

Introducing the Climasafe O_3 Air & Multi Surface Air & Disinfectant System



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1. What's Ozone?

Climasafe O_3 is a molecule with three oxygen atoms. The formation of this compound is achieved by passing air through an energy discharge, which breaks the double bond of diatomic oxygen, giving off two atoms that then recombine with other oxygen molecules to form the ozone molecule.

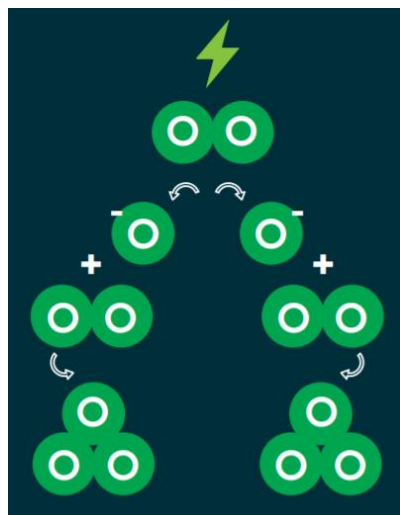
2. How does Climasafe O_3 work?

Climasafe O_3 is an ozone generator that uses atmospheric air. It generates a shock treatment in situ for the elimination of bacteria, viruses (Covid-19), mites and bad odors.

Applications:

- Vehicle disinfection: cars, trucks, caravans
- Commercial venues: gyms, hotels, clothing stores, hotels, restaurants
- Sanitation of rooms, bathrooms and offices
- Neutralization of odors in confined places

The formation of this compound is achieved by passing air through an energy discharge, which breaks the double bond and generates two atoms that then recombine with other oxygen molecules.

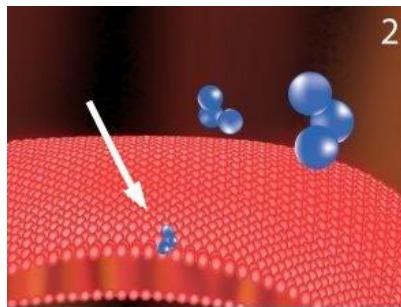


3. Disinfection with Ozone:

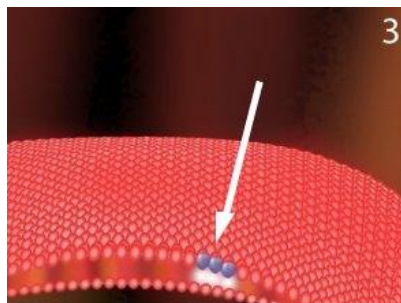
A microorganism type bacterium, fungus, virus (Covid-19):



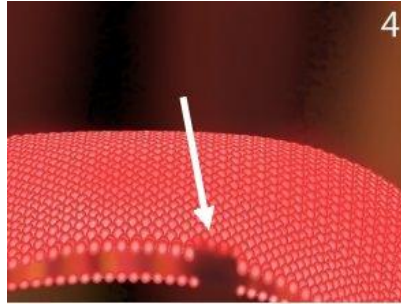
The Ozone molecule (blue) contacts the cell wall of the microorganism:



Thanks to the high oxidative power of Ozone, an oxidative explosion occurs on the cell wall of the virus, a vital part of it:



The effect of the oxidative explosion is literally a hole in the virus cell wall:



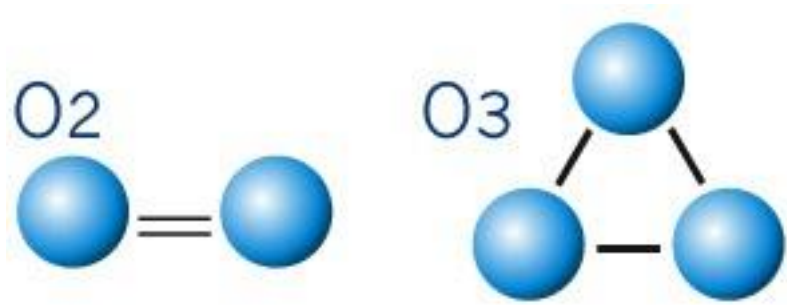
Thousands of Ozone molecules make thousands of holes on the cell wall of the virus that begins to disappear:



In just a few seconds, the cell wall has been broken down, the virus literally loses its shape and dies:



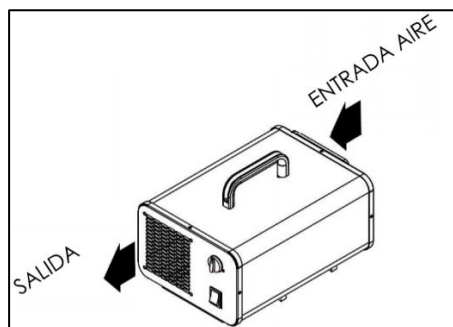
After the disinfection, the oxygen atoms that form the Ozone are free and quickly form molecular oxygen (O_2), which is the natural oxygen state at our atmospheric level:



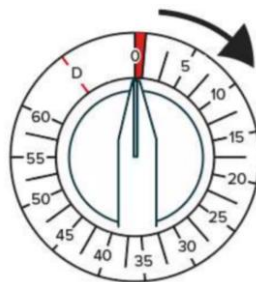
Therefore, we have eliminated the microorganisms and the only residue is harmless O₂.

4. Simple disinfection protocol with Climasafe O₃ Ozone equipment:

- a) Place the Ozone equipment on some surface of the place that will be disinfected, without special placement, only leaving free the outlet and entrance air.



- b) Set in the timer the necessary time according to the dimensions of the place (* in the Climasafe O₃ manual there are recommendations about the time).

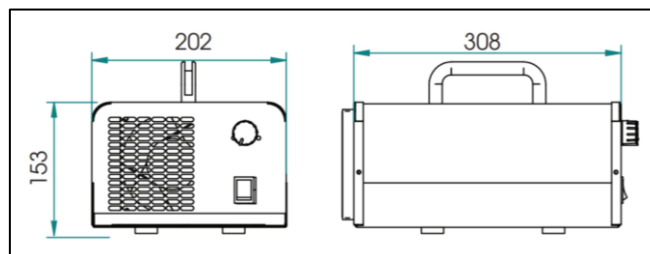


	O3C-05	O3C-10	O3C-20
O3 production, g/h	5	10	20
Disinfection capacity, min/m3	0,66	0,33	0,16

- c) After the disinfection time, open doors and/or windows to ventilate the area and the disinfection is ended.

5. Technical characteristics of Climasafe O₃ equipment:

Model	O3C-05	O3C-10	O3C-20
O3 Production, g/h	5	10	20
Power input, W	75	102	160
Power supply	220-240V / 50Hz	220-240V / 50Hz	220-240V / 50Hz
Timer	60 min	60 min	60 min
Disinfection capacity, min/m3	0,66	0,33	0,16
Weight, kg	3,5	3,5	3,6



6. Advantages of use and operation of Climsafe O₃ Ozone equipment:

Total and effective disinfection: Ozone, being a gas, flows through the room reaching and disinfecting all the points. Using other disinfection methods, such as UV lamps, or manual disinfections, it is very likely that there will be areas without disinfection, these areas can't be reached (for example: UV shadows) or are forgotten (manually). However, the Ozone equipment, applied in the correct time, will disinfect all the stay.

Recommended by the WHO (World Health Organization): As you can read in this article, [Link article](#), the WHO shows the role of Ozone as a "powerful microbicide", that means, destroyer of microorganisms such as viruses (Covid-19), bacteria, fungi, etc.

Noted by the EPA (United States Environmental Protection Agency) as a potent viricide: Ozone disinfection is noted by the EPA as effective against "difficult to kill" virus.

EPA Pesticide Registration List N: Disinfectants to Use Against SARS-CoV-2.

Vulnerability of Covid-19 to Ozone: There are scientific articles that prove that the vulnerability of viruses to Ozone depends on its type of structure and these articles deduce that enveloped viruses, such as Covid-19, are especially weak against the ozone oxidation. Articles that supporting this claim are listed here:

Tseng, C., & Li, C. (2008). Inactivation of Surface Viruses by Gaseous Ozone. Journal of Environmental Health, 70(10), 56-63.

Rojas-Valencia, M. N. (2012). Research on Ozone Application as Disinfectant and Action Mechanisms on Wastewater Microorganisms. Science Against Microbial Pathogens: Communicating Current Research and Technological Advances, 1st ed.; Mendez-Vilas, A., Ed.; Formatex Research Centre: Badajoz, Spain, 2011; Volume 1, pp. 263–271.

Tseng, Chun-Chieh & Li, Chih-Shan (2006). Ozone for Inactivation of Aerosolized Bacteriophages. Aerosol Science and Technology. Vol. 40 Issue 9 pp. 683-689.
<https://doi.org/10.1080/02786820600796590>.

Roy, D., Wong, P.K., Engelbrecht, R.S., Chain, E.S. (1981). Mechanism of Enteroviral Inactivation by Ozone. Applied and Environmental Microbiology, Vol. 41, No. 3 p. 718-723.

Easy of use: Our Ozone equipment is contained in a box with a handle and to disinfect a place, simply you have to placing it on a surface of this place, a table, the floor, etc.

However, others methods like manual disinfection (sprayer + cloth) requires a lot of time and work and does not usually guarantee a complete disinfection. Compared with UV equipment, this one is more cumbersome and must be placed in a special way that requires more time and work. Examples of Climasafe O₃ easy placing:



Proven technology: Due to Covid-19 the ozone disinfection has become a hot topic, but, even before this, the disinfection with Ozone has been a common practice in medical therapies, disinfection of utensils and rooms, odor elimination, disinfection of irrigation waters... Especially, in car washes to give disinfectant and odor removal treatments.

Actually, it is being used in a multitude of sectors including the disinfection of public vehicles (police, ambulance ...) that require a meticulous disinfection.

Safety and control: Ozone gas, being a fluid like air, can be used and contained exclusively inside a room, without danger to people or living beings outside of this.

However, other treatments can be dangerous for living beings, for example, UV radiation is able to cross surfaces by acting on people or elements outside.

Elimination of bad odors: Disinfection with Ozone has the advantage that, in addition, eliminates bad odors from the room (tobacco, humidity, waste...).

Disinfection of air conditioning systems: In a closed room, with the air recirculation connected, the Ozone equipment will also make disinfecting and eliminating odors from inside the air conditioning system.

Possibilities of use: An Ozone Climasafe O₃ unit could be used to disinfect a multitude of rooms only by connecting it in the desired place (example: disinfection of the waiting room, disinfection of the office, disinfection of the company car...).

Recommended for disinfection of common household items: Ozone gas is suitable for the majority of daily items that require disinfection (letters, packages, masks, keys, smartphones...). In addition, it's proven that ozone doesn't impair the capabilities of these items in the time that the ozone disinfection needs (there are exceptions such as latex or natural rubber).

Ozone Gas: Scientific Justification and Practical Guidelines for Improvised Disinfection using Consumer-Grade Ozone Generators and Plastic Storage Boxes.

Guarantees: Climer Technology is an equipment development company with proven experience and which is also part of the European Ozone Association ([Members of the European Ozone Association](#)).