



Ozone Water Sterilization Unit

AOW Series

Ozone Water Sterilization Unit — The Principle Function:

The market has an increasing demand for fruits, vegetables and salads clean of any contamination from pathogens and chemical contaminants or detergents.

Ozonized water is used in a variety of operations to wash fruits and vegetables including ready to eat salad products.

Ozone is a more powerful disinfectant than Hydrogen Peroxide, chlorine, chlorine dioxide and many of the industry disinfectant agents. Ozone is effective against an extremely wide range of pathogens.

Ozone is said to be about 50% more powerful and to act 3,000 times faster than chlorine at 100 times the strength.

More to add, in the water, ozone has a lifespan of 10 to 20 minutes only, after which it breaks down to oxygen. Therefore the Ozone does not leave any harmful byproducts as other disinfectants do. This prevents contamination of the products with any byproducts, pollution and also allows easy discharge of the used wash water.



Ozone Wash in Act

Even the most vulnerable and sensitive fruits can get extended shelf life with the treatment of Ozone wash.

What is OZONE and how is it produced?

Ozone (O₃) is a powerful gas molecule consisting of three oxygen atoms formed by dissociating two atoms that compose the oxygen gas. Each atom of oxygen released binds to another molecule of oxygen (O₂) to form ozone molecules (O₃).

Due to its unique chemical composition and highly reactive nature, ozone is able to quickly and efficiently disinfect and oxidize a wide variety of microorganisms, faster than any other commercially available oxidant. Ozone begins oxidizing everything immediately upon contact, powerfully breaking down bacteria and viruses.

As ozone decontaminates, it naturally decomposes back into oxygen, without leaving toxic residues, making it safe for the environment.



Advantages of Ozone

- › Ozone is the most powerful oxidant for disinfecting water or sanitizing surfaces
- › Ozone can kill pathogens in seconds vs. several minutes for other oxidants
- › Ozone is one of the strongest oxidant available for oxidizing organics
- › Ozone decomposes into oxygen
- › Ozone, by itself, does not affect pH
- › Ozone cannot be stored; therefore, having a large volume of a dangerous oxidizer is not possible
- › Ozone is excellent at oxidizing metals such as iron, manganese, and more
- › Ozone enhances the flocculation and coagulation of organic material thereby improving filtration
- › Ozone can be effective in partially oxidizing organics in the water to biodegradable compounds that can be removed by biological filtration
- › Up to this date, there has not been a single bacteria, virus or cyst discovered that can withstand Ozone!

Proven Technology Sterionizer™ Efficacy Tests:

Sterionizer™ bi-polar ionisation technology was tested and proven effective in the elimination of a wide variety of harmful substances.

Testing was carried out in cooperation with world-renown research institutions.

Harmful substance	Removal rate
Aspergillus Niger (Black Mould)	Destroyed by 1.5 to 2 mg/l
Bacillus Bacteria	Destroyed by 0.2 m/l within 30 seconds
Bacillus Cereus	99% destruction after 5-min at 0.12 mg/l in water
B. Cereus (Spores)	99% destruction after 5-min at 2.3 mg/l in water
Bacteriophage F2	99.99% destruction at 0.41 mg/l for 10-seconds in water
Botrytis Cinerea	3.8 mg/l for 2 minutes
Clavibacter Michiganense	99.99% destruction at 1.1 mg/l for 5 minutes
Cladosporium	90% reduction at 0.10-PPM for 12.1 minutes
Coxsackie Virus A9	95% destruction at 0.035 mg/l for 10-seconds in water
Diphtheria Pathogen	Destroyed by 1.5 to 2 mg/l
Eberth Bacillus (Typhus Abdomanalis)	Destroyed by 1.5 to 2 mg/l
Echo Virus 29	The virus most sensitive to ozone. After a contact time of 1 minute at 1 mg/l of ozone, 99.999% killed
Enteric Virus	95% destruction at 4.1 mg/l for 29 minutes in raw wastewater
Escherichia Coli Bacteria (from feces)	Destroyed by 0.2 mg/l within 30 seconds in air
E-coli (in clean water)	99.99% destruction at 0.25 mg/l for 1.6 minutes
Encephalomyocarditis Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Enterovirus Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Fusarium Oxysporium F Sp. Melonogea	99.99% destruction at 1.1 mg/l for 20 minutes
GDVII Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Hepatitis A Virus	99.5% reduction at 0.25 mg/l for 2-seconds in a phosphate buffer
Herpes Virus	Destroyed to zero level in less than 30 seconds with 0.1 to 0.8 mg/l
Influenza Virus	0.4 to 0.5 mg/l threshold value
Klebs-Loffler Bacillus	Destroyed by 1.5 to 2 mg/l
Legionella Pneumophila	99.99% destruction at 0.32 mg/l for 20 minutes in distilled water
Luminescent Basidiomycetes	Destroyed in 10 minutes at 100-PPM
Mucor Piriformis	3.8 mg/l for 2 minutes
Mycobacterium Avium	99.9% with a CT value of 0.17 in water
Phytophthora Parasitica	3.8 mg/l for 2 minutes
Poliomyelitis Virus	99.99% kill with 0.3 to 0.4 mg/l in 3-4 minutes
Poli ovirus Type 199.	5% destruction at 0.25 mg/l for 1.6 minutes in water

solidly built &
easy to operate



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Beth-El Machinery Product Lines Include

The AFR and ACR series High Clean Rotary Filler and Capper

With extremely high hygienic standards, our machines provide filling and capping for products with a long shelf-life. Available with an output speed of between 1000 and 6000 containers per hour, depending upon the product.

A servo driven CNC filling machine's functions are fully servo or, pneumatic driven, and controlled from the control panel.

The High Clean Continuous Bottle Cleaner

From the AWC series, these machines have a highly flexible set-up which can accommodate containers with a variety of sizes and shapes.

Incorporating a range of capabilities, the High Clean Continuous Bottle Cleaner has an output speed of up to 15,000 containers per hour.

The AFR series High Clean Filling

These machines are designed for an extremely high hygienic standard, and enable products to maintain a long shelf-life.

The inline filling lines are capable of output speeds up to 3600 containers per hour.

Custom Processing Line Engineering and Manufacturing

Beth-El Machinery produces turnkey projects in the engineering and manufacturing of custom processing lines, pasteurisation, deaeration, product recovery systems, and homogenisation systems.

Applications include fermentation, carbonation, control systems, and batch and continuous mixing and blending systems for various fields in the food, chemical, and pharmaceutical industries.

Beth-El Machinery's process units, systems, solutions, and complete processing plants are a direct result of engineering expertise within core disciplines. Our goal is to apply these varied technologies in the most efficient and reliable ways to produce the highest quality process systems and plants available. Beth-El Machinery designs and manufactures the systems that, in turn, do the work for you.



Core Expertise:

- | | |
|-----------------------|---------------------|
| Liquid processing | Packaging machines |
| Mass & heat transfer | Sterilisation units |
| Controls & automation | Ozone water units |

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