

## **Development of textile adsorbers for adsorption of trace substances from municipal wastewater after biological treatment**

The scope of the proposed project, new textile adsorption materials for the elimination of micropollutants based on polyelectrolyte-modified filter fleeces will be developed. The experience gained in the development of textile adsorption materials for metals will be used. The adsorption materials are to be used cost-effectively and efficiently in municipal wastewater treatment plants for the removal of a wide range of trace substances. Especially in NRW, the protection of surface waters is of particular importance, since a high proportion of the drinking water supply is covered by bank filtrate from surface waters. Furthermore, surface waters in NRW have a poor chemical and biological status according to the EU Water Framework Directive. To solve this problem, the textile adsorber is to be used as an alternative material to adsorption on activated carbon or oxidation with ozone in extended wastewater treatment for micro-pollutant elimination (so-called 4th treatment stage). For this purpose, a laboratory filter will first be developed which, after characterization with ultrapure water, will also be tested and optimized on real wastewater. On the basis of the tests, data for the design and planning of a test plant will be determined. By means of a long-term test, the cleaning performance with regard to the elimination of micro pollutants will be evaluated on a demonstration scale. With the developed textile adsorbers and the acquired technical know-how, a powerful and economically attractive technology for the removal of micropollutants will be developed, whereby the micropollutant load in surface waters can be significantly reduced.

Finally, an economic evaluation and comparison with other processes for extended wastewater treatment is carried out.

### **Project Information**

Title (German): Entwicklung von textilen Adsorbern zur Adsorption von Spurenstoffen aus kommunalen Abwässern nach biologischer Aufbereitung  
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