

Organic micropollutants in the environment: analytical challenges and engineering innovations

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Advances in analytical chemistry have resulted in the discovery of an increasing number of anthropogenic emerging organic contaminants in the environment, such as pharmaceuticals, pesticides, sunscreen/ultraviolet filters, artificial sweeteners, brominated flame retardants, perfluorinated compounds, PAH-derivatives, benzotriazoles, benzothiazoles, plasticizers, surfactants, and disinfection byproducts. The detection of contaminants is most probably not an isolated case; rather the tip of the iceberg. The awareness grows that even more unknown contaminants and transformation products are dispersed in the environment. This continuous burden on the environment of organic micropollutants with often an intrinsic ability to interfere with organisms concerns the scientific community. Additionally, increased use of reclaimed waste water (e.g. for crop irrigation) might expose human individuals to xenobiotics. Potential (eco)toxic effects can be a threat for the good status of ecosystems and human health. Analysis of trace concentrations of contaminants in the environment is challenging but prerequisite for studying and monitoring their fate and occurrence. Moreover, driven by pending (European) legislation and/or as a precaution to protect the environment, technological upgrades are needed to remove these micropollutants from waste streams. This session is looking for original oral and poster contributions to discuss latest progress in the field of research on (emerging) organic micropollutants in the environment. Topics include but are not limited to: - Trends and innovations in environmental analysis and monitoring of (emerging) organic micropollutants: both fundamental analytical research and field applications (e.g. sampling approaches, development and validation of analytical techniques, target and non-target screening, effect-oriented analysis, field monitoring,...) - Environmental fate and behaviour (e.g. environmental occurrence of newly detected organic micropollutants, partitioning and degradation in the environment, trends in monitoring data,...) - Technological developments and strategies to mitigate in a sustainable way organic micropollutants in the environment (e.g. improvements and innovations in abatement technology, reaction pathways, chemical and biological assessment, experiences with pilot- and full-scale installations, process control and process integration,...) - The way forward: innovative proposals for adaptation and updating of existing monitoring and engineering approaches taking into account the socio-legislative-economic context.