

# Ozone Generators

## Series OZN

### Features:

- High purity corona discharge ozone generator tube, stable ozone output with long service life and capacity range of 5-500 g/hr
- Use anti-oxidation and corrosion-resistant materials (Teflon tube, components made of stainless steel material)
- Built-in Oxygen Concentrator with Stable oxygen output and flow rate range of 3-100 LPM
- Built-in Ozone microbubble mixing pump, Allows a higher amount of ozone to be dissolved into the water flow using smaller pumps.
- Steel box and wheels and movable for various applications
- Control system: Voltmeter, Ammeter, Timer, Switch, Start, Stop, Emergency stop, Working LED, Power LED
- Factory tested for insured quality
- 2 Year Warranty



Model OZN-100

## What is Ozone?

Ozone is a naturally occurring gas molecule consisting of three oxygen atoms ( $O_3$ ). Sometimes called tri-atomic oxygen or “activated” oxygen, ozone is a highly reactive oxidizer. Nature produces ozone through lightning storms and chemical reactions in the upper atmosphere. Ozone has a number of beneficial properties: in the atmosphere, it helps block excessive solar UV radiation from reaching Earth (that’s why there is such concern about the hole in the ozone layer); it oxidizes microorganisms in both air and water; it removes odors in air and water; and it removes off-tastes in water. Ozone reacts very quickly with other chemical compounds around it, and when it does, its by-product is oxygen ( $O_2$ ).



Oxygen molecule  
 $O_2$

## How Ozone is generated?

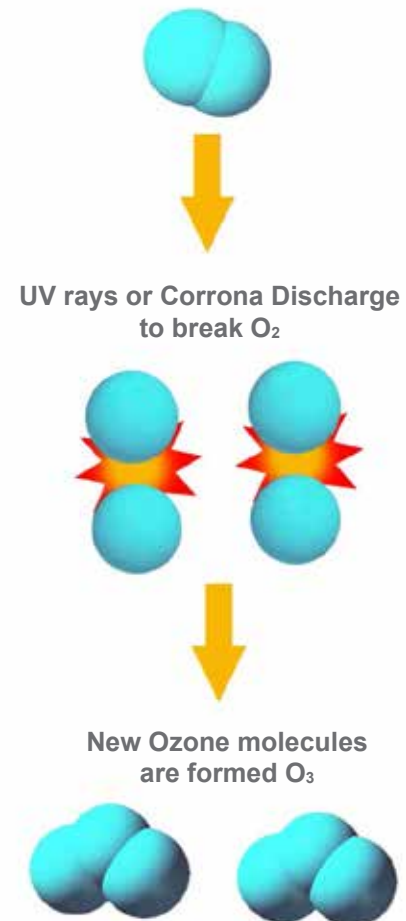
There are two common methods to generate ozone:

1. Corona Discharge (CD) Design
2. Ultraviolet (UV) Light Design

**Corona discharge generators** are much more sophisticated than UV and have the capability to generate much higher levels of ozone. Ozone is produced by passing a stream of dry air or oxygen through a high voltage field called a corona discharge, where oxygen ( $O_2$ ) in the stream is converted to ozone ( $O_3$ ). Ozone is generated at the point of application.

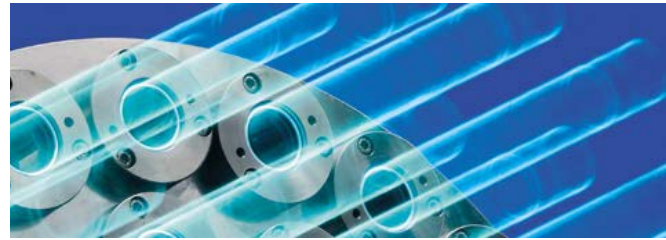
**UV ozone generators**, use a light source that generates a narrow-band of ultraviolet light. Standard UV ozone generators are less expensive and produce ozone with a concentration of about 0.5% or lower. UV also requires the air (oxygen) to be exposed to the UV source for a longer amount of time, and any gas that is not exposed to the UV source will not be treated. This makes UV generators impractical for use in situations that deal with rapidly moving air or water streams.

Ozone generators are manufactured in various sizes, each of which is dependent on the quality and quantity of the water to be treated. The smaller the application, the smaller the ozone generator. The larger the application, the larger the generator needed.



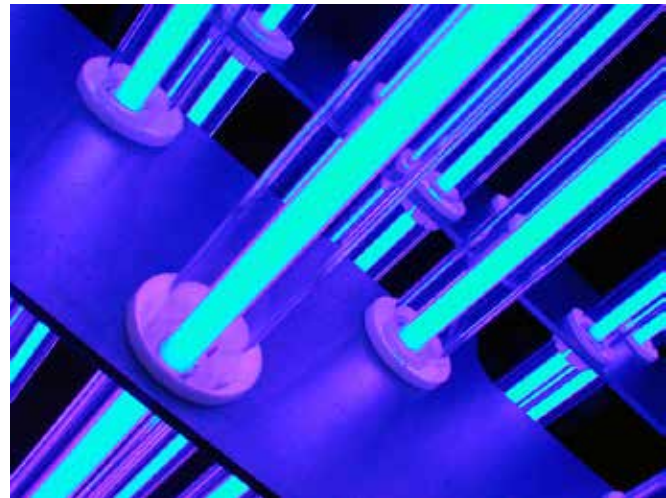
## What are the benefits of using Ozone?

- Most powerful oxidizer : Ozone can literally oxidize material in water 3,200 times faster than chlorine and 5,600 times faster than bromine.
- Disinfection : Bacterial disinfection, and the inactivation of viruses and cysts.
- Oxidation of Inorganics : Precipitates iron, manganese, sulfides, nitrites and organically bound heavy metals.
- Oxidation of Organics : Including organics causing color, taste and odor problems, some detergents and pesticides, phenols, VOCs, turbidity control and micro flocculation of soluble organics.
- Safety : environmental friendly alternative to chemicals.



## Ozone vs UV ?

Ozone	UV
Mercilessly kills all bacteria and virus.	The energy is not enough to destroy all types of bacteria, virus, protozoa, and fungus.
The reaction is instantaneous as the gas mixes with water. The reaction rate is 3,200 times faster than any known method.	Requires more contact time as the UV rays is stationary & hence water has to be exposed to it for a longer time.
Reduces turbidity and the suspended dissolved solids do not make any difference.	If the water is turbid & has high level of suspended solids, the penetration of the rays is not deep.
Disinfections rate is constant and there is no scale formation.	Scale forms on the tube thereby reducing the disinfections rate.
Eliminates algae & biofilms.	Cannot eliminate algae & biofilms.
Eliminates even SPORES.	Cannot kill SPORES of bacteria & virus.
Act as flocculent.	Does not act as flocculent.
Eliminates ODOR.	Does not eliminate ODOR.
Eliminates COLOUR.	Does not eliminate COLOUR.
Treats any type of water.	Cannot treat waste water.
Ozone can be increased or decrease to desired level for effective treatment of water	UV light cannot increase or decrease energy





## Air Treatment & Odor Control

Ozone is proven to be a much stronger, and greener solution than hazardous chemicals used against bacteria, microorganisms, fungi, and certain insect larvae. In addition, ozone is also a great treatment for odor control. Acropore ozone generators have proven to be cost-effective and efficient across industries.



## Aquaculture

Disinfection of circulated water is essential to maintaining fish health. Ozone provides effective disinfection without producing harmful byproducts or chemical residuals. Acropore ozone generators can provide instrumentation that monitors key process parameters such as water flow, dissolved oxygen (DO), ammonia, temperature, and pH. These monitors will alert operators to potential problems for quick response time.



## Biofuels

Ozone is an efficient oxidizer that eliminates biological build-up for water-cooled processes. It lowers annual costs for consumable sanitizing agents, such as chlorine and bromine. In addition, the combination of ozone and filtration is an effective process to filter out heavy metals in water. Acropore ozone generators ideal for additional uses in the biofuel industry, including CIP (Clean in Place), exterior pipe washing / general area cleaning, and HVAC systems, improving air quality for a wide variety of workspaces.



## Bottled Drinking Water

Drinking water treated with ozone kills or inactivates any pathogenic microorganisms including viruses, bacteria, and parasites and removes inorganic trace contaminants found in water systems due to pollution. Ozone also effectively disinfects bottling equipment, bottles, air above the water and bottle sealing caps. Acropore ozone generators provide a cost effective method to produce odor-free bottled water with long storage stability.



## CIP (Clean in Place)

The use of ozone sanitizing in CIP (Clean in Place) systems offers a safe sanitizer with no need for chemical storage, or handling, thus eliminating the related safety issues, needs no hot water cycles, reducing the amount of water used, and the energy costs associated with hot water. Acropore ozone generators can support to each application's needs based on the process, water flow, temperature, and an accurate water quality analysis.



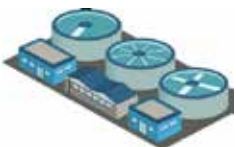
## Cooling Tower

Ozone has been proven a valuable tool as a biocide for the treatment of industrial and utility cooling water systems. Additional benefits include improved environmental impact by reduced chemical blow-down, and an overall reduction in on-going chemical costs. Reduced system corrosion when attributed to chemical biocides is also possible. Acropore ozone generators offer an impressive ROI along with providing the most reliable and green process.



## Dairy

Clean, ozonated water improves water consumption, milk production, animal growth, and reproduction while lowering the number of illnesses and deaths. Ozone destroys organic matter, bacteria, viruses, milk solids, and calcium layers. There is no need for thermal energy or chemicals, resulting in no residuals. Acropore ozone generators provide an environmentally friendly solution that uses half the amount of water.



## Wastewater Treatment

Ozone helps destroy harmful substances, colors, odors, and microorganisms. Ozone will also help remove tensides, phenols, cyanides, and discolorations from wastewater. Dissolved Ozone Flotation (DOF) is a new advancement that makes Dissolved Air Flotation (DAF) and Dissolved Gas Flotation (DGF) systems more efficient for wastewater treatment. The benefits of ozone combined with Acropore ozone generators provide a powerful choice for wastewater disinfection including treatment of complex industrial waste.



## Beverage

Ozone is a very strong disinfectant that can replace other harsh products used for the sanitation needs of the beverage industries. Ozone offers a safer, less costly, and more effective solution compared to traditional chemical solutions. Acropore ozone generators provide full solutions including CIP (Clean in Place) systems, odor control, bottle washing, and sanitation of surfaces and barrels to reduce risk and insure compliance to increasingly stricter regulations.



## Food Processing & Storage

Ozone is a proven, powerful way to be used to control biological growth of unwanted organisms in products and equipment used in food processing industries. Acropore ozone generators provide ability to disinfect microorganisms without adding chemical by-products to the food being treated, food processing water, or atmosphere in which food is stored. Ozone reverts back to oxygen leaving no harmful chemical residuals or altering the taste of treated food.



## Grain & Feed Remediation

The yield of any grains or feeds is hindered by mold growth, aflatoxins, vomitoxins, insects, and much more. Ozone is a chemical-free solution to these problems that will significantly reduce, or eliminate their presence to meet regulations and increase profitability. Ozone can be injected at multiple points in the process such as while in storage, within the milling process, etc. Acropore ozone generators provide solution with an ROI generated from decreased chemical costs, energy savings, and increased yield.



## HVAC

Ozone is a remedy that has been used to treat odors and reduce or eliminate microbial contamination. Acropore ozone generator can supply to be targeted at a specific area or dispersed broadly. Ozone easily saturates HVAC (Heating, Ventilation and Air Conditioning) ductwork. The ozone systems are easily installed into an existing HVAC system. Safe levels are controlled through monitoring equipment and user-friendly controls



## Laundry

Ozone washing increases textile life, reduces energy costs, allows faster fill rates, shorter wash cycles, and even shorter drying times. Whiter, softer, sanitized, fresh smelling, and longer lasting linens and clothes results in huge savings. Acropore ozone generators offer a detergent, chemical, and odor free solution in areas such as households, hotels, hospitals, industrial laundry facilities, etc. Ozone allows users to achieve high quality standards without the use of hot water and chemicals, due to it being a highly effective oxidizer using only cold water.



## Livestock

Clean ozonated water improves water consumption, animal growth, and reproduction while lowering the number of illnesses and deaths. Ozone destroys bacteria and viruses, needs no thermal energy or chemicals. Using ozone to improve the air quality within facilities has proven to be a cost-savings to many producers. In turn, it also improves their quality of living and decreases harmful behaviors. Acropore ozone generators offer the best product for the livestock industry. The benefits to the producer and the animals will only continue to increase.



## Pools, Waterparks, & Spas

Ozone has become known as a major health benefit to swimming pool users. Ozone is an effective disinfectant killing bacteria, viruses, spores, mold, and algae. Ozone can be used alone to treat pools and spas or can be combined with sodium bromine to provide a residual in pools that are not continuously recirculated. Acropore ozone generators provide all of the necessary ozonation power to purify, oxygenate, and sanitize swimming pools, Jacuzzis, ponds, and waterparks.



## Surface Sanitation

Not only can ozone be used to sanitize the surfaces of your facility and equipment, but it can also be used to disinfect the surfaces of your products, produce, and meats. You can properly sanitize your surfaces with both gas and aqueous ozone. It is most effect, when using just gas, to shock treat your facility. We also provide ozone injection systems fro spraying on any surfaces. Acropore ozone generators provide products for this purpose and can be easily incorporated into your current processes.

## Systems:

- All-in-one structure. All feed gas treatment devices are installed inside: Refrigerant air dryer, oil free air compressor, condenser, PSA oxygen generation system, ozone tubes with special power supply and other accessories are installed in one cabinet.
- High purity corona discharge ozone generator tube, stable ozone output with long service life.
- Use anti-oxidation and corrosion-resistant materials (Teflon tube, components made of stainless steel material)
- Built-in Oxygen concentrator
- Steel box and wheels and movable for various applications
- Control system: Voltmeter, Ammeter, Timer, Switch, Start, Stop, Emergency stop, Working LED, Power LED



Model OZN-100



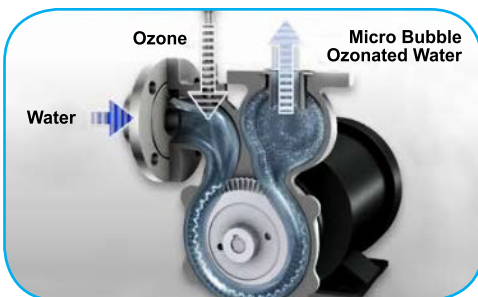
### Built-in Oxygen Concentrator :

- PSA (Pressure Swing Adsorption) technology insuring high purity oxygen of up to 90% from 3 - 100 LPM
- High quality Zeolite molecular sieve
- Stable oxygen output



### Built-in Ozone Generator Tube:

- High purity corona discharge ozone generator tube, stable ozone output with long service life.
- Air, Water cooling
- Adjustable ozone output 20-100%



### Built-in Ozone microbubble mixing pump:

- Generate microbubbles with an average diameter of 5  $\mu\text{m}$ , much smaller and more densely packed than conventional venturi systems.
- Allows a higher amount of ozone to be dissolved into the water flow using smaller pumps.



Model OZN-500



Model OZN-100

## Specification

### Ozone Generator

Ozone Capacity (g/hr)	5, 10, 15, 20, 30, 40 (Air cooled) 50, 100, 150, 200, 300, 400, 500 (Water cooled)
Gas source	Oxygen
Cooling Source	Air, Water
Adjustable Ozone Output (%)	20-100

### Oxygen Concentrator

Oxygen Output (LPM)	3, 5, 7.5, 10, 15, 20, 35, 55, 65, 80, 90, 100
Oxygen Concentration (%)	90% ± 3%
Air Flow Rate (LPM)	150-200
Pressure Inlet (psi)	35

### Ozone Microbubble Mixing Pump

Gas-Liquid Ratio	1 : 9
Delivery Head (m)	40
Rated Flow ( m <sup>3</sup> /hr)	1, 2, 6, 12
Speed (rpm)	2,900

## Ordering information

Part number	Model	Ozone Capacity (g/hr)	Ozone Conc. (mg/L)	Ozone Cooling Source	Oxygen Concentrator Flow Rate (LPM)	Voltage (50Hz)	Power (kW)	Dimension DxWxH (mm)	Weight (kg)
AP-OZN-00500	OZN-5	5	48-52	Air	3	220V	1.25	450x500x800	170
AP-OZN-01000	OZN-10	10	48-52	Air	3	220V	1.40	500x650x950	170
AP-OZN-01500	OZN-15	15	49-51	Air	5	220V	1.40	500x650x950	170
AP-OZN-02000	OZN-20	20	38-41	Air	7.5	220V	2.10	500x650x950	400
AP-OZN-03000	OZN-30	30	53-56	Air	10	220V	2.50	500x650x950	400
AP-OZN-04000	OZN-40	40	43-45	Air	15	220V	2.50	500x650x950	450
AP-OZN-05000	OZN-50	50	60-90	Water	20	380V, 3P	3.0	650x1050x1250	450
AP-OZN-10000	OZN-100	100	58-90	Water	35	380V, 3P	4.0	650x1050x1250	500
AP-OZN-15000	OZN-150	150	58-90	Water	55	380V, 3P	6.0	650x1050x1250	800
AP-OZN-20000	OZN-200	200	55-92	Water	65	380V, 3P	8.0	2300x1100x1600	1,000
AP-OZN-30000	OZN-300	300	52-95	Water	80	380V, 3P	15.0	2300x1100x1600	1,200
AP-OZN-40000	OZN-400	400	48-95	Water	90	380V, 3P	16.0	2300x1100x1600	1,500
AP-OZN-50000	OZN-500	500	44-98	Water	100	380V, 3P	17.0	2300x1100x1600	1,600

# Options



## RO Systems

- Series PRO44, capacity of 0.25 - 1.5 m<sup>3</sup>/hr
- Series PRO48, capacity of 1.5 - 3.0 m<sup>3</sup>/hr
- Series PRO88, capacity of 6-18 m<sup>3</sup>/hr



## Ultra Filtration (UF) Systems

- Capacity of 0.75 - 100 m<sup>3</sup>/hr
- Low fouling Hydrophilic Polyvinylidene fluoride (H-PVDF) membrane
- Excellent filtration performance with high flux
- Can be periodically back washed and air scoured to improve performance and extend operating life by removing the fouling layer



## Water Deionizers

Water deionizers are used in applications requiring very high water quality, usually as polishers after reverse osmosis. Many industries use DI systems: paints, chemicals, electronics, textiles, plating, cosmetics, boiler feed, food/beverage processing, hospitals/ medical facilities.



## Water Softeners

Anthracite : for Sediment Removal  
Manganese Green Sand : for Stain Removal  
Activated Carbon : for Chlorine, Tastes and Odors Removal  
Cation Resin : for Hardness Removal  
Mixed-Bed Resin : for Salt Removal



## Stainless Steel Multi-Cartridge Filters and Housing

Commercial Stainless Steel Multi-Cartridge Filter and Housings provide a high quality solution for high-volume filtering at reduced pricing. Ideal for use in post-filtration and more. Housings will fit standard 30" or 40" filter cartridges. Filters cartridges are nominal micron rating 1-150 micron.



## UV Sterilizers

The quality of drinking water can change with time and become contaminated with harmful bacteria. Allfyll UV system is a reliable, economical and chemical-free way to safeguard drinking water.

Please request more information

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