

PRESS RELEASE

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2018 IFAT

Water technology with potential: Fraunhofer Water Systems Alliance displays groundbreaking portfolio

Whether innovative phosphorus recovery, elimination of pollutants and trace substances, pioneering UV LEDs for drinking water disinfection, industrial membrane distillation, raw material extraction from sewage sludge or digital planning and optimization tools for integrated water infrastructure concepts: the Fraunhofer Water Systems Alliance uses the 2018 IFAT, the world's leading trade fair for water, sewage, waste and raw materials as a showcase for the water solutions of tomorrow in Hall B2/Booth 215/314 from May 14–18, 2018 in Munich.

In more than 30 countries worldwide – from Chile to China – the Fraunhofer Water Systems Alliance has worked successfully on projects in the field of water management. Through the merger of eleven Fraunhofer Institutes, nearly all the challenges of the water cycle can be covered, from simulations of the water catchment areas and planning support for water distribution to water treatment and raw material recovery. The Fraunhofer Alliance group of customers extends from the local waterworks and industrial users to global corporations. A comprehensive technology portfolio will be presented at the 2018 IFAT in Munich.

The display at the Fraunhofer Water Systems Alliance booth will include UV LEDs for water disinfection which, compared to conventional disinfection solutions, are impressive due to their long service life, efficient wavelength configuration and freely configurable reactor concept. In addition, the LEDs do not require a warm-up phase; moreover, they are mercury-free, highly stable from a mechanically perspective and very easy to monitor. In addition to drinking water disinfection, applications such as the disinfection of ambulances are conceivable.

Another highlight is a plasma reactor for water purification: highly reactive elements formed in plasma can be used to degrade pollutants, such as organic wastewater constituents or cyanides. The plasma process works without the use of chemicals. Fraunhofer reports the reduction of water pollution with trace substances as well as the results of demonstration projects and the accompaniment of the stakeholder dialogue "Trace Substance Strategy of the German Federal Government".

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Growing importance is attached to the treatment of sewage sludge. Almost two million tons of it are generated in Germany each year. At the 2018 IFAT, the Fraunhofer Water Systems Alliance will also present a form of integrated ultrasonic cavitation treatment. This makes it possible to mechanically separate sewage sludge into different fractions, which subsequently improves the targeted recovery of phosphorus and nitrogen compounds.

Municipal wastewater also contains significant amounts of phosphorus: it is estimated that 4.3 million tons are lost each year worldwide through the sewage system alone. With the ePhos® process, the Fraunhofer Alliance is presenting an electrochemical process with which phosphorus and nitrogen can be precipitated from municipal wastewater as magnesium ammonium phosphate (struvite) without the addition of salts or alkalis. The energy demand is low and can be fully supplied from renewable sources. Struvite is a high-quality, long-term fertilizer for agriculture and can be absorbed directly by plants.

A highly efficient and robust system for biological wastewater treatment is on display in the "Fixed Bed Circulation Reactor" exhibit. On particles, microorganisms are immobilized which, adapted to the cleaning task, clean the process waste water that is treated. This includes, for example, the reduction of the organic load or the separation of metal ions as poorly soluble metal sulfides in ore quality. The procedure offers the possibility of process integration in existing process chains with internal recycling and closed-cycle operation, taking into account the product quality that is to be maintained.

Another exhibit displays efficient humidification via a hydrophobic membrane which generates water vapor over a large area but which inhibits germs without the use of chemicals.

In addition, the digitization of the water industry also plays an important role. In addition to web-based monitoring and event detection in drinking water infrastructures, new instruments for the visualization and planning of innovative water infrastructure concepts for cities and municipalities are on display.

These and many other pioneering technologies are being presented by the Fraunhofer Water Systems Alliance from May 14–18, 2018 at the 2018 IFAT, the world's leading trade fair for water, sewage, waste and raw materials in Hall B2/Booth 215/314.