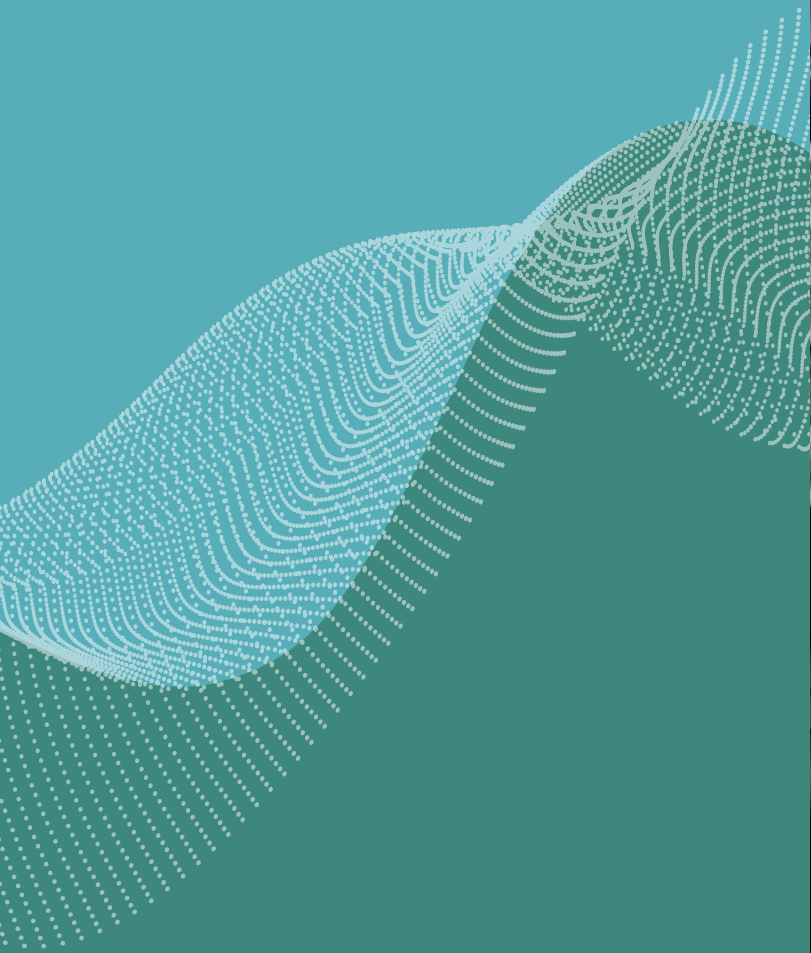


SUSTAINABLE DISINFECTION IN WATER TREAT- MENT PLANTS



Anolytech[®]

THE FUTURE OF DISINFECTION



ADVANTAGES OF ANOLYTECH'S ENVIRONMENTALLY FRIENDLY DISINFECTION SYSTEMS

Anolytech offers next-generation disinfection systems that effectively kill bacteria and other vector microorganisms while simultaneously being environmentally friendly and capable of reducing the company's water consumption radically.

- **Environmentally friendly, circular process**
- **Approved to EU standards and the Biocidal Products Regulation**
- **Compliant with Swedish National Food Agency regulations on drinking water**
- **Guaranteed reduced bacteria levels**
- **Offers major water savings**
- **Enables recovery of water**
- **Improves working environment**
- **Produced on site**
- **Uses no environmentally hazardous substances**
- **Produces no hazardous waste materials**
- **Reduces transport of dangerous goods**
- **Saves energy**

ABOUT ANOLYTECH

Since 2005, Anolytech has developed a sustainable and environmentally friendly disinfection technology based on water, salt and electricity which eliminates the need for disinfection with harmful chemicals. Anolytech's system produces a pH-optimised hypochlorous acid, AnoDes, that kills bacteria, viruses, spores, mould and fungi effectively and prevents or eliminates the growth of biofilm in water systems.

AnoDes is produced on-site, and the sustainable circular production process ensures that the customer has a reliable supply of disinfectant while also minimising the handling of chemicals and unnecessary packaging and the transport of hazardous goods.

AnoDes is EU-certified and not only disinfects drinking water and room areas, but also provides a gentler (EN 1500), more effective alternative to alcohol-based hand sanitisers. Anolytech now supplies disinfectant solutions to the farming sector and food industry, hotels and properties, plus the public sector and healthcare providers in Sweden and Europe.



Reduce bacterial levels and save millions of litres of water every year

Modern water treatment plants are very effective in removing debris and organic materials from incoming greywater, but large quantities of bacteria and other harmful microorganisms remain even after the water has passed through the final biofilter. Anolytech's environmentally friendly, EU-approved system kills microorganisms effectively thanks to our unique AnoDes disinfection solution which is simply added to the water. AnoDes reduces the levels of bacteria in the water so effectively that the outgoing water can be reused – saving millions of litres of water every year.

WITH A FIRM FOCUS ON THE 2030 AGENDA

The global goals of the 2030 Agenda currently demand everyone saves water by reducing our use of freshwater and increasing our re-use of water. Water treatment plants are uniquely placed to make a huge contribution to this task by disinfecting water before it is discharged or re-used.

Anolytech offers an EU-approved disinfection system which effectively kills harmful microorganisms using an environmentally friendly circular process which reduces the use of dangerous chemicals and limits transportation, but which most of all saves enormous amounts of water.

POWERFUL BACTERICIDAL EFFECT

Even in small quantities, AnoDes kills bacteria, viruses, spores, mould and fungi and prevents or eliminates the growth of biofilm in water systems.

AnoDes attacks and destroys proteins in the cell membranes of microorganisms, causing the cells to rupture and die. Thanks to its direct mechanism of action, it makes absolutely no difference if the bacteria are resistant or multi-resistant to antibiotics.

PRODUCED ON-SITE AND ENVIRONMENTALLY FRIENDLY

AnoDes is produced using nothing more than water, salt and electricity, the result of which is a pH-optimised hypochlorous acid with a powerful bactericidal effect.

It is produced on-site at the water treatment plant in a machine which is connected to the outgoing water. As AnoDes does not contain any hazardous chemicals, this disinfection solution is environmentally friendly and harmless to people and animals.

REDUCE BACTERIA LEVELS AND SAVE WATER

Anolytech's machine is connected as the final step in a waste water treatment system once all the debris

and organic material has been filtered out. Continuously releasing small doses of AnoDes into the outgoing water can radically reduce bacterial levels down to those safe for bathing waters, meaning it can be discharged out to the sea. This outgoing water can also be re-used as technical water for internal processes or sold on.

Anolytech's system means that local authorities are able to re-use greywater in a range of different ways, reducing the use of water by millions of litres every year.

SUSTAINABLE CIRCULAR PROCESS

Traditional disinfection is often a linear process where environmentally harmful and hazardous disinfectants are transported, used and produce waste that has to be disposed of.

Anolytech's system is a sustainable, circular process which results in no hazardous waste products. After disinfection, AnoDes simply reverts to its natural constituent parts, and the harmless waste products can be discharged with the water or left as the water is re-used.

IMPROVES THE WORKING ENVIRONMENT

AnoDes contains no harmful chemical substances, meaning staff working in water treatment plants neither have to handle hazardous chemicals nor wear protective clothing or breathing masks.

Anolytech's system even goes on to improve the working environment for those coming into contact with the re-used technical water. Subsequent buyers of the water or other municipal services using the technical water for tasks such as high-pressure washing or irrigation can also rest assured they will not be exposed to any water-borne bacteria or other infectious agents.

As no hazardous chemicals are used, no dangerous goods need transporting and there is no need for large amounts of packaging.

SIMPLE INSTALLATION WITH LOW OPERATING COSTS

The production system consists of just a control unit, salt holder and blending module. It is simple to install and has low energy and salt costs. Disinfection is completely automatic, apart from the quick and easy step of refilling the salt which is delivered in sacks.

The machine can be either rented or purchased from Anolytech, with both options requiring a service agreement with Anolytech to ensure correct functioning of the system and the quality of the end product.

STRONG RESEARCH-BASED EVIDENCE

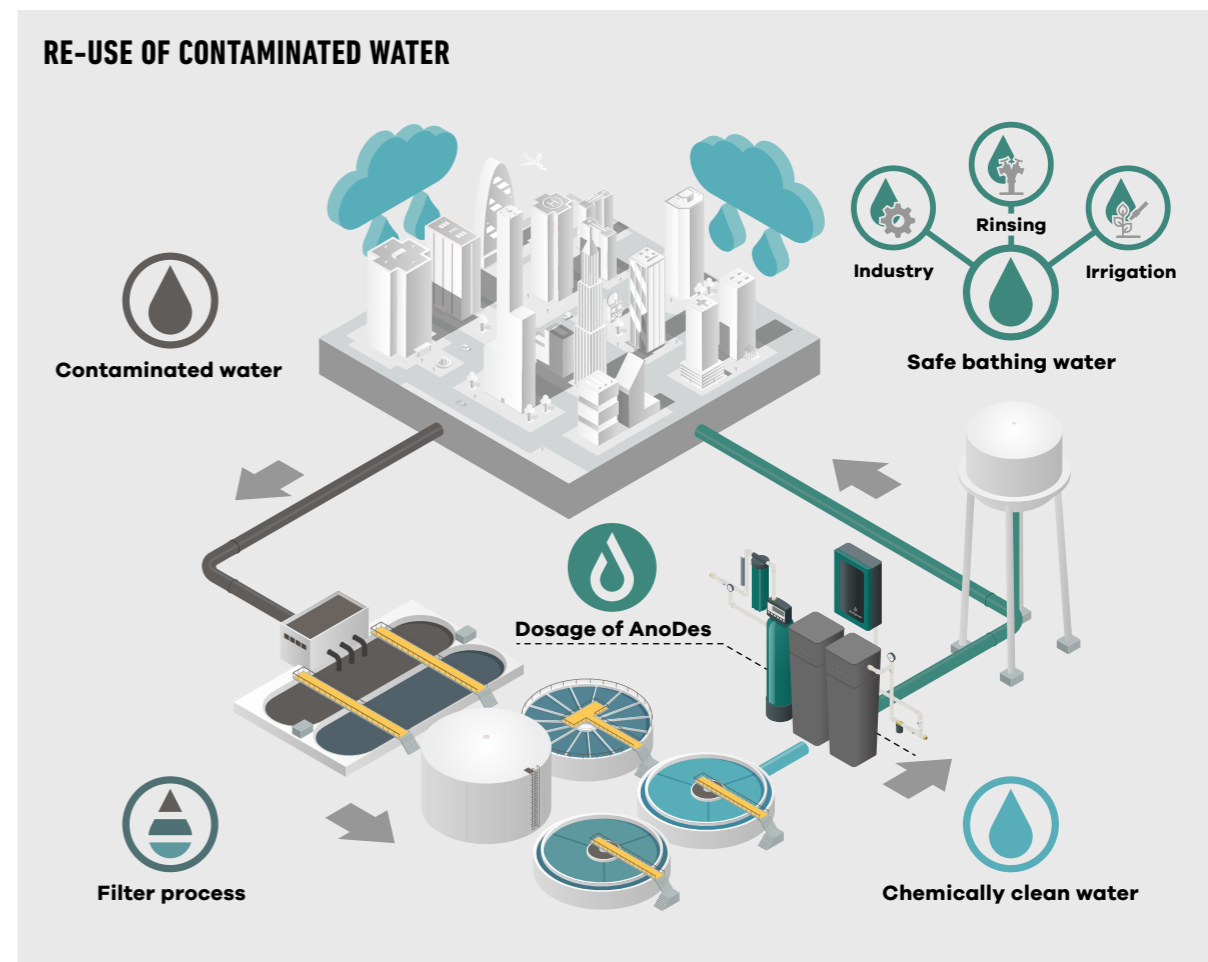
There is strong research-based evidence that 'electrolysed' water is effective in killing bacteria and other harmful microorganisms. Studies have shown it is effective against the most common pathogenic bacteria such as Legionella, Salmonella, E. coli, Listeria, Vibrio, Staphylococcus aureus, MRSA, spore-forming bacteria and viruses (including norovirus), as well as fungi.

EUROPEAN STANDARDS AND CERTIFICATES

AnoDes meets applicable European standards for disinfectants and is approved in accordance with Article 95 of the EU Biocidal Products Regulation. Anolytech's system is compliant with the Swedish National Food Agency's regulations (SLVFS 2001:30) on drinking water.

Use the QR code to view and download current directive documents and EN standards.

<https://anolytech.com/certificate/>



PERFORMANCE WARRANTY

The Anolytech Performance Warranty guarantees that the system will work throughout the entire rental period. Over the years, our systems have produced and released AnoDes into systems belonging to hundreds of businesses, and we guarantee that your system will produce the right amount of AnoDes in the right strength, and that the right dose will be released into the drinking water system.

We maintain and service our systems at regular intervals and notify users when it is time to order more consumables. We are always on hand, and monitor and continuously control systems and functions.



” Our local council decided to start using Anodes as a way of re-using 75 million litres of water a year. It has meant the water treatment plant has helped ensure access to drinking water by producing technical water which can be used for internal processes, thereby relieving some of the pressure on local drinking water production. The outgoing water is cleaned to usable quality, which primarily makes it safer for staff working in the sewage system, pumping station and treatment plant. ”

Operational manager at a water treatment plant in southern Sweden

DID YOU KNOW

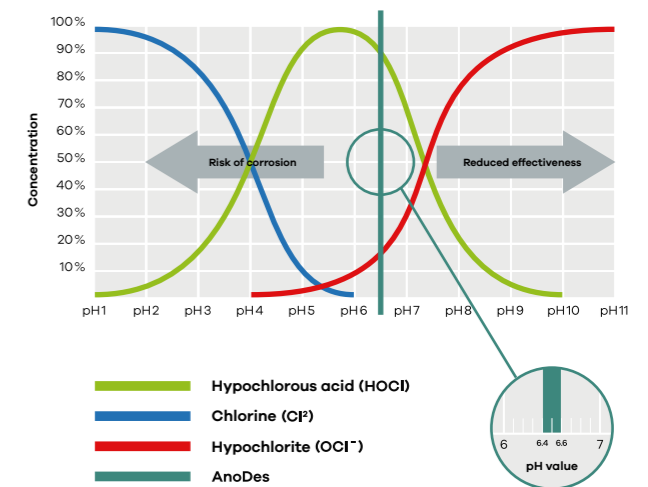
- Anolytech’s system is a sustainable, circular process which uses no hazardous substances.
- Concentrated Anodes is 200 times more effective than chlorine in reducing bacterial populations.
- The use of Anolytech’s system contributes towards achieving several of the global goals in the 2030 Agenda.
- Anodes is completely safe to both human beings and the planet.
- Once used, Anodes reverts to its constituents: 99.95% water and 0.05% biodegradable matter.
- Current Anolytech systems disinfect around 2.5 billion litres of water a year.

WHY ANODES IS SO EFFECTIVE

Anodes is a pH-optimised hypochlorous acid produced using nothing more than water, salt and electricity, meaning it contains no dangerous chemicals. Its carefully controlled pH level is what makes Anodes such an effective disinfectant. Anolytech’s system uniquely permits control of the pH value of the water with great precision, meaning that Anolytech can guarantee effective water disinfection.

ANODES COMPARED WITH OTHER METHODS OF DISINFECTION

There are a number of different methods currently used to disinfect water, but very few of them take Anolytech’s holistic approach including disinfection, water re-use, the environment and sustainability.



METHOD	ADVANTAGES	DISADVANTAGES
Chlorine dioxide	<ul style="list-style-type: none"> Chlorine gas/chlorite method provides the best results by far Effective in water Soluble in water 	<ul style="list-style-type: none"> Dangerous for the environment Requires PPE for handling Pungent, irritating smell Very volatile/short-lived (gas) Large risk of reforming of chlorite and chlorate Does not remove all biofilm During production: chlorine dioxide is extremely poisonous if inhaled
Ozone	<ul style="list-style-type: none"> Easily dissolves in water Capable of breaking down many different compounds and microorganisms 50% more effective in breaking down cell membranes than chlorine 	<ul style="list-style-type: none"> Relatively low efficiency (5-10%) of ozone generator means high energy consumption (approx. 10-20 kWh/kg); most of the energy goes on cooling Dosing of the feedwater takes place directly in pipe (boiling point: -112°C) Ozone rapidly decays Extremely poisonous – inhalation dangerous (can lead to lung damage/asthma)
Hydrogen peroxide	<ul style="list-style-type: none"> Effective Low volatility therefore low risk when handled 	<ul style="list-style-type: none"> Needs to be used in combination (usually with ozone or UV LED) Corrosive Dangerous if inhaled (at concentrations >3%) Can react violently with organic material Unstable, therefore best used in acidic conditions (in Sweden, drinking water is alkaline with a pH >7)
UV LED	<ul style="list-style-type: none"> No chemicals used 	<ul style="list-style-type: none"> Solely bactericidal Effectiveness dependent on water’s transmittance (how much light gets through), colour and turbidity Effectiveness dependent on wavelength, distance to lamp and cleanliness of lamp, voltage, temperature UV light can damage skin and eyes
Anodes	<ul style="list-style-type: none"> Environmentally friendly Continuously added in low dose – creates a preventive barrier against biofilm/bacteria Optimised for Agenda 2030 – contains no environmentally damaging chemicals and is non-hazardous for humans and animals Does away with transport and handling of dangerous substances (Anodes only needs salt and water) On-site production ensures same end product regardless of quality of treated water pH-optimised – prevents slow reactions and therefore ‘accommodates’ chlorine’s negative effects Kills bacteria, viruses, spores, mould and fungi, even in small doses Prevents and eliminates biofilm growth which can become a breeding ground for bacteria No hazardous waste materials 	<ul style="list-style-type: none"> Potential risk of corrosion at extremely high temperatures



Save millions of litres of water every year thanks to sustainable disinfection

Anolytech offers next-generation disinfection systems that effectively kill bacteria while still being environmentally friendly. Huge quantities of water can be saved by disinfecting water before it is discharged from a treatment plant or is re-used as technical water. Some of the advantages of Anolytech's systems:

- **Environmentally friendly, circular process**
- **Approved to EU standards and the Biocidal Products Regulation**
- **Compliant with Swedish National Food Agency regulations on drinking water**
- **Guaranteed reduced bacteria levels**
- **Offers major water savings**
- **Enables recovery of water**
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