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Sources and transport pathways of micropollutants into surface waters – an overview

Christian Stamm
EAWAG, Environmental Chemistry, Duebendorf, Switzerland (christian.stamm@eawag.ch)

Micropollutants reach water bodies from a large range of sources through different transport pathways. They consist of hundreds or thousands of compounds rendering exposure assessment an analytical challenge. Prominent examples of micropollutants are wastewater-born pharmaceuticals and hormones or plant protection products originating from diffuse agricultural sources. This presentation reviews the possible origin of micropollutants and their transport pathways. It demonstrates that considering municipal wastewater and agriculture may fall short of comprising all relevant source-pathway combination in a given watershed by providing examples from industry, animal production, or leaching to groundwater.

The diversity of source-pathway leads on the one hand to a large number of possible chemicals to be considered including parent compounds of end products, their transformation products, legacy compounds but also intermediates used during industrial synthesis processes. On the other hand, it leads to a wide range of temporal dynamics by which these compounds reach streams and rivers. This combination makes a comprehensive exposure assessment for micropollutants a real scientific challenge. An outlook into new development in sampling and analytics will suggest possible solution for this challenge.