UFZ Planetary solutions
KNOWLEDGE THAT DELIVERS.

Profile

New Technologies to Combat PFAS



The challenge

Per- and polyfluoroalkyl substances (PFAS) are found in frying pans, raincoats, food packaging, and cosmetics – and have long since found their way into the environment. They can enter our bodies through drinking water and food. These ‘forever chemicals’ are extremely persistent, spread worldwide through the water cycle, and can pose serious health risks.

We develop technologies that remove PFAS from groundwater, soils, and contaminated water streams and prevent them from spreading further.

Our planetary solution

For both long- and short-chain PFAS, we combine innovative materials and processes to develop technologies tailored to different types of contamination. Our specially developed colloidal activated carbon is already commercially available for groundwater remediation. When injected directly into the aquifer, it forms a barrier that binds PFAS. Our regenerable zeolite adsorbents make it possible to concentrate PFAS and then break them down. We are developing a two-stage electrochemical process for particularly mobile short-chain PFAS. The PFAS are first concentrated and then degraded. This helps protect and restore valuable water resources and soil. Our technologies provide industry, remediation companies, and water suppliers with practical solutions to reduce PFAS contamination while minimizing the use of treatment materials and energy.

Our partners

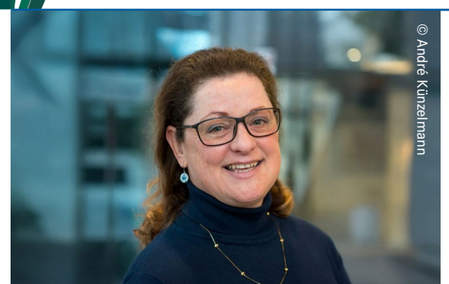
Our work brings together strong partners from academia and industry. Remediation firms and environmental technology companies such as Intrapore GmbH and Sensatec GmbH are testing our solutions under real-world conditions and taking them from the laboratory into practical application.

Relevant knowledge and technologies

Electrosorption and electro-oxidation: Particularly mobile, short-chain PFAS are bound to an activated carbon fabric by applying a low electrical voltage. When the voltage is reversed, the PFAS are released into a small volume of water, where they become highly concentrated before being destroyed electrochemically. This means that only a small proportion of the water requires energy-intensive treatment.

In-situ adsorption: Market-ready colloidal activated carbon (Intraplex®) can be injected directly into the aquifer. There, it forms a permeable barrier and binds PFAS from the groundwater.





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Additional links:
Website: PFAS Competence Cluster (a pool of UFZ expertise on ‘forever chemicals’)

UFZ HELMHOLTZ Centre for Environmental Research

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