

Latest innovations for Sustainable Water Use, Energy and Resource Recovery

## Removal of Medical Residues

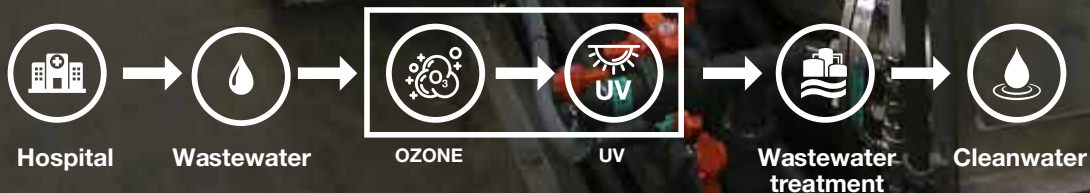
### How to remove micropollutants (i.e. medical residues) from municipal wastewater?

Nijhuis **MediOxi** - Nijhuis **MicroOxi**



Over the past few years more and more researches are conducted about our water-quality and the pollutants that are present in our surface- and drinking water. Due to the recalcitrant nature of some of these compounds, like medicine, pesticides or functional chemicals for different industries, the concentration of these compounds is increasing in our water. A large group of these compounds are harmful to the aquatic life and are in some cases already affecting human health.

Current wastewater treatment plants are not designed to remove these compounds and it is therefore necessary to come up with additional solutions to remove or prevent presence of these toxic compounds in our water. In many European countries, the attention on different technologies to remove these micropollutants is increasing.





Multiple technologies, comprising filtration, ad-/absorption processes, biological processes and chemical oxidation processes, have been successfully used to do so. These technologies can be used in concepts to treat water from various sources. At these treatment plants a large quantity of water and a combination of domestic, industrial and in many cases also rainwater is treated. Therefore, these compounds are present in trace concentrations in large volumes of water. Treatment of these large volumes means large-scale installations which are logically costly. Nijhuis Industries has therefore focused on the development of solutions for either decentral and central treatment of medical residues. Depending on the local situation and the number of medical residues in the wastewater, a decentral (MediOxi) and/or central (MicroOxi) treatment solution can be chosen to effectively remove harmful compounds like medicines.

### The Nijhuis MediOxi solution

The MediOxi solution of Nijhuis Industries is a treatment-at-the-source focused solution for medicine and micropollutant removal. It uses different filtration and separation techniques and a combination of oxidative techniques to convert recalcitrant compounds into biological degradable molecules. Using sufficient dosing and the correct combination of techniques, it is possible to reach significant reduction of medical residues or convert them so they can be further degraded inside a conventional wastewater treatment plant. The solution can be completely containerized and placed at sources like hospitals, elderly homes, or pharmaceutical companies. Nijhuis Industries has already proven to be able to remove a wide variety of medicines and x-ray contrast media effectively (>80%) from hospital wastewater.



Hospital Winterswijk | Nijhuis MediOxi

### The Nijhuis MicroOxi solution

For the treatment of micropollutants at sewage treatment plants, Nijhuis Industries has developed the MicroOxi solution. Depending on the local situation, a smart combination of oxidation technologies will be chosen to effectively remove a wide variety of medicines of more than 80%. With intelligent ozone dosage regulation based on organic load of the water. It is a customized, efficient and extensible solution based on the pollution level in the wastewater towards a sustainable and resilient future.



Waterschap Aa & Maas | Nijhuis MicroOxi

## Client benefits / Nijhuis impact

- ▶ Reduce the impact of micropollutants on the environment and clean water for nature, animals and humans
- ▶ Feasibility of oxidation solutions at different locations: at the source and at a municipal treatment plant
- ▶ Modular and containerized set-up of a Nijhuis installation, reducing on-site installation work