

BONUS CLEAN WATER

BONUS CLEANWATER

is a research project working with solutions to reduce input of micropollutants and microplastics into the Baltic Sea.



Bonus cleanwater



- Focussing on research on innovative water technology.
- To remove micropollutants and microplastics from wastewater to reduce input into the Baltic Sea.
- Solutions will be developed in close collaboration with end-users.
- Tests will be performed in pilot scale at selected wastewater treatment plants in Sweden, Denmark and Germany.

Goals



Develop eco-technological solutions for removing micropollutants and microplastics from contaminated water.

Determine the dominant source, wastewater or stormwater, for various micropollutants and microplastics.

Develop testing methods for analysis of xenobiotics and microplastics in storm-, leachate- and wastewater.

Why



The lack of knowledge on input loads of micropollutants and microplastics, into the Baltic Sea.

The lack of energy efficient and eco-technology based treatment Systems.

The lack of cost-efficient fast and reliable testing methods.

How



The project combines **fundamental studies** on how the respective processes are controlled with applied ones, concerning operation control, cost of operation and energy consumption.

More energy efficient ways of ozonation will be explored and tested.

Focus on ways to **decrease the formation of unwanted ozonation products**.

How



Processes controlling the removal of micropollutants in moving bed biofilm reactors (MBBR) will be studied, based on the most recent finding of enhancing the removal for some pharmaceuticals by a factor of about 20.

Membrane based technologies will be studied with the aim to increase removal of both microplastics and micropollutants and simultaneously to increase the lifetime of the membranes.

Biofilters will be studied for their potential to remove micropollutants and microplastics in decentralized water treatment systems.

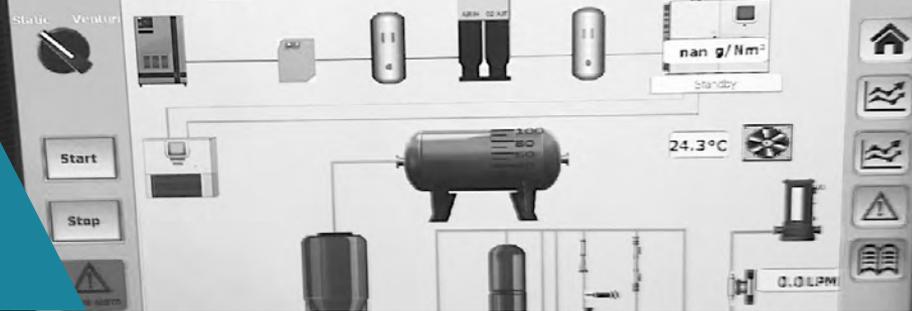
Sites



Research and demonstration sites



Pilot tests



The project combines fundamental studies in laboratory and in pilot plant scale.

Avedøre WWTP

- Ceramic membrane bioreactors (Liqtech)
- Biomimetic forward osmosis (BMFO) membranes (Aquaporin)
- Biofilters

Landskrona WWTP

- Optimazation of ozonation treatment
- Process development of moving bed biofilm reactors (MBBR)

Koblenz WWTP

- Moving bed biofilm reactors (MBBR) with focus on unwanted degradation rest product

Fundamental research



At Lund University, Aarhus University, Aalborg University, Bundesanstalt für Gewässerkunde in Koblenz

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- Membrane based technologies will be studied with the aim to increase removal of both microplastics and micropollutants and simultaneously to increase the lifetime of the membranes.
- Biofilters will be studied for their potential to remove micropollutants and microplastics in decentralized water treatment systems.

Respective processes are in general investigated concerning operation control, cost of operation and energy consumption.

Project funding



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