



## AquaFew Functional Electrolyzed Water Systems

The Safe & Natural Way to Eliminate Pathogens and Microorganism that Cause Illness

AquaFew is a biotechnology company specializing in the development of commercial-grade functional electrolyzed water systems that naturally clean, disinfect and sanitize.

### THE HISTORY OF ELECTROLYSIS & FUNCTIONAL WATER

The origins of electrolyzed water date back to 1834 when renowned Scottish scientist, Michael Faraday discovered that water could conduct electricity. During his lifetime he never knew the effects electrolysis had on water characteristics or its potential commercial uses. Researchers later discovered that functional electrolyzed water (FEW) had industrial uses as a chemical-free cleaner and disinfectant. The Japanese in particular lead the industrial adoption of FEW and have used it in various applications for about 50 years. Today functional electrolyzed water is rapidly gaining acceptance in North America, as more companies look for cost effective and environmentally friendly ways to clean and disinfect commercial equipment.

### THE SIMPLE & NATURAL ANTIMICROBIAL CAPABILITIES OF FUNCTIONAL ELECTROLYZED WATER

Functional electrolyzed water possesses antimicrobial properties that are highly efficient and effective disinfectants for various strains of pathogens, fungi and spores such as Escherichia (E. coli), Listeria monocytogenes and Salmonella enteritidis. Functional electrolyzed water derives its antimicrobial properties through an electrolysis separation and restructuring process. This process molecularly alters the physical and chemical characteristics of water—such as the pH and oxygen level—thereby creating a new form that delivers superior microbial and viral control solutions.

#### Benefits of functional electrolyzed water as a natural disinfectant

- Safe for both people and the environment
- Cost effective and efficient
- Kills 99.8% of pathogens
- Microbes cannot build up an immunity

#### What is electrolysis?

- An electrochemical process by which electrical energy is used to promote chemical reactions in a conducting solution with electrodes (anode +, cathode -).
- Anions (Cl<sup>-</sup>, CO<sub>3</sub><sup>2-</sup>) are attracted to the anode and cations (Na<sup>+</sup>, Ca<sup>2+</sup>) are attracted to the cathode.
- Oxidation (loss of electrons) occurs at the anode and reduction (gaining of electrons) occurs at the cathode. Redox potential (ORP) characterizes the activity of electrons in water.

When microbes are exposed to electrolyzed water pH of 2.5 – 3.5, the microbe's outer membrane is softened and becomes susceptible to outside influences. As the membrane is exposed to the water median with a high oxidizing ability, the living electron is oxidized. This removes the life-sustaining electron on the microbe. The presence of active free chlorine (hypochlorous acid) guarantees the microbe is dead even after the effects of pH and oxidation are completed.

# HOW AQUAFEW FUNCTIONAL ELECTROLYZED WATER SYSTEMS CLEAN & DISINFECT WITH JUST WATER



AquaFew Functional Electrolyzed Water Systems are based on proprietary technology that restructures normal tap water into a chemical free, antimicrobial solution that eliminates organic residues and bacterial growth.

## STEP 1

*one water in and two different waters out...*

The AquaFew equipment molecularly restructures water with a simple process of one water in and two different waters out.

- **Through the electrolysis processes, the positive and negative electrical charges are placed through electrodes to attract and separate electrolytes (minerals) present in normal water.**
- **After the positive and negative electrolytes are separated in the water, the two types of water that were processed are permanently separated by the membrane and stored separately.**

## STEP 2

**the two resulting types of water go through the functional electrolyzed water process:**

- **Alkaline electrolyte concentrated pH 10 to 11.5 needs to identify the high pH commercial application for degreasing/detergent and antimicrobial properties.**
- **Alkaline water with a pH of 10 to 11.5 has degreaser/detergent characteristics. Alkaline FEW water removes organic solids from hard surfaces, surfaces on fruit, vegetables and all other surfaces that comes in contact. Alkaline high pH water also has antimicrobial properties due to the pH level of the water.**
- **Acidic, electrolyte concentrated pH 2.3-5.0 hypochlorous acid, HOCL (topical rinse)**

## WHAT IS ACIDIC, ELECTROLYZED WATER

- Smaller cluster-sized-water that has a lower surface tension allows the water to penetrate the surface.
- **Acidic concentration void of alkaline properties.**  
*This allows for the creation of acidic water. Because of its astringency, acidic water has functional, topical applications that are beneficial for food and beverage preparation, agriculture, medical use and other industrial applications.*
- Water with oxidation potentials can be used as a mild sterilization water.

## BENEFITS OF USING AN ANTIMICROBIAL SOLUTIONS PRODUCED FROM FUNCTIONAL ELECTROLYZED WATER

### ENVIRONMENTALLY SAFE

- Chemical free
- Completely non-toxic
- Converts back to harmless water after it kills the microbes

### SUPERIOR DISINFECTANT

- 99.8% of potentially harmful pathogens eliminated
- Microbes cannot develop an immunity to functional electrolyzed water because of its properties
- Tested & verified from highly acclaimed universities

### COST-EFFECTIVE AND EFFICIENT ANTIMICROBIAL STANDARD

- Simple product requires minimal handling
- Less cleaning and maintenance labor
- Lower operational cost



Aquafew Functional Electrolyzed Water Systems are the natural and environmentally friendly way to clean and disinfect using functional electrolyzed water. The systems are used for a wide array of commercial applications in the agriculture, food & beverage, food processing, hospitality, medical and other industries.