

Micropollutants: SMEs also contribute to pollution

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With the support of Eawag, experts from the VSA platform "Process Engineering for Micropollutants" investigated the inputs of substances from industry and commerce into waterbodies. The nationwide analysis shows that treated wastewater from businesses also contains micropollutants that enter waterbodies.

Chemicals from building materials, cleaning agents and pharmaceuticals or cosmetics reach the wastewater treatment plants with the domestic wastewater. Depending on the state of development, these micropollutants are eliminated there to a greater or lesser extent. Some of them therefore reach the water bodies. In addition, pesticides enter groundwater or surface waters directly from agricultural areas. The situation analysis published today by the VSA on "Substance inputs from industry and commerce into water bodies" now shows that small and medium-sized enterprises (SMEs) and industry also contribute to the load of such substances in water bodies, sometimes in considerable quantities.

SME wastewater management not geared to micropollutants

There are many reasons for this: the Water Protection Ordinance does not contain any substance-specific discharge values for micropollutants from industry and trade. Often, the wastewater management of companies is geared to "classic" pollutants, such as heavy metals or oil and grease residues, and not to micropollutants. The diversity of substances is enormous. Companies and authorities often lack knowledge about the individual ingredients of the products used. Moreover, the quantities discharged per farm and per day or week are small. However, when extrapolated to an annual load, they can be significant. Project manager Pascal Wunderlin gives an example: "If a company sends away one kilogram of an active pharmaceutical ingredient with the wastewater only once a week, that corresponds to about one million tablets per year that end up in the water."

Joint approach with the industries and companies

The analysis has identified relevant industries and processes that are now to be examined more closely - always together with the companies. The focus is, for example, on companies that treat liquid hazardous waste, companies with galvanic processes, but also the chemical-pharmaceutical industry. The first projects of the VSA platform "Process Engineering Micropollutants", together with the FOEN, Eawag and the industries, have been launched. The aim is to improve the overview of wastewater-relevant micropollutants from the prioritised sectors, and to support authorities and companies in improving the situation.

Three questions for Heinz Singer (Environmental Chemistry Department)



You were in the support group for this analysis - what surprised you most about the results?

I was surprised by the enormous number of possible micropollutants - starting materials, intermediates, by-products and transformation products, active substances or solvents - as well as the sometimes extremely high loads. In many cases, wastewater from a single operation can already lead to significant water pollution. It is astonishing that this situation is not limited to one industry or one large-scale operation or one region in Switzerland.

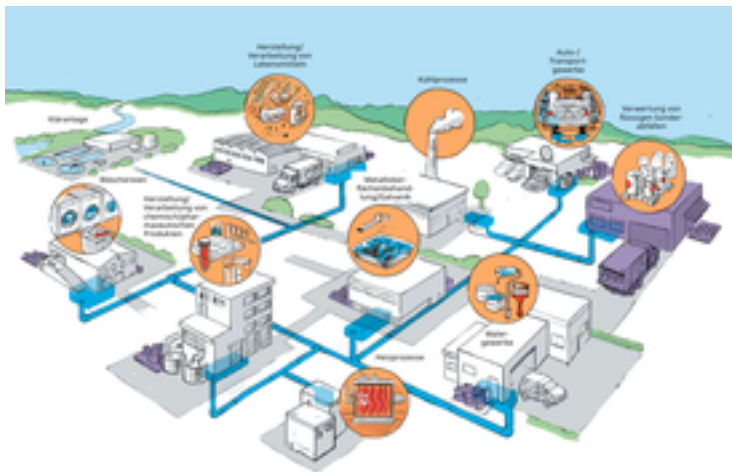
Eawag does a lot of research on domestic wastewater and its treatment. Should it now (also) pay more attention to industrial and commercial wastewater?

The report clearly shows the importance of commercial and industrial wastewater on water quality. In my view, it is therefore inevitable that Eawag should devote more attention to this issue. Eawag should develop conceptual approaches to solutions in cooperation with associations and industry. The company-specific measures are the responsibility of the companies. Therefore, Eawag is already very active in this research area in a number of projects. A research institute in particular cannot say "The problem is too complex and multi-layered, so we'll leave it alone".

The situation analysis shows a need for action, writes the VSA. Where should we start in order to be able to reduce the burdens from industry and commerce as quickly as possible?

There is certainly no one-fits-all solution. The problem is too multifaceted for that. We need to start with production (keyword "green chemistry" or "begin-by-design") as well as with decentralised wastewater pretreatment and extended, centralised wastewater treatment. In some projects, we have seen that intensive exchange and discussion with companies and industry associations based on concrete measurements alone have triggered awareness of the problem and thus a change in behaviour (i.e. measures). However, systematic recording of substance discharges is certainly needed first in order to be able to start this discussion properly. Part of the solution to the problem is certainly also the dissemination of information through events, training courses and information brochures in cooperation with the industry associations.

Cover picture: Relevant sectors for inputs of micropollutants into water bodies (Graphic: VSA, zeichenfabrik.ch and kun-st.ch)



Relevant sectors for inputs of micropollutants into water bodies (Graphic: VSA, zeichenfabrik.ch and kun-st.ch)

Related Links

Detailed communication of the VSA

Directly to the study: Wunderlin, P., Gulde, R. (2022).

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<https://www.eawag.ch/en/news-agenda/news-portal/news-archive/archive-detail/micropollutants-smes-also-contribute-to-pollution>