Aquacode™

Breaking new ground in

Sterilization

Disinfecting

Water purification

No Chemicals, just green technology.

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Why use dangerous chemicals when there are safer more environmentally friendly alternatives?

Every year people get hurt and even killed in chlorine gas-related accidents. Some of these involve delivery systems or incorrect mixing of cleaning and disinfecting chemicals.

Chlorine and its chemical compounds are extremely effective as disinfecting agents and the safety of our modern food and water supply chain depends heavily on them.The struggle has been to maintain the safety of the food and water supply chain whilst protecting the health and lives of those working in these areas.

Now with the use of Aquacode systems it is possible to generate hypochlorous acid safely on site with just salt, water and electricity. Hypochlorous Acid is one of the most powerful chlorine based disinfection agents.

Salmonella enteritidis.Causes food poisoning (Salmonellosis) in humans when ingested. Found in poultry, eggs, meat and shellfish.

At concentrations significantly lower than traditional chlorination with an ORP of +600 - + 1200mv and pH 2.5-8.5 it can achieve a log8 reduction of E.coli within 10 seconds.

Using state of the art patented Membrane Electrolysis technology Aquacode generators produce powerful disinfection agents on site without any risks to humans.

The added bonus is that our disinfection liquids are classed as non toxic and biodegradable under EU guidelines thus helping protect both people and the environment. All these benefits are coupled with the possibility of making substantial cost savings in many circumstances as on site production is often substantially cheaper than using traditional chlorine based chemicals.

The Aquacode generators can also save energy and water as they allow some processes to be carried out at lower temperatures and the water to be recycled.

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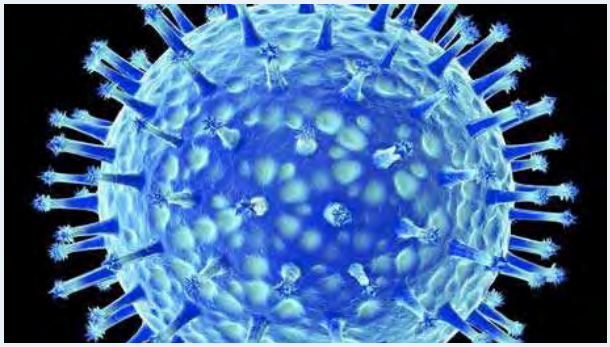
What Does the Technology Do

Aquacode Electrolyzed Water (EW, EOW or EO, also known as electrolyzed oxidizing water or ionyzed water solution) technology is the process of passing ordinary water or a diluted saline solution through a specially designed electrolytic cell in order to modify its functional properties without adding reagents. Aquacode solutions (anolyte and catholyte) have the demonstrated ability to:

-Destroy microorganisms such as botrytis fungus, salmonella, e-coli, listeria and anthrax spores;
-Purify water; and
-Clean and Degrease.

Aquacode designs, markets, assembles and sells equipment that can produce two basic types of fluids:
1. **Anolyte** solutions are strong oxidizing solutions with a pH range of 2.5 – 8.5 and an Oxidation-Reduction Potential (ORP) of +600 to +1200 mV. Anolyte can potentially be used as a broad spectrum germicidal agent to kill all types of microorganisms including viruses, fungi and bacteria.
2. **Catholyte** solutions are antioxidizing, mild alkaline solutions with a pH range of 10.5 to 12.0 and ORP of –600 to –900 mV. Catholyte solutions can potentially be used as degreasers or detergents.



H7N1
"Klinik für Vögel, Reptilien, Amphibien und Fische. Justus-Liebig-Universität Giesen (Germany)": ...The results of the suspension test prove for all temperatures and exposure times good effi cacy of Anolyte against the testes influenza A virus.

Escherichia coli. Causes gastroenteritis, urinary tract infections and neonatal meningitis. Found in poorly handled and undercooked meat.

Based on extensive research, **both anolyte and catholyte solutions:**
-Are environmentally friendly
-Are non-toxic to both humans and animals
-Do not require special handling
-Are powerful biocides
-Can be safely disposed of in sewage systems
-Are fast-acting
-Can be used at all stages of disinfection and cleaning
-At recommended concentrations, do not bleach surfaces or materials
-Can be applied in liquid, ice or aerosol (fog) form
-Are hypoallergenic
-Yield by-products that are non-toxic, environmentally friendly and leave no synthetic chemical residue
-Can be generated on-site, thus eliminating handling and storage of chemicals
-Can be produced on-site from tap water and salt in required quantities and concentrations of active ingredients, pH and salinity (mineralization).
Anolyte contains among other things Hypochlorous Acid that is a highly potent bactericide. Bacteria such as Escherichia coli when exposed to Hypochlorous Acid lose viability in less than 100ms. Escherichia coli is a major cause of food and water-borne infections in humans.

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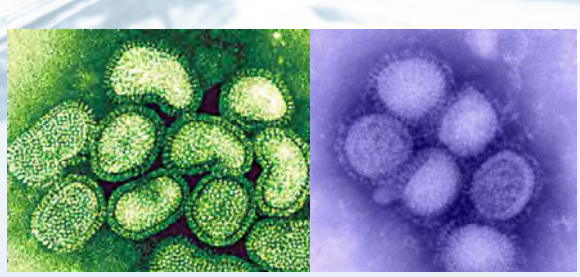
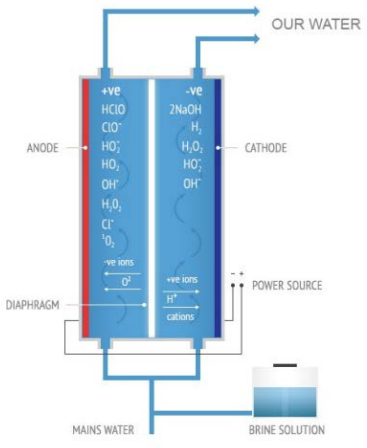
In addition to killing bacteria anolyte is effective in breaking down Biofilms which protect the bacteria from the action of the hypochlorous acid.
As a hard-surface disinfectant anolyte application on a daily basis for more than a decade has demonstrated that microorganisms do not develop immunity to anolyte over time. This makes it possible to apply Aquacode equipment in a number of areas directly related to personal health and safety.



H1N1
"Microbiotest. The Microbiology and Virology Laboratory (USA)": ...Anolyte passed the Virucidal Effi cacy when Swine Infl uenza A Virus (H1N1), containing at least 5% organic soil, was exposed to the test agent for 10 minutes at 21C. All of the controls met the criteria for a valid test.

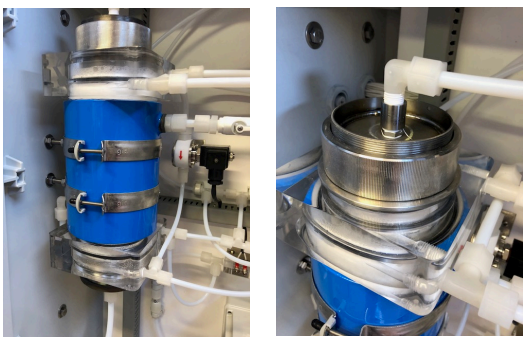
How Does the System Work

At the core of the Aquacode Technology are the patented diaphragmatic cells that have been designed using innovative and unique technology to effectively deliver electrolyzed water solutions (Anolyte and Catholyte) using a 1-4% water solution of NaCl as initial material
Unlike other electrolytic cells, here a diaphragm separates the Anolyte and Catholyte solutions that are generated respectively at the anode and cathode chambers of the cell. This prevents the two streams from mixing and inter-reacting to form a simple sodium hypochlorite solution as is the case with other electrolytic cells commercially available now



Design of Aquacode Cell

The invention of the double-chamber diaphragmatic electrolyzer (the basic element of all Aquacode products) marked a breakthrough in disinfection, sterilization and water purification technology.
Similar electrolyzers have been known before: EW technology was first developed in the late 70's in conjunction with the Russian Institute for Medical and Scientific Research and earlier models of EW products were sold throughout the former Soviet Union, generally for disinfecting water and sterilisation in hospitals.
However, Aquacode invention made it possible to considerably enlarge their commercial application and gave Aquacode Industries International Ltd the unquestionable advantage over the existing competitors. In this respect, the technology of diaphragmatic electrolysis (EW) is unique to the Aquacode group of companies and it is patented worldwide.



Aquacode cell

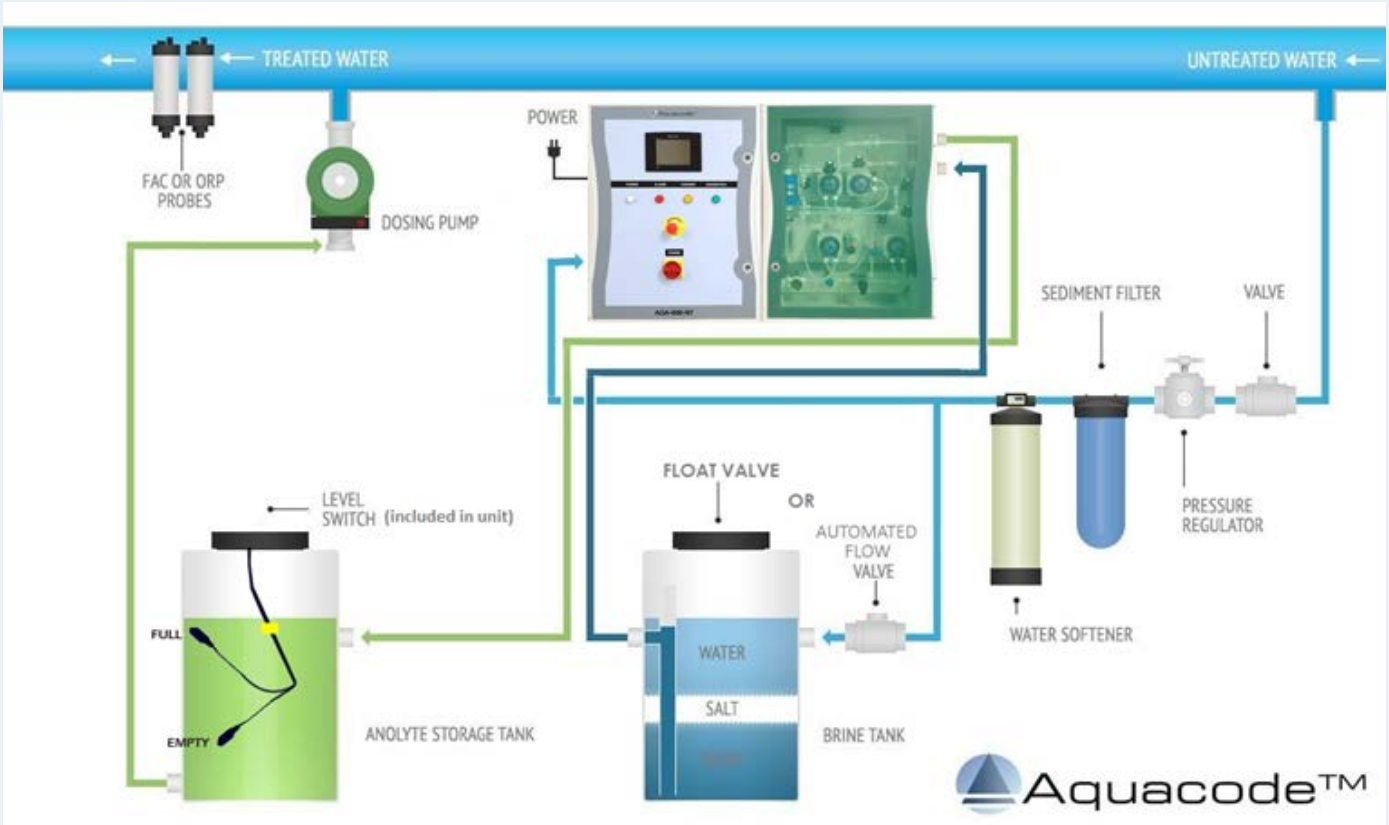
The Aquacode cells are manufactured with variable Anolyte output capacity ranging from **40LPH to 1000LPH of Anolyte per cel**l. Combination of cells allows to manufacture Aquacode units with output capacity up to 6000LPH of Anolyte.

Anolyte can be either dosed directly into your system or alternatively into a buffer tank, if the demand is variable, then through a sensor-controlled dosing pump to suit the biological load within your system.

The only requirements for our systems are a supply of salt, water and electricity. The generators can be controlled by PLC with an easy to operate HMI (Human machine interface) allowing the end user to accurately control the pH value of anolyte and ensure the correct dosing levels for a particular application.

Average cost for generating 1000 litres of anolyte in a number of European and North American Countries is Euro 3.0, making this fl uid a very cost-effective alternative to many presently used chemicals.

Typical Layout of Aquacode System



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Applications

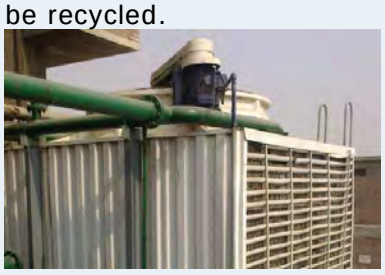
We have identified the following industries for early stage sales and marketing focus:

1) dairy production and processing,
2) meat, fish and poultry processing,
3) clean in place (”CIP”) for food and beverage processing,
4) agricultural grow-out and processing,
5) livestock industries and livestock breeding,
6) drinking water disinfection and waste water treatment,
7) ballast water treatment,
8) aquaculture,
9) medical and health care,
10) oil & gas industry,
11) cooling towers and cooling system water treatment,
12) swimming pools water disinfection

Aquacode has been focused on these markets because we believe that for each of these markets we have a competitive advantage, a leading strategic industry partner, or we can provide an attractive value-added proposition.

Brew and Beverage Industry

Aquacode disinfectant generators have a number of applications in this industry. They include disinfecting water supply, tunnel pasteurizers, bottle wash and cleaning of conveyor and transport systems. The use of an Aquacode generator can result in significant savings as it allows processes to be run at lower temperatures and the water to be recycled.



Cooling Towers and Ponds

Anolyte produced by our onsite generators effectively controls Legionella and other bacteria maintaining a safe and healthy environment. The powerful disinfecting solution also destroys biofilm yet is no more corrosive than tap water.

Waste Water Treatment

The addition of anolyte to waste water can reduce bacterial count to safe levels without contaminating the environment.

Food and Dairy Industry

Due to its non-toxicity anolyte is approved for use in the food industry for disinfection in a wide range of areas including preparation surfaces, pipes, transport systems and packaging.

Meat Industry

Bacterial contamination of meat is an ever present problem. Aquacode can help with its powerful anolyte solution ideally suited to surface cleaning of preparation areas, packing cases and transport systems yet without the problems associated with traditional chlorine based chemicals.

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Fruit and Vegetable washing
Anolyte is a highly effective disinfection agent for washing of Fruit and Vegetables both whole and cut, increasing the shelf life and providing a safer product for consumers.

Horticulture
Misting or spraying glasshouses with anolyte gives effective bacterial and algal control. Disinfection of irrigation water. Better vegetation and vegetables growth. Better resistance to weeds, smuts, fungi various parasites and diseases. Better quality of the products.Crop increase without additional use of fertilizers.

Drinking Water
Anolyte is approved for use as a disinfecting agent for drinking water making it safe for consumption without the unpleasant smell and taste associated with conventional chlorine based water treatment.

Swimming Pools
Onsite anolyte generators can ensure a safe swimming environment without the unpleasant smell or eye stinging effects of traditional chlorine based treatments. It is also safer for staff as they do not have to handle potentially dangerous chemicals.

Hotels and Public Facilities
Legionella is a major health problem in facilities with a large water system where parts are not often used such as hotel rooms in low season. The unused areas can result in the build-up of Legionella and other health endangering bacteria within the water system. The addition of an anolyte generator to the water system can prevent this without costly high temperature flushing.

Fish Processing
Anolyte has been shown to be highly effective in destroying bacteria such as Vibrio and E.coli making a safer product for consumers.

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Medical Facilities
Due to its non-toxicity and non-corrosive nature it is ideal for surface sterilization of medical facilities to help prevent bacterial infection. Cold sterilization of medical instruments, cleaning surfaces, including walls, furniture and floors. Used in the laundry, it disinfects linen. Disinfects air through misting. Eliminates/reduces chemical usage.

Livestock industries and livestock breeding
Provides general disinfection, surface and equipment cleaning and misting medium for aerobic and anaerobic bacteria control. Promotes fodder assimilation, general health as a drinking water additive (reduces mortality). Ensures skin parasitic diseases control.

Agriculture
The use of anolyte in agriculture can result in increased yields and improved animal husbandry by destroying bacteria in animal drinking water and stock pens.

Veterinary
Increases vitality and resistance,improves fertility.Residue free treatment of mastitis, diarrhea and other infections. Better feed stuff utilization. Reduces tension. Enhances growth and yields. Effectively controls and cures the most serious diseases.

Oil and gas industries
Anolyte and catholyte solutions have been used to stimulate and enhance oil and gas production and to improve performance of drilling fluids. Anolyte is a highly effectiv e alternative to bactericides that are non-biodegradable or bio-accumulative. As a bactericide, Anoyte is selective, targeting bacteria responsible for microbial-induced corrosion and slime while being safe to humans.

Marine Industry
Anolyte generators are suitable for shipboard sterilization of drinking and ballast water. Anolyte can also be added to water used in ice making machines for the fishing industry to ensure a safer product.

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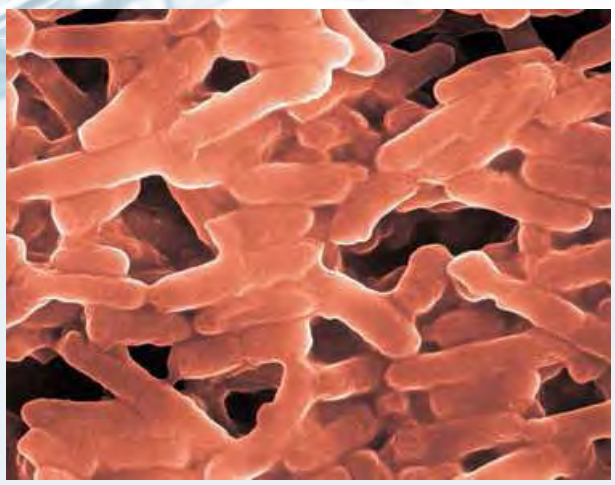
We continue to market our existing products in our identified markets (livestock, dairy production and processing, meat and poultry processing, food processing clean in place (CIP), environmental remediation and agricultural grow-out, drinking and waster disinfection).

Future plans include enhancing our current products, and introducing new products and features to meet changing customer requirements and evolving industry standards, as opportunities arise and are fiscally reasonable.

Our present products are based on the use of Aquacode Technology which kills bacteria, viruses and fungus and cleans the living environment without the use of harsh chemicals. Our agricultural products stimulate plant growth and animal productivity.

Our products meet the growing demand for safe foods and environmentally friendly non-toxic disinfectants and cleaning fluids, since consumers are becoming more aware of the detrimental effects of toxic products, chemicals, and biocides (as evidenced by the preponderance of ant-imicrobial agents).

There are numerous companies attempting to enter this market with their own versions of electrolysis or plasma generators that create similar fluids as anolyte and catholyte.



Legionella pneumophila.
Causes Legionaires disease (Legionellosis).
Found in cooling towers and water systems.

Aquacode has focused much of its time and energy on developing high volume systems that meet the needs of a commercial marketplace. As a result, we have an opportunity to sell our products in these markets because our equipment is better suited for larger applications.

Our Agricultural Products also provide an organic alternative at a reasonable price. Our solutions provide an ecologically safe alternative to toxic cleaning chemicals and pesticides. We have identifed a large number of potential markets for our products within specific industry channels, but will focus initially on developing and marketing in the livestock and dairy production and processing, meat and poultry processing, environmental remediation and agricultural grow-out industries, drinking and waste water disinfection.

The safe food, sanitizing, disinfecting, agricultural and cleaning industries are currently using products and methodologies that have increasingly expensive environmental and social consequences as compared to our fluids.

We believe that our products provide an attractive alternative to the chemicals and other toxic substances currently being in use.

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Contact information

Order and information

David T. Weaver
Phone +46 730 299 165
Email: david@aircode.se

www.aircode.se