Analysis and occurrence of oxygenated PAHs on atmospheric particulate matter

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Particulate matter (PM) has become a major research issue receiving increasing attention because of its significant negative impact on human health. There are main indicators that next to the morphological characteristics of the particle, also the chemical composition plays an important role in the adverse health effects of PM. In this context, the rather polar organic fraction of PM is expected to play a major role, and advanced analytical techniques are developed to improve the knowledge on the molecular composition of this fraction. One component class that deserves major attention consists of the oxygenated polycyclic aromatic hydrocarbons (PAHs). Those compounds are considered to be among the key compounds in PM toxicity.

This poster focuses on four issues related to oxygenated PAHs sorbed on PM. First, the main sources and atmospheric pathways of oxygenated PAHs and their relevance (health effects) is presented. The second issue deals with the analytical sequence necessary to identify and quantify oxygenated PAHs on atmospheric PM. Third, an overview is given of the observed concentrations in the atmosphere as a function of sampling season, ring number and size fraction. Fourth, some preliminary results related to oxygenated PAHs concentration levels in Flanders (measured in the framework of the PARHEALTH-project) are shown.