

BACKGROUND

ASPIDA is an all-natural, non-toxic, environmentally, and ecologically safe sanitizer and disinfectant solution.

ASPIDA is safe to humans and animals.

ASPIDA is food contact safe.

It is produced from the electrochemical reaction of water, sodium chloride (salt) and electricity. The applications for this technology include any process requiring sterilization, disinfecting, cleaning or water purification.

ASPIDA is composed of the oxidizing agent Hypochlorous Acid (HClO).

This process creates large volumes of a gentle, but extremely potent antibacterial solution capable of **INSTANTLY KILLING 99.999% OF BACTERIA, VIRUSES (Inc Coronavirus), SPORES and BIO-FILM.**

HOW TO USE ASPIDA

20L of ASPIDA will disinfect 100 square meters.

- (I) Spraying by trigger spray or pressure sprayer directly on all surfaces (incl doors, handles, windows etc)
- (II) Fogging the A/C duct
- (III) Fine fog/mist of an entire room or facility via handheld fogger

UNIT SIZES



The general product specification of ASPIDA is:

- pH 4 –7, (can be adjusted)
- Oxidation-Reduction Potential (ORP) > +900m – 1100 mV

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- EC 1-5mS (varies with the amount of free available chlorine)
- Free Available Chlorine (FAC) 1-5 ppm, (can be adjusted)

What is ORP?

ORP stands for Oxidation-Reduction Potential. ORP is a measure of ASPIDA's ability to break down contaminants. ORP has a range of $-2,000$ to $+2,000$ and units are in "mV" (millivolts). Since ASPIDA is an oxidizer, we are only concerned with positive ORP levels (above 0 mV).

ORP sensors work by measuring the dissolved oxygen. More contaminants result in less dissolved oxygen because the organics are consuming the oxygen and the ORP level will be lower. The higher the ORP level, the more ability the solution has to destroy contaminants.

As an example, drinking water is adequately disinfected at an ORP of +650 mV

Mechanism of Action

ASPIDA is composed of the oxidizing agent Hypochlorous Acid (HClO). ASPIDA is bactericidal because certain bacterial cell components can react readily with it, having a higher oxidation potential than most other chemicals.

The mechanism of action for the eradication of various microorganisms by ASPIDA is well documented by third party resources.

The mode of action is as follows:

- The free ions in ASPIDA rapidly react and denature proteins.
- Once ASPIDA encounters a microorganism; it attacks the bacterial proteins located in the cell membranes.
- Because of the osmolarity difference (the concentration of ions in the solution versus in the cytoplasm), ASPIDA induces the rupture of cell membranes, leading to cell lysis.
- The high oxidation of ASPIDA first damages bacteria cell walls, allowing infiltration by water. The microbe reaches capacity, causing an osmotic, or hydration, overload. The acidic fluid and water floods the cell faster than the cell can expel it, literally causing the cell to burst.

Toxicity

No evidence of toxicity in any form has been observed in any testing carried out by independent third parties.

Regulatory

The **United States Environmental Protection Agency** has given approval (40 CFR 180.1054) for washing raw foods with Electrolysed Water that are to be consumed without processing.



Electrolysed Water is approved under **United States Code of Federal Regulations** ("CFR") 21 CFR 173.315 for direct contact with processed foods, and is approved for indirect food contact applications under 21 CFR 172.892, 21 CFR 175.105, 21 CFR 176.170 and 21 CFR 177.2800.

Electrolysed Water is an approved sanitizer that meets 21 CFR 178.1010.

Electrolysed Water is not classified as hazardous in accordance with **European Directive 99/45/EC and CLP Classification No 1272/2008**

The **United States Food and Drug Administration** has expressed no concerns and holds no opposition for the use of Electrolysed Water.

The use of Electrolytically Generated Hypochlorous Acid is consistent with FDA's labelling definition of a processing aid.

Hypochlorous acid, is an approved active substance with **ECHA**.

Electrolized Water has been categorized as a Food Processing Aid as defined by **European BPR Regulation 1333/2008** on food additives.

The United Kingdom Health and Safety Executive "**HSE**" has carried out studies on the safety and efficacy of Hypochlorous Acid. Reports available on request.

Organic certifications

Electrolysed Water is approved for use in organic food production in the United States, Canada, European Union and New Zealand.

Dilution rates

Given ASPIDA's excellent safety profile the product can be used in concentrate form. However, depending on the application and bacteria load, ASPIDA can be diluted down up to 10:1 with water. We perform 'in-house' and external laboratory tests with our customers to determine the optimum dosing rate.

Storage conditions and shelf-life

ASPIDA should be stored below 30 degrees and kept out of the sunlight. If stored correctly, ASPIDA will have a shelf life of 12 months

Applications:

- ALL SURFACES (incl doors, handles, windows etc)
- Water infrastructure. Water tank and pipework cleaning (residential and commercial to prevent legionella and biofilm)

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- Air conditioning systems (ductwork, coils, blades, trays, filters)
- Fresh produce (cleaning and disinfecting fresh produce to extended shelf life)
- Dairy Farms (cow pre-dip teat hygiene, milk cluster back wash, CIP cleaning of milk lines, Milk storage tank cleaning)
- Quail and Poultry farms (cleaning eggs, cleaning drinking water lines, dosing water supply)
- Yachts (to remove mould and fungus)
- Food production company (CIP cleaning of food production lines)
- Social housing in the U.K. (to remove mould and fungus)
- Water purification of 'off-grid' water

In case of doubt or for clarification, ASPIDA should be contacted.