The Diffusive Sampling is an ideal measurement technique for large scale air pollution surveys with a large number of sampling points, which allow high spatial resolution (De Saeger et al., 1991, 1995). It is one of the approaches used in this project to perform a Preliminary Air Quality Assessment, as recommended in the Guidance report on preliminary assessment under EC air quality directives (Technical report No11, 1998).

The analytical methods used for the diffusive sampling analyses of NO₂, SO₂, and O₃ are those provided by Passam AG, Switzerland. Passam is the manufacturer of the diffusive samplers as well as an accredited laboratory for diffusive sampling analyses in accordance with the Standard ISO/IEC 17025. The Analytical method for Volatile Organic Compounds (VOC) is a standardized method (EN 13649, 2001) used by the IVD of the University of Stuttgart. The IVD has taken part in ring tests for VOC analyses and has obtained very good results. The different sampling and analytical methods used are listed in Table 3.1.

Table 3.1. Components and applied methods of Diffusive Sampling

Component	Principle	Analytical method
Nitrogen dioxide NO ₂	Absorption on triethanolamine	Photometry
Sulphur dioxide SO ₂	Absorption on potassium carbonate and glycole	Ion Chromatography
Volatile Organic Compounds VOC	Absorption on activated charcoal	Gas Chromatography
Ozone O ₃	Absorption on 1,2-di(4-pyridyl)-ethylene (DPE)	Photometry

In Figure 3.1 a shelter with Diffusive Samplers inside, as used in this project is shown.

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Figure 3.1. Shelter with Diffusive Samplers used in the field