

# **DGMT Working Group Micropollutants Economic Rejection of Micropollutants, Pathogens and Microplastic – Potential of Membrane Technology for Wastewater Treatment**

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## **Abstract**

Contamination of the environment by micropollutants has clearly been proved by now. Due to the high concentration of microorganisms and the contamination by antibiotics coming from animal breeding, hospitals and ambulant applications, elimination of micropollutants in biologically treated wastewater becomes more and more important.

Currently, a combination of powdered activated carbon and subsequent sand filtration is mainly used to eliminate micropollutants. This process is able to reduce trace substances like drug residues in the effluent of a wastewater treatment plant, however, it is disadvantageous that the sand filter does not ensure complete separation of activated carbon particles. Furthermore, sand filters cannot reject microplastics and drug-resistant germs. Thus besides treating wastewater by activated carbon adsorption and sand filtration further treatment steps must be implemented.

The presentation shows that membrane technology is a possible solution for the above-mentioned problems, which could be adjusted individually to the situation onsite. First, the membrane technology, its advantages and the applications in which it is already established, will be presented.

In addition, it will be pointed out in which step of a biological wastewater treatment process membrane technology can be used to eliminate activated carbon, drug-resistant germs and microplastics. Lastly, first experiment results and a comprehensive cost analysis of the various membrane processes will be presented. At the end, a general view about the investment decision's sustainability will be stated.