



## **Impact of materials used in lab and field experiments on the recovery of organic micropollutants**

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Organic micropollutants are frequently detected in the aquatic environment. Therefore, a large number of field and laboratory studies have been conducted in order to study their fate in the environment. Due to the diversity of chemical properties among these compounds some of them may interact with materials commonly used in field and laboratory studies like tubes, filters, or sample bottles. The aim of our experiment was to study the interaction between those materials and an aqueous solution of 43 widely detected basic, neutral, and acidic organic micropollutants hereby covering a broad range of polarities. Experiments with materials were conducted as a batch study using spiked tap water and for different syringe filters by filtration with subsequent fraction collection.

The best recoveries over a wide range of organic compounds were observed for batches in contact with the following materials (in descending order) acryl glass, PTFE, HDPE, and PP. The use of Pharmed<sup>®</sup>, silicone, NBR70, Tygon<sup>®</sup>, and LDPE should be avoided. Flexible tubing materials especially influence many of the investigated compounds here.

Filtration with most of the tested filter types leads to no significant loss of almost all of the investigated micropollutants. Nonetheless, significant mass losses of some compounds (loratadine, fluoxetine, sertraline, and diuron) were observed during the first mL of the filtration process.

No systematic correlation between compound properties, tested materials, and observed mass losses could be identified in this study. The behavior of each compound is specific and thus, not predictable. It is therefore suggested to study the interaction of compounds with filters and material prior to the actual experiment or include blank studies.