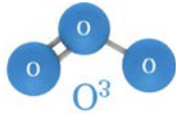

BIO₃GEN SANITIZER

An Impeccable Hygiene System
for your Establishment



Ozone

Ozone (O_3) is a natural element found in nature made up of three oxygen atoms. O_3 is naturally produced in the atmosphere by lightning discharges.

Beneficial for Life

Found in the stratosphere. It performs a function that is highly beneficial to life, by absorbing most of the sun's ultraviolet radiation, harmful to living cells.

Ozone is able to destroy SARS Coronavirus.



O₃ can be used in everyday life, because it:

- Has a high oxidizing power, able to break down non-biodegradable complex organic compounds.
- Exerts energetic disinfecting action and unlike other disinfectants (e.g. chlorine) does not leave residues.
- Breaks down completely into oxygen and does not need any elimination treatment.



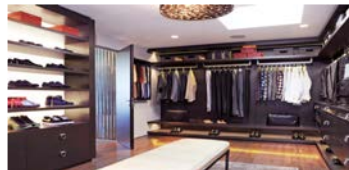
Ozone Action



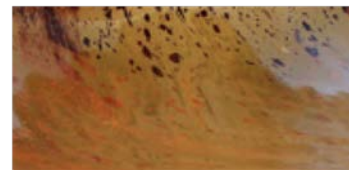
SANITIZES
closed
environments



REMOVES
odors



DISINFECTS
clothes and
footwear



PRECIPITATES
metals, calcium and
magnesium



**ELIMINATES &
INACTIVATES**
bacteria, fungi &
viruses



REPELS
insects & rodents



DEGRADES
organic matter



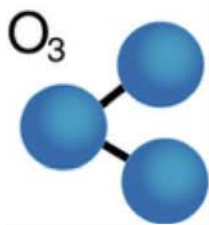
PRESERVATION
fresh food

Sanitizing Properties

- Strong antimicrobial agent
- 1.5x more powerful than chlorine and 3,000x faster acting
- Degrades pesticides, herbicides and contaminants
- No harmful by-products
- Reverts back to normal oxygen
- Removes chemical contaminants
- True destruction of pollution
- 100% chemical-free
- Can be used in air and water
- Environmentally friendly



The **safest and most effective** method against
germs, bacteria and bad odors



NO chemical residue



SAFE & ECO FRIENDLY

Ozone Formation

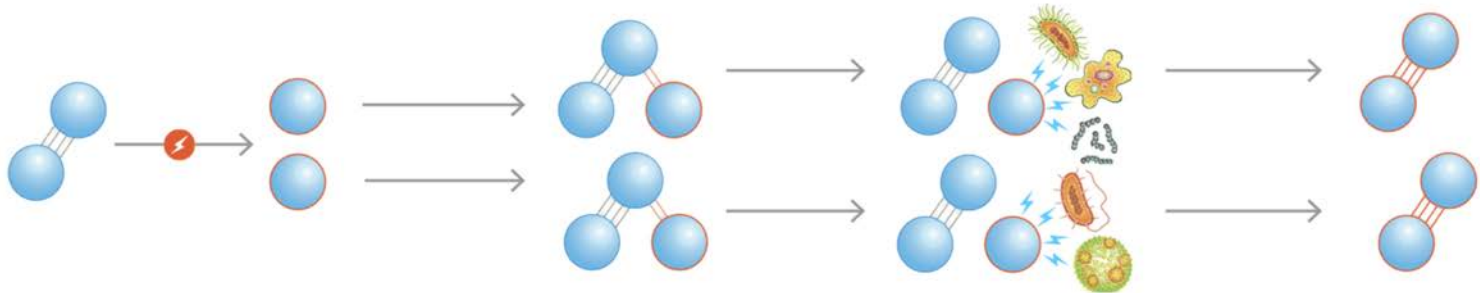
Energy splits targeted oxygen (O_2) into **single oxygen atoms** (O_1)

The **single oxygen atoms** form a **weak bond** with free oxygen molecules to create ozone (O_3)



Once ozone contacts contaminants, the weak bond is broken, and the **oxygen atom** destroys the foreign bodies/materials

The only remaining by-product from the interaction is **pure oxygen** (O_2)



- Ozone is immediately consumed and breaks back to oxygen
- Does not require any elimination treatment

Inactivation Time

Bacteria

<i>Streptococcus lactis</i>	0'14"
<i>Streptococcus haemolyticus</i> (α-type)	0'09"
<i>Micrococcus Sphaeroides</i>	0'25"
<i>Staphylococcus aureus</i>	0'10"
<i>Staphylococcus albus</i>	0'10"
<i>Staphylococcus pyogenes aureus</i>	10'00"
<i>Bacillus subtilis</i>	0'18"
<i>Bacillus subtilis spores</i>	0'36"
<i>Pseudomonas fluorescens</i>	0'10"
<i>Listeria monocytogenes</i>	0'11"
<i>Legionella pneumophila</i>	19'00"
<i>Sarcina lutea</i>	0'44"
<i>Proteus vulgaris</i>	0'13"
<i>Serratia Marcenses</i>	0'10"
<i>Brucella abortus</i>	1'00"
<i>Vibrio cholerae</i>	20'00"
<i>Shigella dysenteriae</i>	1'00"
<i>Salmonella typhi</i>	3'00"
<i>Escherichia coli</i>	1'00"
<i>Rhodospirillum rubrum</i>	0'10"

Spores

<i>Penicillium roqueforti</i>	0'45"
<i>Penicillium expansum</i>	0'36"
<i>Penicillium digitatum</i>	2'26"
<i>Aspergillus glaucus</i>	2'26"
<i>Aspergillus flavus</i>	2'45"
<i>Aspergillus niger</i>	9'10"
<i>Rhizopus nigricans</i>	6'06"
<i>Mucor roseosus (A & B)</i>	0'58"
<i>Oospora lactis</i>	0'18"

Ferments

<i>Saccharomyces elipsoideus</i>	0'22"
<i>Saccharomyces cerevisiae</i>	0'22"
<i>Saccharomyces species</i>	0'29"
<i>Brewer's Yeast</i>	0'11"
<i>Baker's Yeast</i>	0'14"

Germes

<i>Paramecium</i>	5'30"
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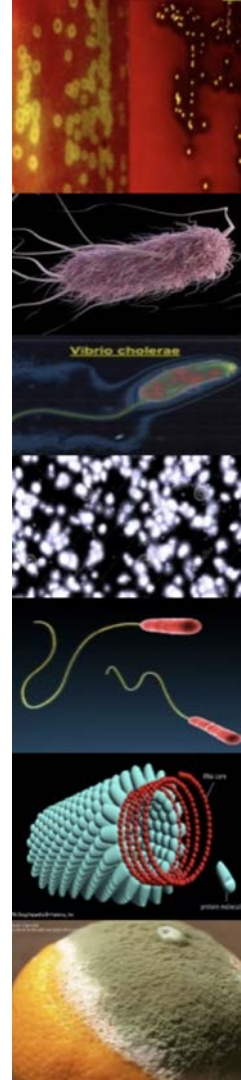
Nematoids

Nematoid Spores	0'36"
Algae	0'36"

Viruses

Bacteriophages (E.Coli)	0'10"
Tobacco mosaic virus	12'15"
Flu	0'10"
Virus resp. sinci Nuale	21'00"

Indicative minimum time required by Ozone sterilization to destroy certain micro-organisms



Ozone in Food Disinfection

- Disinfects food, sanitizes food-contact surfaces leaving no chemical trace behind
- Reduces pesticides and other contaminants on food
- Does not affect the organoleptic properties of food (taste, texture, color or smell)
- Reduces spoilage and extends shelf-life

	On Contact With Ozonated Water	After 1 minute With Ozonated Water
	Log Removal / % removal	Log Removal / % removal
BACTERIA		
<i>Staphylococcus aureus</i> (Foodborne Human Pathogen)	3.33 / 99.9500%	4.03 / 99.9900%
<i>Escherichia coli</i> (Indicator of Fecal Contamination)	5.16 / 99.9500%	5.57 / 99.9998%
<i>Salmonella typhimurium</i> (Foodborne Human Pathogen)	5.21 / 99.9993%	5.51 / 99.9997%
<i>Listeria monocytogenes</i> (Foodborne Human Pathogen)	5.22 / 99.9994%	5.97 / 99.9999%
<i>Pseudomonas aeruginosa</i> (Causes Food Spoilage)	3.42 / 99.9600%	5.17 / 99.9990%
<i>Streptococcus faecalis</i> (Indicator of Fecal Contamination)	3.77 / 99.9800%	4.79 / 99.9980%
<i>Bacillus cereus</i> (Foodborne Human Pathogen)	2.96 / 99.9800%	3.88 / 99.9900%
<i>Yersinia enterocolitica</i> (Foodborne Human Pathogen)	5.38 / 99.9996%	5.48 / 99.9997%

Source: California Polytechnic University



Healthy Living

Being a highly unstable molecule, Ozone has a high oxidizing power and it is able to break down non-biodegradable complex organic compounds. It exerts an energetic disinfecting action and unlike other disinfectants (e.g. chlorine) it does not leave residues.



CLEANLINESS and HYGIENE in environments accredited under Regulation CE 852/2004 (H.A.C.C.P. Standard)



Handling Food Products

HACCP accredited operators have the duty of assuring utmost cleanliness and hygiene in the work areas and work surfaces where food products are handled as per Regulation CE 852/2004.

The market currently offers chemical products, either in liquid or spray form, mainly chlorine-based, for treating and disinfecting work surfaces and tools.

Chemical Products

Currently, in order to obtain the best possible result by manual effort, the chemical products on the market:

- are often insufficient
- require manual effort to be applied
- always leave chemical residues (often dangerous)
- do not guarantee a thorough treatment in the so-called “difficult corners”
- are a constant cost (both in terms of expense and of storage).

No chemical detergent product is capable of destroying all micro-organisms, Ozone is!!!



Chlorine Effect

- Chlorine reacts with natural organics present in water to form chemical by-products
- Chlorine chemical by-products are **highly toxic, carcinogenic and very hard to remove** (i.e. trihalomethanes or THM)
- Chlorine creates reproductive problems in animals
- Even negligible concentrations of chlorine kills many aquatic life-forms



CREATES TOXIC BY-
PRODUCTS



REMAIN IN
WATER AND FOOD

Chemical Disadvantages For Room Decontamination

- High cost
- Wiping with chemicals requires much work and is unsuitable for walls, curtains and ceilings
- Retention of unpleasant disinfectant odor in the treatment room after decontamination
- Potential inhalation of chemicals by hospital staff

Ozone can be used for hospitals & hotel room decontamination





Chlorine Effect According to:

World Health Organization, Geneva 2003

- Exposure to chlorinated water can trigger Asthma
- Chlorinated water increases Cholesterol/HDL ratio
- Chlorinated water increases the risk of bladder cancer
- Chlorinated water significantly increases Dermatitis episodes



Environmental Protection Agency (EPA) USA

- Repeated exposure to chlorine in air and water affect immune system, blood, heart, and the respiratory system
- Chlorine causes environmental harm at low levels

Ozone is preferable to common chemical products

- Does not require any manual effort
- Does not use any chemical substances
- Does not leave any chemical residues
- Low production cost
- Has no side-effects if used according to instructions

Ozone treatment eliminates chemicals from hygiene along with associated costs



No Manual Effort

- Microbiological decontamination of surfaces in confined environments
- Sanitize and disinfect rooms dedicated to food handling, kitchens and all other environments complying with Regulation CE 852/2004
- Attacks and destroys bad odors instead of just covering them



Air Treatment



AMA (American Medical Association):

- 50% of all illnesses could be attributed to indoor air pollution



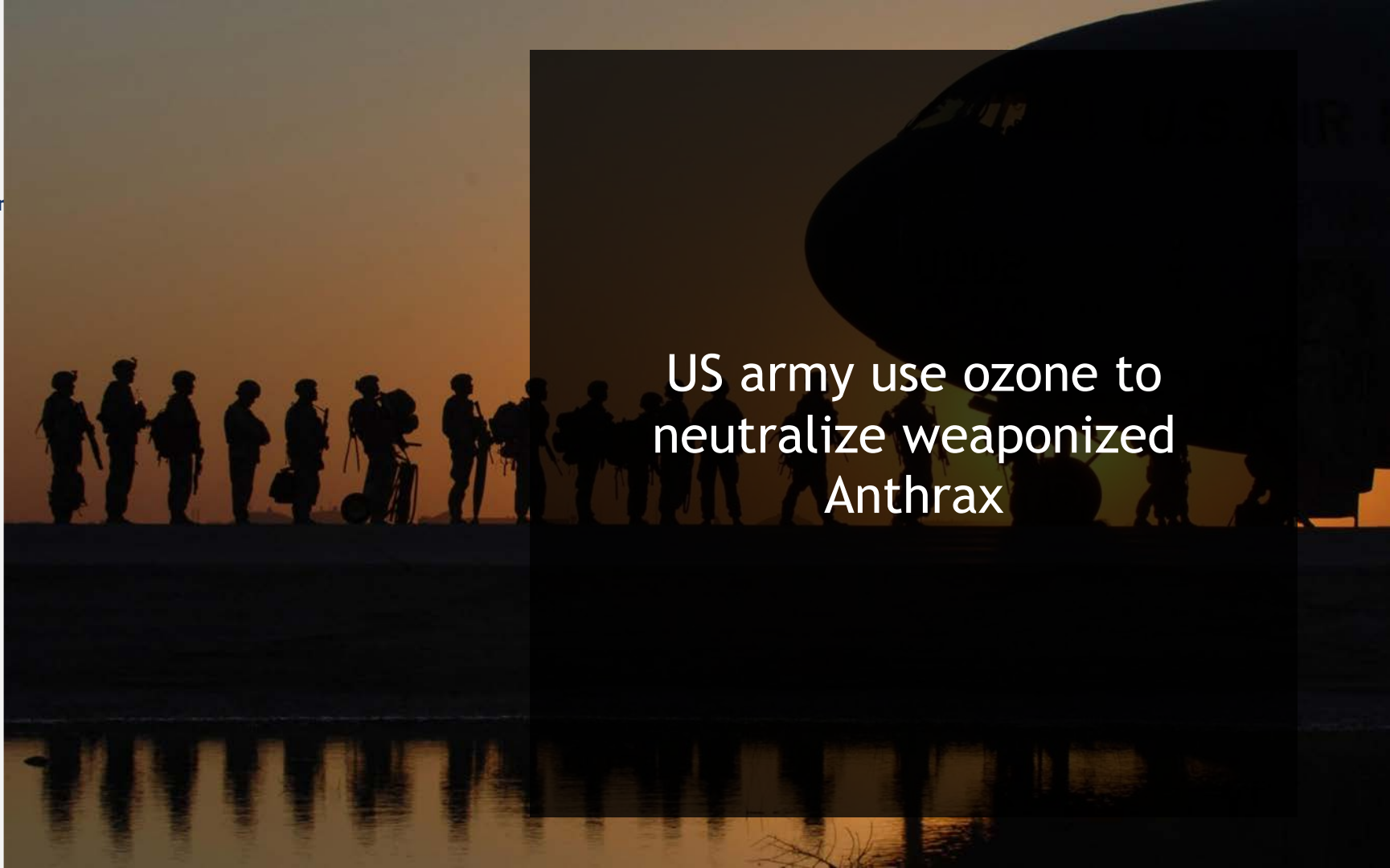
EPA (Environmental Protection Agency - USA):

- The level of indoor air pollution can reach as much as 200x as compared to the outside pollution



Center of Disease Control - USA:

- HOSPITAL ACQUIRED INFECTIONS
- Is the 4th leading cause of death in the USA
- More than 100,000 people will die each year as a result

The background image shows a line of soldiers in silhouette, standing on a flat surface. To their right, the nose of a large military aircraft is visible. The scene is set against a bright orange and yellow sunset sky, with the silhouettes reflected in a body of water in the foreground.

US army use ozone to
neutralize weaponized
Anthrax

Approvals



The Italian Ministry of Health has officially acknowledged, the use of Ozone for air and water treatment, as a natural system for sterilizing environments contaminated by bacteria, viruses, spores, molds and dust mites (1996, Protocol No. 24482).



In Europe, the use of ozone for food-related purposes was introduced in 2003, for the disinfection and sterilization during the process of water-bottling. Directive 2003 /40/EC, issued by the European Food Safety Authority Commission on 16 May 2003.



In the US the FDA -Food & Drug Administration- validated the compatibility of Ozone with human activities and allowed the use of Ozone as an anti-microbial agent in gas form or in liquid solutions for the production of food such as meat, eggs, fish, cheese, fruit and vegetables.

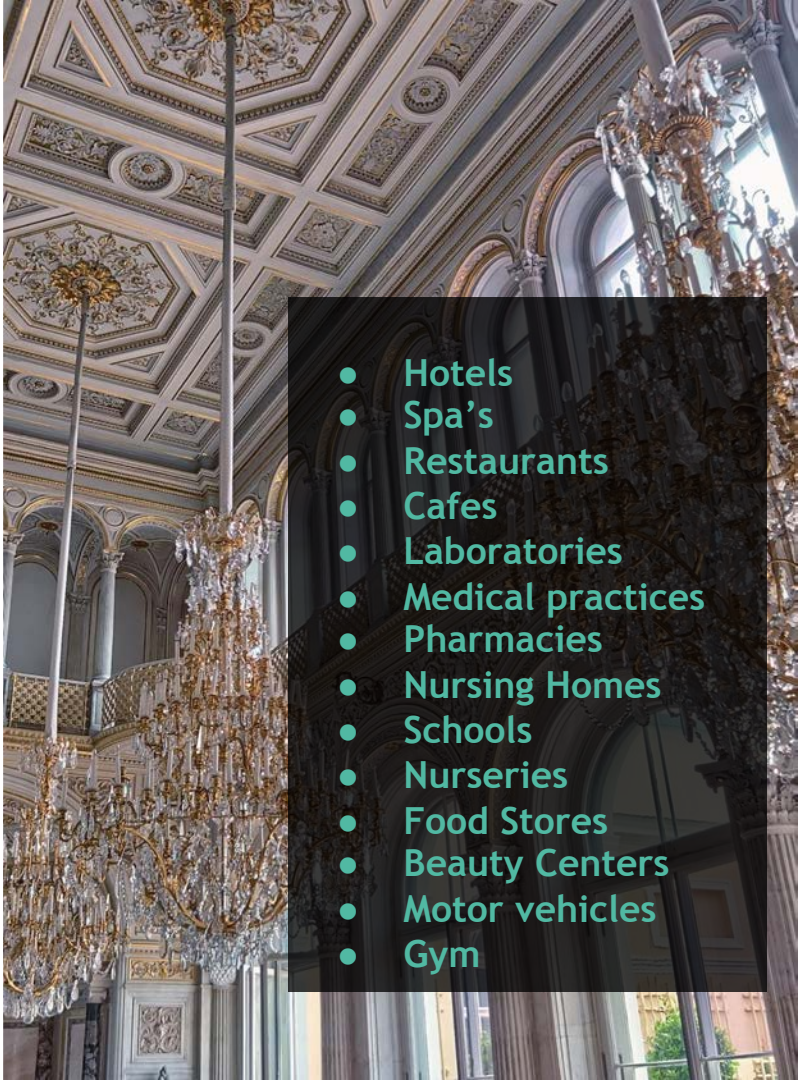


The National Organic Program approved ozone as an active ingredient for the sanitization of surfaces (plastic and stainless steel) directly in contact with food, which does not need to be rinsed and considered free from chemical residues.



The Cyprus Government has officially acknowledged and authorized, License No. B1853, BIO₃GEN Ozone Generator as a biocidal product containing existing active substances, for air and water treatment and as a natural way for sterilizing environments.

By using Ozone, a safe system free of any side-effects, it is possible to **guarantee the safety & hygiene** of both guests and personnel.

- 
- The background image shows the interior of a grand, ornate building, likely a palace or a high-end hotel. It features a high ceiling with intricate decorative patterns, large columns, and several large, multi-tiered chandeliers hanging from the ceiling. The lighting is warm and the overall atmosphere is one of luxury and elegance.
- Hotels
 - Spa's
 - Restaurants
 - Cafes
 - Laboratories
 - Medical practices
 - Pharmacies
 - Nursing Homes
 - Schools
 - Nurseries
 - Food Stores
 - Beauty Centers
 - Motor vehicles
 - Gym

where?

Hygiene is undoubtedly the first and most essential requirement for all types of closed environments that deal with food. However, despite all precautions that may be taken, the presence of contaminants is due both to the contact of the food with air and people present in the area, such as staff and of customers.



where?

A hotel room has the same problems as a small apartment: the sanitization of the air and disinfection of bathroom appliances and of the furnishings, such as curtains, sofas, mattresses, pillows and blankets.

However, unlike a private house, there is a continuous flow of guests; sometimes accompanied by pets- everyone has the right to be welcomed in a comfortable and hygienically safe environment.



MODEL professional



TECHNICAL FEATURES

Model	BIO ³ GEN Professional	Ozone output	2,000 mg/h
Size	MOD «A» 20x31x15 cm MOD «B» 25x20x22 cm	Net weight	4 Kg
Power	230 Vca 50-60Hz	Power consumption	1W/250W
Treated air rate of flow	120 m ³ /h	Max. functioning time	120 mins

MODEL



TECHNICAL FEATURES

Model	BIO ³ GEN	Ozone output	400 mg/h
Dimensions	29x29x7 cm	Net weight	1,5Kg
Power	AC220V±10%/50Hz	Power during use	15W/18W
Gas/Min	3-3.6L/min.	Max. time	30 mins

ozone used by:

BIO³ GEN
total protection

