



**“Since the molecular structure of water is the essence of all life, the man who can control that structure in the cellular system will change the world” (Albert Szent-Gyorgi (1893-1986) Noble Prize in Chemistry**

## **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 and 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 adoption(acceptance) in North America, as more companies look for cost effective and environmentally friendly ways to clean and disinfect commercial equipment.

### **The Simple and Natural Antimicrobial Capabilities of Functional Electrolyzed Water**

Functional electrolyzed water possesses antimicrobial properties that are highly efficient and effective disinfectants for various strains of pathogenies, fungi and spores such as such as Escherichia (E. coli), Listeria monocytogenes and Salmonella enteritidis. Functional electrolyzed water derives its antimicrobial properties through an electrolyte(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 ( $\text{Cl}^-$ ,  $\text{CO}_3^{2-}$ ) are attracted to the anode and cations ( $\text{Na}^+$ ,  $\text{Ca}^{2+}$ ) 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 and 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 One: 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 Two: the two resulting types of water go through the functional electrolyzed water process:**

- Alkaline electrolyte concentrated pH (10 to 11.5). 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.
- Smaller cluster-sized-water that has a lower surface tension allows the water to penetrate the surface
- 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, and other industrial applications.
- Water with oxidation potentials can be used as mild sterilization water.

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