



HIGH PERFORMANCE CENTER

**DYNAFLEX®**

FLEXIBLE SOLUTIONS FOR THE ENERGY  
TRANSITION AND RAW MATERIALS SHIFT

## WASTE WATER TREATMENT PLANTS: FLEXIBLE, DYNAMIC AND PRODUCTIVE

USAGE OF RESOURCES FROM WASTE WATER

### CONTACT

**Dr.-Ing. Ilka Gehrke**  
Photonic and Environment  
Phone +49 208 8598-1260  
ilka.gehrke@umsicht.fraunhofer.de

**Volkmar Keuter**  
Photonic and Environment  
Phone +49 208 8598-1113  
volkmar.keuter@umsicht.fraunhofer.de

**Fraunhofer Institute for  
Environmental, Safety, and  
Energy Technology UMSICHT**  
Osterfelder Strasse 3  
46047 Oberhausen, Germany

[www.umsicht.fraunhofer.de/en](http://www.umsicht.fraunhofer.de/en)

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For over hundred years, waste water treatment plants are serving reliably their purpose: The elimination of pollutants from waste water. Actually, those "pollutants" consist of phosphor, nitrogen and further nutrients. However, conventional waste water treatment plants lack in the technical requirements for resource recovery. Because of that, and regardless if for industry or agriculture, purified waste water has the same quality although the application-oriented treatment of waste water would save costs and resources. Future waste water treatment plants will have to transform into efficient waste water treatment factories by linking the technologies of digitalization and modularization with the classic process technology.

### Keywords

- Waste water treatment factory
- Usage-oriented waste water treatment
- Water recycling

### Industrial Sectors

- (Environmental) process technology
- Water and waste water technology
- Water management
- Production industry
- Automation technology



1 Conventional municipal waste water treatment plant. (MEV)

### Expertise

Fraunhofer UMSICHT follows both technical and systemic approaches for the flexibility of waste water treatment plants and for the linkage of water cycles with energy and material cycles.

Within the BMBF(\*) project ZeroTrace a dynamic on-site adsorption process will be developed which is able to use excess power from regenerative sources. The BMBF project ROOF WATER-FARM demonstrates for a building complex how the application-related treatment of waste water can provide irrigation water, liquid fertilizer and energy for a greenhouse. Fraunhofer UMSICHT develops integrated concepts for "digitalized" waste water treatment plants under the trademark inFarming®

(\* BMBF = German Federal Ministry of Education and Research)

### Unser Service

- Development of modular, dynamic waste water treatment processes
- Conception of productive and "digital" waste water treatment plants
- Scenario analysis and business models for the future water management
- Building up of interdisciplinary consortia, e.g. for integration of water, material and energy cycles (joint studies, research projects)

### Ihr Nutzen

- Cost savings through more efficient treatment processes and higher automatization
- Independence of unreliable raw material supplier
- Profits from sale of valuable materials and application-oriented water types
- Cost savings by reduced infrastructure
- Achieving of political targets (circular economy, resource security)

Further information

[www.dynaflex.de](http://www.dynaflex.de)

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