

THE CHEMISTRY BEHIND SAFEWATER

SAFEWATER is created by passing an electrical charge through salt and water in a special electrolysis cell. This process separates the positive and negative ions of the salt and water molecules.

The catholyte/NaOH is an effective alkaline cleaning fluid with some antimicrobial properties. Its active ingredient is Sodium Hydroxide and is GRAS approved by the USDA for use in food and beverage processing. Its alkaline nature and its negative 900 millivolt ORP (Oxidative Reduction Potential) result in a product that emulsifies oil and grease. It is hydrogen-enriched and an excellent surfactant that is generally used in place of chemical caustics and detergents for cleaning applications. Once made and stored properly, it is highly stable and has a long shelf life; typically lasting for weeks unless exposed to direct sunlight.

The anolyte solution/HOCl is an acidic disinfecting fluid that kills a variety of pathogens including bacteria, viruses, molds and spores within seconds of contact. Its active ingredient is Hypochlorous Acid (HOCl) in a concentration of 10-200 ppm. It is highly oxidative and acidic due to its pH of 4.0-5.5 and high ORP. Anolyte/HOCl typically has a positive ORP of >900 millivolts. The active ingredient in Anolyte/HOCl is approved by the USDA for use in food and beverage processing.

The solutions are covered under FDA, CFR 21, 21CFR184.1763 (Sodium Hydroxide) and 21CFR 178.1010 (Hypochlorous Acid).

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We Make It Work Better.



SAFEWATER

Environmentally-Friendly Cleaning



Providing sanitary processing equipment and customized services since 1885

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SAFEWATER

Environmentally-Friendly Cleaning

WITH A GREATER EMPHASIS on sanitary design in food and beverage plants, manufacturers have worked together to make many improvements to equipment and parts that make cleaning and sanitizing more effective and sustainable.

Introducing or improving CIP and COP procedures, processes and systems in the plant takes advantage of sanitary equipment design benefits, raising the level of assurance that when the production line starts up for a new run the process is in control from the get-go.

The SAFEWATER system represents an environmentally-friendly and sustainable alternative to cleaning using electrolyzed water.

ELECTROLYZED WATER is created by combining an electrolyte and potable water with an electrical charge. The technology generates alkaline (reductive) and acidic (oxidative) water which can be used to clean, sanitize and hydrate in numerous applications.

The advanced electrolysis used in the SAFEWATER system produces two separate solutions – alkaline electrolyzed water (catholyte/NaOH) and acidic electrolyzed water (anolyte/HOCl). The alkaline water is an excellent GRAS cleaner/detergent. The acid water is used as a highly effective and green biocide.



SAFEWATER BENEFITS

- High volume production of electrolyzed water
- Both cleaner and sanitizer solutions are produced
- Increased plant uptime
- Safe for employee, environment and product contact
- Reduced environmental impact
- Reduced water consumption/waste
- Replacement of expensive sanitizers and detergents
- Reduced cost of chemical inventory
- Reduced storage requirements due to on-site, on-demand generators
- Lower energy footprint due to cold sanitization

ELECTROLYZED WATER works very well with materials commonly associated with food and beverage processing including stainless steel, Teflon®, Viton® and EPDM. It is corrosive to carbon steel. Tests at the University of Georgia and actual field experience have shown that electrolyzed water can be used on stainless steel.

Electrolyzed water is safe to use in other areas of the plant, such as COP, cabinet wash downs, floors, reusable tank washers, etc. Some plants will not be able to automate CIP processes in all filling lines and tanks at once. Size the system to take into account future CIP/COP expansion.

SKID-MOUNTED SYSTEMS

For applications where the customer has room in the plant, the generator can be built on a skid in a modular format. This skid mounted format works well for large volume systems such as poultry, large dairy, large CIP installations, etc. Smaller volumes can be handled with Empowered Water Generators installed in a smaller, custom cabinet.

Systems consist of three major subsystems. These subsystems can be located apart from one another. The subsystems are 1.) Water treatment to remove water hardness, 2.) Electrolysis process and 3.) Bulk holding tanks and pumping/distribution of the two fluids to the CIP Systems.

