

aquagroup

Aktiengesellschaft



To make Parks, Landscaping Area, Green House, Golf Course, Sports Site, Home Lawn, Garden, Farm House and Agriculture Site

A safer place.

Applications of ECA System and ECA Solutions;

- Drinking Water Treatment & Sanitation.
- Process Water Treatment & Sanitation.
- Potable Water Treatment & Sanitation.
- Surface Cleaning & Disinfection.
- Water Tank Cleaning & Disinfection.
- Fogging Application.
- Irrigation Water Treatment & Sanitation.
- Lake Water Treatment & Sanitation.
- Odor Removing Applications.
- Waste Water Treatment & Sanitation.
- Water Feature and Fountain Water Sanitation.
- Feed and Hay Decontamination.
- Overall Hygiene Improvement of Area.
- Overall Environmental Improvement of Area.

The Company

Aquagroup Swiss GmbH, Dubai Branch is a branch of German Company Aquagroup AG. It is a technology based company established with the aim to significantly improve general hygiene conditions. We are specialized in potable water treatment, surface disinfection and general hygiene of many industries and other organizations. Our concepts can save water and time, reduce energy costs and use of chemicals. Our main goal is to show the customers as many fields of application as possible and potential savings while offering customized solutions to tackle wide variety of germ issues. With the Aquagroup competence team, a staff of highly trained food engineers, hygienists, chemists, biologists, microbiologists and field application engineers provide the customers with just the right expert for any task throughout the entire process of water treatment, surface disinfection, microbial decontamination, environment improvement & farm biosecurity.

The aim: To retain our common goal in making water, food, surface and environment safer.



Vision:

- We are preferred partner of many industries and other organizations.
- We aim to be No. 1 in the fight against germs.

Mission:

- We improve hygiene where water is used.
- Our solutions can save water and time, reduce energy costs and the use of hazardous chemicals in certain applications.
- We improve environment and life.

Importance of Water Biosecurity

Water is the most critical nutrient required for human and animals, but its importance is often neglected by people/farmers. During periods of extreme heat stress, water requirements can easily quadruple. Therefore, a safe and adequate supply of water is essential for any application of the industry, organization and for the place.

Drinking water should be clear, colorless, chemically fit and free from pathogenic bacteria like *E.Coli*, *Coliform*, and *Pseudomonas spp*.

Poor water quality can affect the growth and cause diseases in human and animals. Water borne pathogens can easily get entry into person's body through drinking water and potable water system. Therefore, management of the site should make pro-active approaches for water biosecurity to avoid entry of microbial contaminants through water hence, to improve the environment and safety of the place.

What is ECA?

ECA Technology means Electro Chemical Activation Technology. Our disinfectant product NADES or NADES 2.0 are Electrochemically Activated (ECA) solutions which are produced through our specially designed devices. A saturated brine solution is passed through a cell and the NaCl is split into chemical streams via electrolysis.

The only active agent in our ECA product is NaOCl

One device – Numerous applications

Drinking, Potable and Process Water Treatment & Sanitation

- Clear germ free water.
- Risk mitigation.
- Proven biofilm elimination.
- Fully automatic system.
- Symbiosis of technology and hygiene.
- Post-Installation support.

Surface Cleaning & Disinfection

- To reduce microbiological load of surfaces.
- To make the surface safe for use.
- To avoid cross contamination.
- Save time, water, human resources and money.
- Work process can be optimized.

Fogging Applications

- To obliterate airborne spores and bacteria in animal houses.
- To improve air quality
- To reduce risk of mycotoxin on feed and hay.

Irrigation Water Treatment & Sanitation

- To eliminate bacterial and algae contamination from irrigation water.
- No nozzle blockage.
- No biofilm in water system.
- Less maintenance cost.

Lake Water Treatment & Sanitation

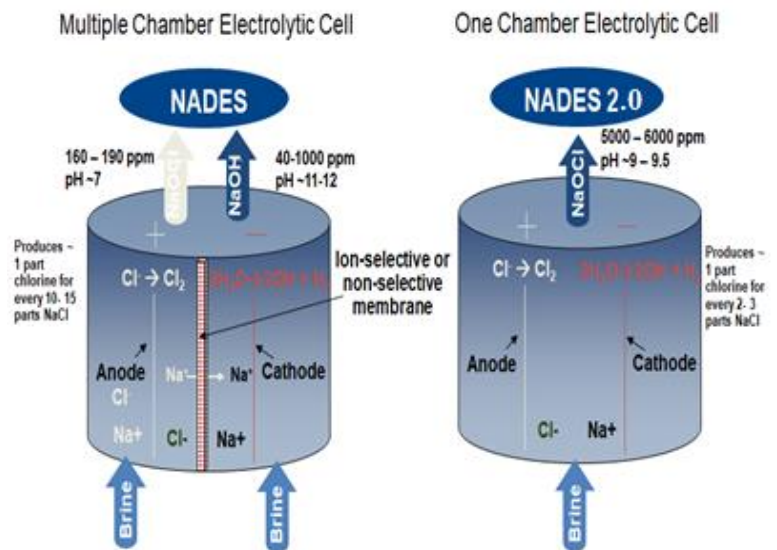
- To make lake water free from Algae and Bacteria.
- To improve water quality.

ECA advantages

The ECA Generator offers the advantages of producing active chlorine out of a harmless Sodium Chloride salt solution and electricity. Both are **easy to handle** and **available worldwide**. This process substantially reduces the risks involved in the distribution, transport, storage and handling of the hazardous active chlorine treatment of process water.

Conventionally manufactured NaOCl can produce harmful chlorates during storage

The **just-in-time** concept of NADES or NADES 2.0 production leaves no time for chlorates building. There is less handling of hazardous goods through the automated processes; this also results in simple operation of the generator's components. The ECA solution NADES or NADES 2.0 are effective against Biofilm and has a high anti-microbiological and anti-viral efficacy.



Waste Water Treatment & Sanitation

- To make waste water safe and to avoid microbial decontaminations.
- To make waste water reusable.

Odor Removing Application

- To remove odor from animal houses.
- To improve indoor air quality.

Feed and Hay Decontamination

- To make feed and hay safe from mycotoxins.
- To reduce the risk of diseases by improving feed quality.

Health & Safety

The health and safety for people is of paramount importance. Continuous investments in the design and security of water treatment are made to ensure optimal results. One of the highest risks in water management is that of biofilm.



Biofilm Formation

Many different microbes have demonstrated the ability to survive in water distribution systems with some possessing the ability to grow and/or produce biofilm. Primary pathogens survive and protect themselves in it, ultimately becoming part of this biofilm and often displaying more resistance against conventional approaches for example thermal disinfection or traditional chemical solutions. The presence of biofilms plays a significant role in harboring and providing favorable conditions in which *Legionella pneumophila* and *Pseudomonas aeruginosa* may grow and posing a serious health risk. Factors contributing to waterborne outbreaks include; contaminated bunkered water, dead legs and stagnation, cross connections between potable and non-potable water, improper loading procedures, poor design and construction of potable water storage tanks and inadequate disinfection.

Fighting the biofilm — a hopeless battle?

In cold water < 20 °C *Legionella pneumophila* does not multiply but remains dormant. In countries with hot climates the cold water inlet temperature often exceeds 25 °C, ideal for microbiological growth and biofilm formation. It is a widely known fact that conventional free active chlorine solutions are relatively ineffective in eliminating biofilm.

Solution — fight the cause not the symptoms

NADES and NADES 2.0, however, is an electrochemically activated NaOCl (ECA) and when used just-in-time does not lose any efficacy. It prevents and/or hinders the growth of microbiological activity in water. A continuous inoculation with NADES and NADES 2.0 disinfects through the chlorination oxidation reaction of RNA/DNA destroying the Extracellular Polymeric Substance's (EPS) of a biofilm. This EPS layer protects the microorganisms present in the biofilm and facilitates the transport of nutrients. Biofilm control is one of the important objectives for ensuring that water delivered to the guests is of the highest quality.

Expertise

LAGOTEC was instructed to cultivate biofilm under real conditions with the objective of achieving a representative prediction regarding the efficacy of NADES and NADES 2.0 in the reduction of thereof.

Our ECA Solutions NADES and NADES 2.0 are;

- Environmentally Friendly
- Non- Irritating
- Germ Free
- Quick Acting
- Non-Hazardous
- Non-Toxic

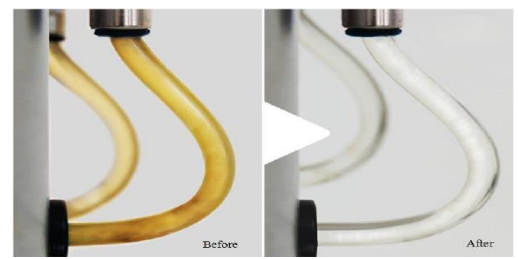
Why to Choose Aquagroup;

- Flexible Financing
- Pre- Survey
- Installation
- Training
- Commissioning
- Service and Maintenance
- 24/7 Hotline
- Application Consultancy



Before Treatment

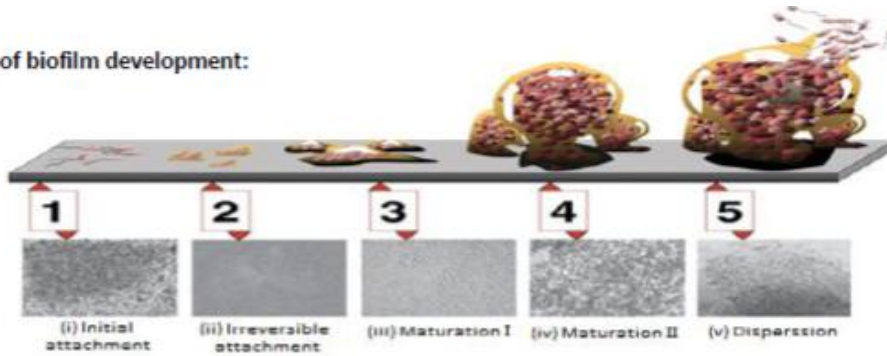
After Treatment



Before Treatment

After Treatment

Five stages of biofilm development:

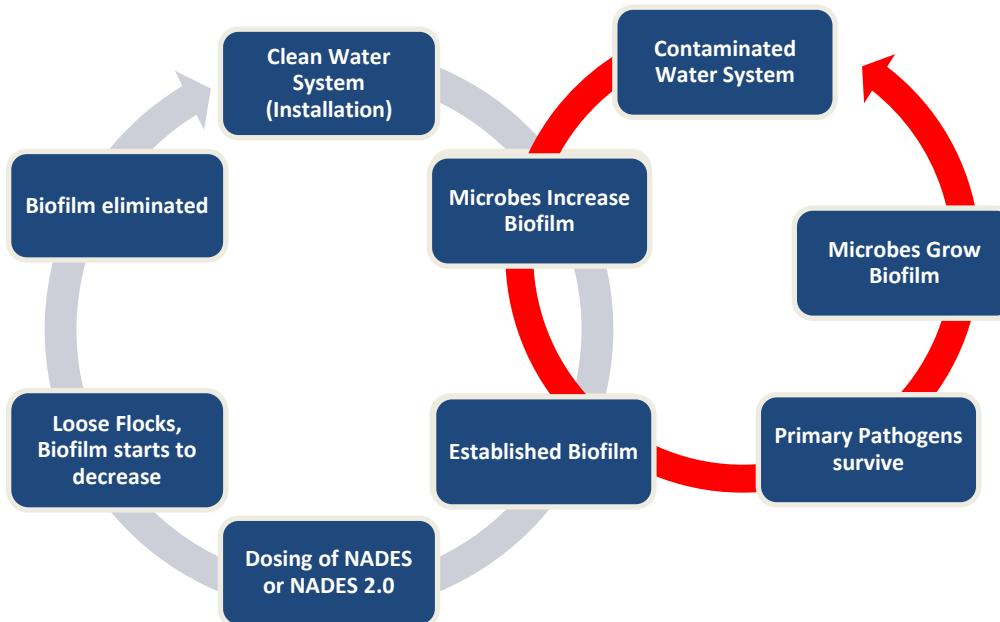


The ECA Disinfectant effect

- Germ free and Safe water
- Eliminating Biofilm
- Just-in-time production
- Guaranteed high water quality at all time
- No storage, no transportation nor handling of dangerous chemicals
- Simple operation of component
- Automatic process, reduction of human error

Factors Influencing Biofilm Formation:

- Bio available nutrients.
- Temperature – higher temperature leads to increase biofilm formation and growth.
- Water hardness.
- Applied materials.
- Processing of the material used.



Aquagroup Device:

- Risk management tool: all parameters are continuously monitored before, during and after the production process.
- User-friendly Touch Screen. (Optional)
- Integrated data longer for recording all parameters.
- Solenoid valve with time control for water and product.
- Service-friendly.
- Economical and environmentally friendly.






Expert Competency:

- Interface between hardware provider and Expert knowledge.
- Highly qualified team of chemists, microbiologists and food scientists.
- Field experience. Support through validation.
- Fully equipped laboratory for internal analysis.



Advantages of ECA Solutions (NADES and NADES 2.0)

- Saving the cost of handling, transporting and storing of very hazardous/dangerous chemicals for water treatment, surface disinfection and other applications.
- There will be no biofilm, algae and microbial growth in water distribution system and lines in the presence of ECA solutions (NADES or NADES 2.0), so animals will drink microbial contamination free water. As a result, disease rate will be reduced.
- Improve biosecurity of the place.
- ECA Solutions (NADES and NADES 2.0) can be used for surface disinfection so there will be overall improvement in hygiene.
- Saving the cost of chemical based disinfectants for manual line flushing.
- Time and energy savings since manual flushing of all lines can be avoided.
- Safe drinking water will be available 24 hours a day.
- No need to store, dilute and inject very hazardous chemical based disinfectants for water treatment, surface disinfection and for flushing of lines to remove biofilm.
- Main large tank and small water storage tank of the place will also be free from pathogenic bacteria, biofilm and algae growth; therefore, the cleaning frequency of the water storage tank farm will be reduced.
- The flow of water in lines will be smooth and there will be no blockage in nozzles due to biofilm.
- ECA solutions (NADES and NADES 2.0) can be sprayed in the place as fog by fogging machine to reduce airborne microbial contamination.
- Time and energy saving in case of surface disinfection application.

Main Overview Advantages	Through	ok
Increased output	Improve water biosecurity and in return more safety	
Healthier Environment	Reduction of germ level by in air fogging applications of ECA solutions	
Comply with standards and guidelines	Secured water quality within the drinking water standards and guidelines	
Savings in maintenance	Aggressive acids are no longer needed	
Greater safety with reference to shelf life (product treatment)	Reduction of germ level	

We remain at your disposal at any time.

Please contact us if you wish to evaluate your
specific saving potentials and applications scenarios!

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Aktiengesellschaft

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