

Modular system for wastewater treatment

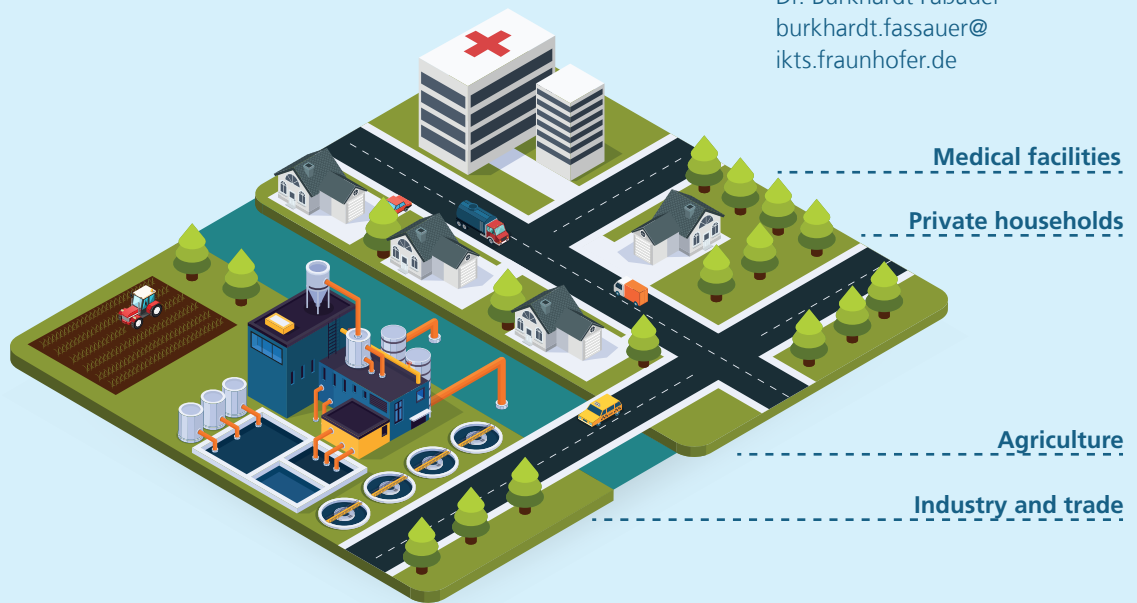


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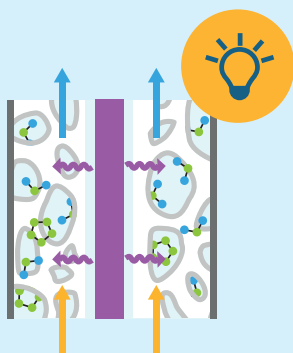
Detection and elimination of micropollutants

Conventional wastewater treatment processes cannot remove trace substances in a targeted manner. In contrast, multifunctional components that can combine processes, such as filtration, adsorption, photocatalysis or sonoelectrochemical oxidation are clearly superior. They can be easily and flexibly implemented in both existing supply infrastructures and modern industrial concepts. Integrated sensors help to reliably detect trace substances and to control wastewater treatment according to demand.



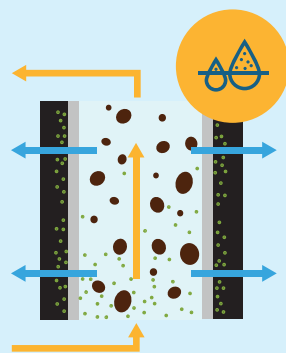
Photocatalytic Oxidation

By means of photocatalytic oxidation, micropollutants can be completely removed with simultaneous disinfection without using chemicals. Ceramic foams and membranes coated with a TiO_2 catalyst and assembled with UV LEDs to form compact stacks are the basis for this. The structure favors the efficient formation and distribution of hydroxyl radicals in water.



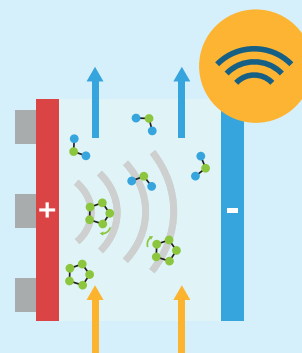
Membrane adsorption

Membrane adsorption enables the filtration of water and the adsorption of dissolved micropollutants in only one process step. By modifying a stable ceramic carrier membrane with carbon, an adsorptive effect of the membrane matrix is achieved. The regeneration of a loaded membrane adsorber is carried out by means of steam flushing.



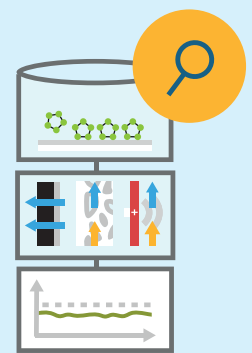
Sonoelectrochemical Oxidation

During sonoelectrochemical oxidation, micropollutants are electrochemically converted to CO_2 . For this purpose, an electrochemical electrode and ultrasonic sensors are integrated on a ceramic carrier system. The sensors intensify transport processes at the electrode and increase the degradation rates. The compact cleaning unit can be combined into larger modules.



Trace substance detection and process control

The optical sensor system allows online detection of trace substances and automated, demand-oriented process control. Trace substances are specifically bound to the biochemically activated, plasmonic sensor surface. The resulting change in optical surface properties is detected and evaluated by an optoelectronic system.



without
chemicals

2 in 1

3 x
more efficient

online