

# aquagroup

Aktiengesellschaft

## POULTRY INDUSTRY



“ECA Solutions combats innovatively and efficiently.”

We are providing the best quality products and technical solutions.

[www.aquagroup.com](http://www.aquagroup.com)

**NADES**

**NADES 2-0**

# To Make Hatchery, Layer Farm, Broiler Farm, Breeder Farm, Meat Processing Company and Slaughterhouse

## A Safer Place.

### Applications of ECA System and ECA Solutions:

- Drinking Water Treatment & Sanitation.
- Process Water Treatment & Sanitation.
- Surface Cleaning & Disinfection.
- Food Microbial Decontamination.
  - Carcass Washing.
  - Egg Washing.
- Tank Cleaning & Disinfection.
- Pipeline and Water System Flushing.
- Fogging to improve Air Quality.
- Irrigation Water Sanitation.
- Odor Removing Application.
- Boiler Water Treatment.
- Waste Water or ETP Water Sanitation.
- Overall Environment Improvement of the Area.
- Overall Hygiene Improvement of the 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 poultry industry, food industries, hotel, resort, hospital, school, other organizations and other buildings. 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 and potentials savings as possible while offering customized solutions to tackle wide variety of germ issues. With our competent team, a staff of highly trained persons 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 Poultry industry, Livestock industry, Food industry, Hotel industry, Hospital, Clinic, School, Mall, Cooling tower industry, Cruise ship industry 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 the production of poultry, but its importance is often neglected by poultry raisers. It makes 55-75 percent of the chicken's body and 65 percent of an egg. A bird can survive for weeks without feed but can only survive a few days without water. Water intake of birds is about twice the weight of feed intake. During periods of extreme heat stress, water requirements can easily quadruple. Therefore, a safe and adequate supply of water is essential for efficient poultry production.

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

Poor water quality can affect growth, curtail egg production, produce lower egg quality and cause diseases in poultry. Feed conversion, for example, has been positively correlated to the presence of sulfate and copper concentrates in the water, and livability with potassium, chloride, and calcium. Body weight is influenced by water hardness and dissolved oxygen and negatively influenced by total bacteria and a pH less than 6.0.

## 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 active agents in our products are electrolyzed water with high ORP value (Oxidation Reduction Potential) and chemically active agent NaOCl.

## One device – Numerous applications

### Drinking 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.

### Food Microbial Decontamination

- To reduce microbiological contamination on carcass and egg during washing.
- To increase shelf life of the product.
- To comply with standards, guidelines and legislations.

### Fogging in Hatchery and Processing Areas

- To obliterate airborne spores and bacteria.
- To create cleaner environment of hatching process and other processing areas.
- To neutralize ammonia odor and reduce risk of disease.

### Cooling Pad Cleaning & Disinfection

- To sanitize water for cooling pad.
- To control biofilm in cooling pad.

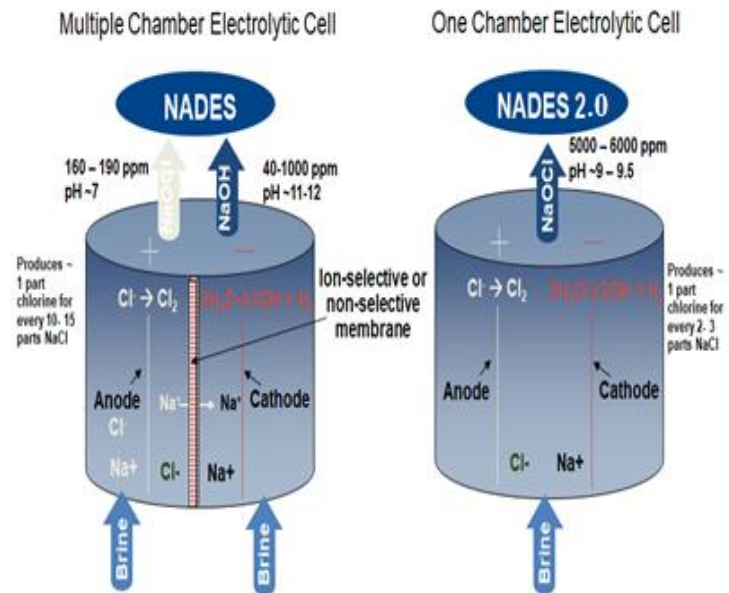
### Irrigation Water Treatment & Sanitation

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

## 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 or ETP Water Treatment & Sanitation

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

### Odor Removing Application

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

### Boiler Water Treatment

- To make boiler fit with international standards and guide lines.



## Health & Safety for the Birds and Personnel

The health and safety for birds, animals and 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.



Free swimming cells alight on a surface and attach

New genes are expressed to synthesize matrix polymers

Cells coordinate by exchanging molecules

## 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 for ensuring that water delivered to the guests is of the highest quality.

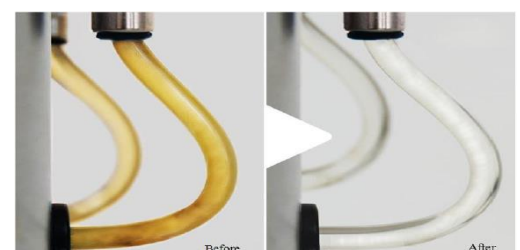
## Expertise

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.



Before Treatment

After Treatment



Before Treatment

After Treatment

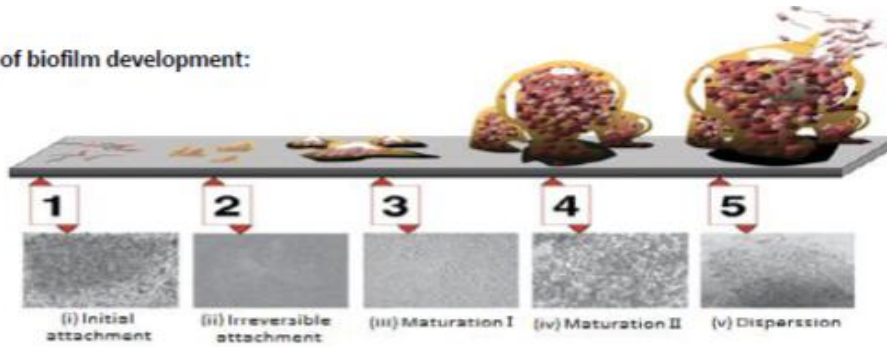
## Our ECA Solutions NADES and NADES 2.0 are;

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

## Why to Choose Aquagroup;

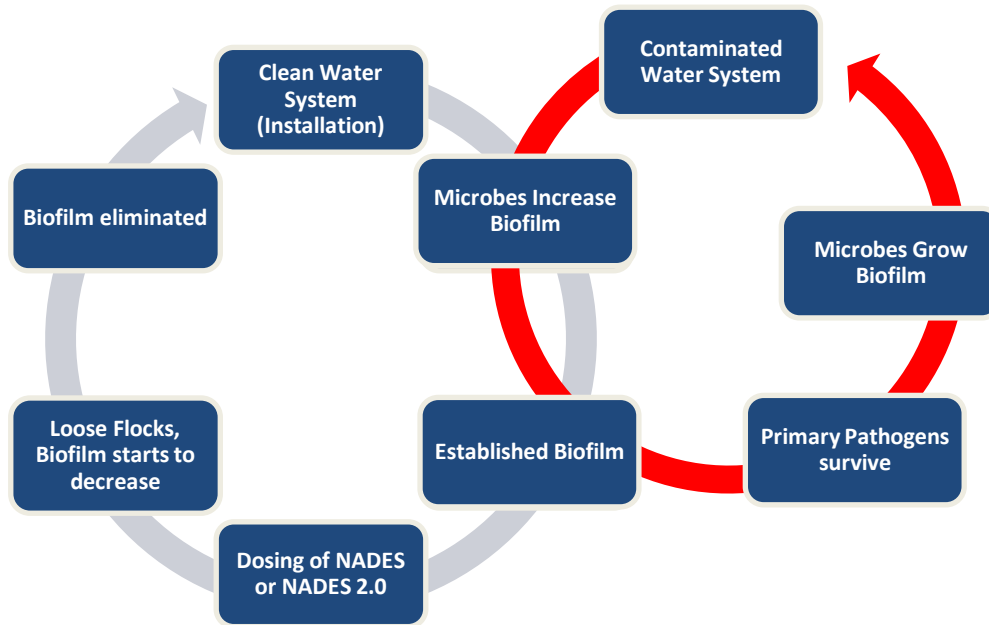
- Flexible Financing
- Pre- Survey
- Installation
- Training
- Commissioning
- Service and Maintenance
- 24/7 Hotline
- Application Consultancy

Five stages of biofilm development:



**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.



**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

**Our 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) in Poultry Farms

- Saving the cost of handling, transporting and storing of very hazardous chemicals for water treatment.
- There will be no biofilm in water distribution system and lines in the presence of ECA solutions (NADES or NADES<sub>2.0</sub>), so bird will drink microbial contamination free water. As a result, disease rate will be reduced.
- Improve biosecurity of farm.
- Helps in increase in egg production turnover in layer farms and better quality of broiler birds in broiler farms and breeder farms.
- Birds will be healthier therefore the antibiotic frequency will decrease since the diseases caused by microbial contamination of water will no longer occur.
- ECA Solutions (NADES and NADES 2.0) can be used for surface disinfection and to remove bio burden on eggs 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 for birds 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 of poultry farm and small water storage tank in each poultry house 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 hatchery and other processing areas in air 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
<b>Increased output</b>	Improve water biosecurity and in return good growth of chickens and more eggs	
<b>Healthier Animals</b>	Reduction of germ level by in air fogging applications of ECA solutions and watering the animals	
<b>Comply with standards and guidelines</b>	Secured water quality within the drinking water standards and guidelines	
<b>Savings in maintenance</b>	Aggressive acids are no longer needed	
<b>Greater safety with reference to shelf life (product treatment)</b>	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

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