

# BOTTLED WATER SILVER IONIZER



## WHY SILVER IONIZATION ?

Silver has been known to have antibacterial properties since Roman times.

NASA designed a silver ionization system the size of a matchbox for its Apollo flights potable water supply to eliminate bacteria and viruses. Because of silver ionization, drinking water could be produced safely in space without the use of chlorine.

The profile of modern silver ionization technology is raised in a range of bottled water and drinking water treatment systems.

This method of water disinfection does not result in DBP's (disinfection by-products) in the treated water.

By contrast, using ozonation of bromide containing source water may generate excessive amounts of carcinogenic bromates as DBP's.

## DISINFECTION EFFICACY

The study of Pathak and Gopal (2012) evaluated the efficacy of silver ions against E. coli. Bacteria using electrolytically generated silver ions.

The results show that complete bacterial inactivation (3 log) was achieved at 20 ppb concentration at neutral pH and ambient temperature.

## HOW DOES IT WORK ?

When silver ions are released into water, these positively charged ions bond with negatively charged areas on the micro-organism's cell walls.

Silver ions bond to various parts of the cell, such as the DNA and RNA, cellular proteins and respiratory enzymes, causing all life support systems in the cell to be immobilized. As a result, there is no more cellular growth or cell division, causing bacteria to no longer multiply and eventually die out. The ions remain active until they are absorbed by a micro-organism.

## RESIDUAL EFFECT

A benefit of silver ionization is that ions remain in the water for a long period of time and continue to have an anti-microbial effect over weeks and months.

The deactivation rate of silver ionization is lower than that of ozone or UV. This causes long-term disinfection and protection from recontamination.

## KEY ADVANTAGES:

### •APPROVED TECHNOLOGY

Silver ionization technology is recognized by the WHO, EU, EPA and FDA as effective and safe.

The efficacy is backed by more than 100 independent research studies.

### •SAFE TECHNOLOGY

The ions introduced into the water are safe for human consumption, and do not damage the plumbing infrastructure.

### •RESIDUAL SANITATION

Silver ionization is effective in both hot and cold water, unlike chemical technologies whose disinfectant rapidly dissipates in hot water environments, rendering them ineffective.

### •NO BROMATE FORMATION

Silver ionization produces no bromates and provides an effective disinfection solution..

### •NO ORGANOLEPTIC CHANGE

Silver ionization creates no taste changes to the water. Further it changes no smell, colour, physical or chemical properties of the water.

### •ECO FRIENDLY

The most environmentally friendly solution , no chemicals, no harmful disinfection by-products.

### •pH FRIENDLY

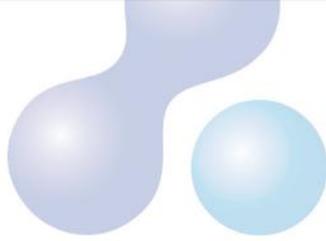
The pH level of the water does not affect the efficacy of the silver ionization. We have successfully treated water with pH above nine without complication.

### •MAINTENANCE FRIENDLY

There are no annual maintenance requirements. The only maintenance is to replace the silver electrodes when they are consumed in the ionization process.

### •COST FRIENDLY

The estimated cost of the consumed silver is less than 20 cents per 1,000 Litres of bottled water.



## Operation

Silver ionization is achieved with a process called electrolysis. An electric current is created through the silver electrode assembly, causing positively charged silver (Ag<sup>+</sup>) ions to form and injected into the water.

Generally the silver ion concentration in the water varies between 5 and 100 ppb (ug/L).

The electronic controller accurately regulates the silver ion dose rate taking into account the water flow and the required silver concentration.

## Installation

The Flow Meter and the Electrode Assembly are fitted in the existing water line with standard sanitary T304 Tri-Clamp fittings and secured to the wall with pipe clamps.

We can supply any clamp size from 1-1/2" to 3" to suit your requirements. We recommend installing bypass valves for service and maintenance operations.

- Flow meter



- Electrode assembly



- Electronic controller

The electronic controller is fitted on the wall near a 10 A power socket.

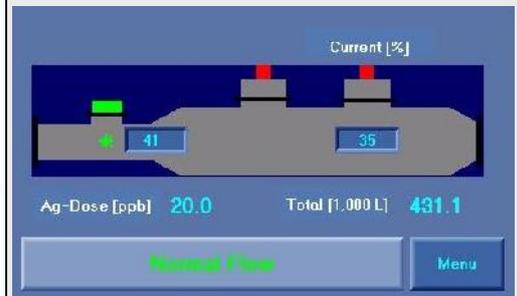
## Technical Data

Sizing the Ionizer is easy, simply select the correct model from the system rating table below. Contact us for your specific requirements.

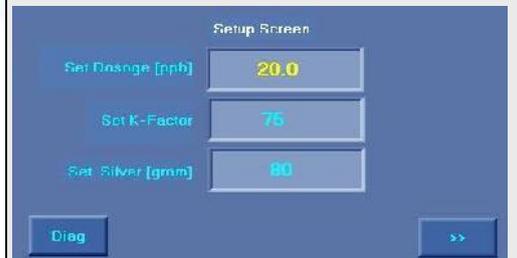
Models	i-Water2	i-Water4	i-Water6
<b>System Rating</b>	20 ppb@ 80 LPM	20 ppb@ 160 LPM	20 ppb@ 240 LPM
<b>Qty Electrode Assy's</b>	2	4	6
<b>Ag Fresh Weight</b>	120 gram	240 gram	360 gram
<b>Ag Useable Weight</b>	80 gram	160 gram	240 gram
<b>Paddle Flow Meter Size</b>	DN20	DN25	DN32
<b>Water Connections</b>	Tri-Clamp T304 from 1-1/2" to 2" as per client requirements		
<b>Controller Dimensions</b>	320mm H x 240mm W x 140mm D		
<b>Supply Voltage</b>	120—230 Vac, 0.5 A, NZ/AUS style power cord		
<b>Ingress Protection</b>	IP24		

## i-Water Silver Ionizer Control Features

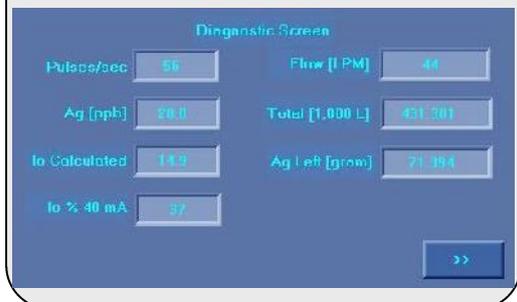
- PLC (computer) control to accurately maintain the silver concentration under varying water flow conditions.
- User friendly operator LCD display indicating water flow and silver dose rate, ionization capacity, total water treated and popup system and alarm messages (silver fuel low).



- Easy to use setup screen for the operator to enter the silver dose rate, flow meter data and 'fresh' silver weight.



- PIN protected diagnostics screen for calibration and system diagnostics.
- Display of remaining silver weight.



i-Water™ products produce copper & silver ionized water for disinfection and are manufactured by Novozone Ltd



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OZONE SYSTEMS

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