

CHARACTERISATION OF ORGANIC SUBSTANCES IN PARTICULATE MATTER

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Organic substances are an important part of urban aerosols, typically 30 % of the airborne fine aerosol mass is composed of organic compounds. The distribution of these substances between the different size fractions is very important because of their influence on chemistry in the troposphere and the potential risk for human health. It is known that particles with different sizes are deposited in various regions of the lung.

The objective of our work is to characterize several emission sources (brown-coal-fired residential stoves, exhaust of cars, combustion of oil) in urban locations. For the characterization of the organic compounds the Curie-point-pyrolysis-GC/MS is used as the analytical method. Size-segregated aerosol samples were collected by a five-stage BERNER-type cascade impactor (0.05-10 µm). The pyrofoils can be directly placed in each impactor stage. High-volume samples (Sierra Andersen, <10 µm) on quartz fibre filters were also analysed by using this method.

Polycyclic aromatic compounds, oxygenated polycyclic aromatic compounds, n-alkanes, alkenes and other semivolatile substances were identified and quantified. Sources and processes will be discussed.

Advantages of this method are that very small sample amounts are needed (about 100 µg) and a sample preparation is not necessary. The reproducibility of this analytical technique is very high for semivolatile substances.

Submittal Information:

- 1.) Name of Meeting: EGS annual meeting
- 2.) First Submission
- 3.) Title: CHARACTERISATION OF ORGANIC SUBSTANCES IN PARTICULATE MATTER
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- 5.) Title of Session: OA24-Tropospheric Aerosols Formation and Heterogeneous Chemistry
Sub-session: formation from hydrocarbon oxidation (natural and anthropogenic HCs)
- 6.) Name of Convener: C. George, CRNS, Strasbourg, F
Co-Convener: T. Hoffmann, ISAS, Dortmund, D
- 7.) Special equipment: none
- 9.) Preference: poster presentation
- 10.) WinWord7.0 on disk/attached
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