

Electrolyzed Water (EW)

Principles

EW is produced by passing a diluted salt solution through an electrolytic cell, within which the anode and cathode are separated by a membrane. By subjecting the electrodes to direct current voltages, negatively charged ions such as chloride and hydroxide in the diluted salt solution move to the anode to give up electrons and become oxygen gas, chlorine gas, hypochlorite ion, hypochlorous acid and hydrochloric acid, while positively charged ions such as hydrogen and sodium move to the cathode to take up electrons and become hydrogen gas and sodium hydroxide. This process rises to 3 types of EW depending on the pH: acid, basic and neutral. In the framework of SHEALTHY, the EW to be applied will be neutral. This EW is less oxidative and corrosive, but at the same time, maintains its antimicrobial capacity.

Benefits



Simplicity of production and application whereas exhibits antimicrobial activity against a variety of microorganisms and eliminates most common types of viruses, bacteria, fungi, and spores



Reduce cross contamination phenomena and delay F&V decay



Storability, and antimicrobial properties of EW can remain stable for a long period of time depending on the storage conditions which enables the scale-up application



Used as a replacer of pesticides and also can degrade pesticides



Residue-free



There is a recent legislation or regulatory guidance specific to EW treatment on food



Challenges

- Control process conditions
- Study and evaluation of chlorate and chloramines