



KontiMonit

Project of the Thuringian Water Innovation Cluster (ThWIC)

Innovation field
Wasser analysis

Continuous monitoring of waste water characteristics

Innovative real-time sensor technology for determining chemical oxygen demand (COD) and other water quality parameters

Starting point

The rising world population, higher living standards and increasing industrialization have resulted in a drastic increase in the volume of wastewater produced. This also results in an increased risk of surface water pollution due to inadequately treated wastewater and an extended energy demand for treatment. One way to address this issue is to continuously monitor wastewater, municipal wastewater treatment plants and surface waters. Appropriate water parameters can thus be used to determine water quality, predict wastewater quantity and pollution levels, and monitor direct dischargers.

Parameters suitable for determining the overall quality of a water body are referred to as sum parameters. They are not limited to the determination of a single substance, but represent the sum of several substances or even groups of substances. One sum parameter that is already used in various fields is the chemical oxygen demand (COD). However, the standard method for determining COD has some intrinsic problems such as the use of toxic, environmentally harmful chemicals, long measurement times, high costs, no continuous determination of COD.

Project

An amperometric

measurement method was developed and patented at Friedrich Schiller University, which overcomes specific disadvantages of the standard method. Within the scope of the project, the method will be extended to the measurement of other water quality parameters. In order for the method to be used industrially, a complete instrument consisting of measurement technology, pumps, valves, filters, ultrasound actuators as well as control and evaluation software will be realized. In addition, the project will explore how the measuring system can be integrated into ongoing operations based on its use in a small wastewater treatment plant.

Environmental Technology

ThWIC Profile

Cluster of the Cluster4Future Initiative (BMBF)

Goals

1. New approaches for safe water supply
2. Establishment of an integrated water assessment
3. Impact in business and society

Consortium

28 partners from industry, research and associations

Structure

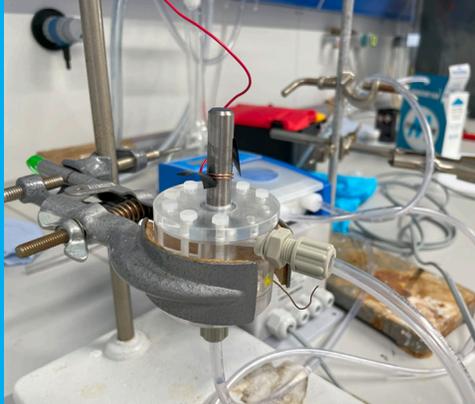
18 Projects in
4 fields of innovation:
»Water analysis«,
»Water treatment“,
»Water assessment“ and
»Water understanding and
explanation“ and
6 innovation-supporting
measures

Cluster Speaker

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Laboratory setup of the sensor

Finally, a concept for the energy management of wastewater treatment plants will be developed, which is based on the COD forecasts. .

Application

The COD sensor to be developed would make it possible for the first time to generate more information on water quality without the use of hazardous chemicals and with significantly reduced manpower. Such sensors are new and not available on the market. Continuous COD monitoring also makes possible for the first time areas of application, such as load-driven control of wastewater treatment plants, permanent monitoring of direct dischargers, real time display of the condition of surface waters.

Contact in project

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Measurement in the lab



Project duration
01.02.2023 - 31.01.2026

The project is funded as part of the Clusters4Future initiative of the German Federal Ministry of Education and Research.

Status
October 2023

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Thuringian Water Innovation Cluster
(ThWIC) at the

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