



TM

Enabling the Blue Revolution

Ozonators for Aquaculture

Seafood Processing



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Technozone Environmental Solutions Pvt. Ltd.

INDIA

Middle East

USA

Seafood Processing with Ozonated water

The main reasons for using ozone in seafood processing are:

- Disinfection by destroying the micro-organisms/pathogens completely and permanently inactivate virus
- Ozone is a very powerful bactericide and viricide and, unlike other agents such as chlorine, it does not leave any undesirable residues

Ozone is both a cleaning and a sanitising agent. Ozone-based systems have been used in the food industry for several years.

The use of ozone-containing water for dipping and washing shrimp, fish or fish fillets results in an effective reduction of microbiological flora and simultaneously has no adverse effect on the product.

Soaking peeled shrimp in ozone-containing water was found to be more effective in addition to spraying shrimp with ozone-containing water. The higher ozone concentrations and longer treatment times studied were more effective for reducing levels of spoilage bacteria on the shrimp. This also did not increase lipid oxidation in the shrimp immediately after treatment. Research has found that soaking shrimps in 3 ppm dissolved ozone (650-700 mV ORP reading) for 40 and 60

seconds caused the greatest reduction of total aerobic counts on the shrimp.

What Ozone does:

Ozone strongly oxidises the cell walls and cytoplasmic membranes of bacteria directly. The micro-biocidal effect of ozone-containing water takes place within the first 5 seconds of treatment.

Ozone has characteristics that make it attractive for use as a sanitiser in food processing, and it is probably safer than other sanitiser systems. It has been shown to be a more powerful disinfectant than the most commonly used disinfectant, chlorine, for deactivation of a very large number of organisms, including the most resistant.

Product Disinfection:

In the seafood industry, shrimp / fish were treated with ozone-containing water to disinfect and to improve sensory qualities. Treatment of frozen or fresh shrimp, squid, octopus, mackerel, tuna, yellowtail and salmon with 1.5% NaCl solution containing 2.0 mg/L of ozone-containing water for 5–10 minutes decreased the viable bacterial count by 2–3 logs.

Plant Equipment Sanitation:

Ozone's use during production yields a cleaner plant and decreases the labour time needed for full plant sanitation. It is ideally suited and most effective in low water temperature. In practice, ozone immediately starts to attack the oxidizable components it comes into contact with. This property makes it a very powerful disinfectant.

It has more than 50% the oxidizing potential of chlorine bleach and several times faster action, so very short contact time is required.

A natural disinfectant, ozone is replacing traditional chemical oxidants in a growing number of industrial processes, including food, beverage, dairy and seafood processing. Ozone destroys all common pathogenic organisms through natural processes of oxidation, disinfection, and decomposition to oxygen (O₂).

Ozone is not only an eco-friendly technology but also the best broad spectrum disinfectant and the best de-odourising agent.





Increased Shelf Life

Ozonation is found to be a suitable treatment, before any storage. It improves the microbiological and biochemical qualities of shrimp / fish and consequently prolongs their shelf life. Combination of ozone treatment and cold storage will increase their shelf life considerably. The advantages of ozone are as follows:

- Ozone treatment of shrimp / fish slows down its bacterial growth significantly, resulting in lower counts of bacteria.
- Ozone treatment increases the shelf life of shrimp / fish by 40 to 70% compared to non-ozonated process.
- Ozone has no negative impact on the bio-chemical properties of shrimp / fish
- Ozone leaves no residue on the fish and creates no changes on its color and flavor.

Other Points of use in the processing plant:

Ice Maker

Plant Wash Downs

Wash Down Hoses

Table Sprayers

Processing Machinery

Utensil Sterilization

Trimming Tables

Floor Drains

Improves Shelf Life Of Product, Prevents Cross Contamination

Lower BOD and COD In Waste Water

Prevents Contamination

For Disinfection Of The Product


For Disinfection, Less Slime Formation

Prevents Cross Contamination, Less Slime

For Disinfection

Lower BOD and COD In Waste water, Less Slime

TES Air Disinfection Ozonators for Process areas and Cold Store rooms

- Kills all microbes (Bacteria, Virus), moulds, fungus etc., in the air.
 - Automatic timer controlled on/off functions. This ensures round the clock disinfection and ensures safe levels of ozone in working areas. The safety norms are 80-100 ppb in working areas, per US-OSHA standards. This level ensures high enough level for disinfection and low enough for safety of staff and comfortable working environment.
 - Stops cross infection and spread of air borne germs and virus by Killing micro-organisms permanently.
 - Can be used effectively in the processing areas and cold store rooms.
 - Can be easily fitted with your existing air conditioning systems.
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Other benefits

- Reduces chemical storage, handling and associated risks & costs.
- Does not produce any toxic or carcinogenic by-products like tri-halo methanes (THM), chloramines etc.
- The discharge water from the processing plant will put lesser load on the effluent treatment plant.
- Environmentally ideal practice, so makes the industry sustainable.

TES Ozonators

We are the only manufacturer in India, using in-house developed Glazed CERAMIC coating technology for the electrodes. The electrode is the heart of an Ozonator.

Typically other ozonators use GLASS electrodes, which tend to have a very short life of a few months, before they crack or puncture, in the ozone formation process. Most other sources

Service:

While we pride ourselves in the quality of our products, and expect them to perform without fail, we realise that not all operating parameters are under control. So, we have an able and always ready, factory trained service team at our customer's call. Mostly, these service engineers are setting up new installations, but can easily be sent to service any of our existing installations. In addition to a standard first year warranty we also offer annual maintenance contracts (AMC) for a number of years, as required.

Some of our customers include:

- Devi Seafoods, Tanuku, AP
- Devi Seafoods, Ongole, AP
- Satya Seafoods, Kakinada, AP
- Usha Seafoods, Kakinda, AP
- Over 40 shrimp hatcheries already use these Ozonators for sea water disinfection.

of Ozonators are resellers of the product imported from china, etc., and do not have any control on the quality of the product.

We manufacture all our products at our factory in Chennai, TN, where we have an in-house Research and Development team. This allows complete control over the quality of the product



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