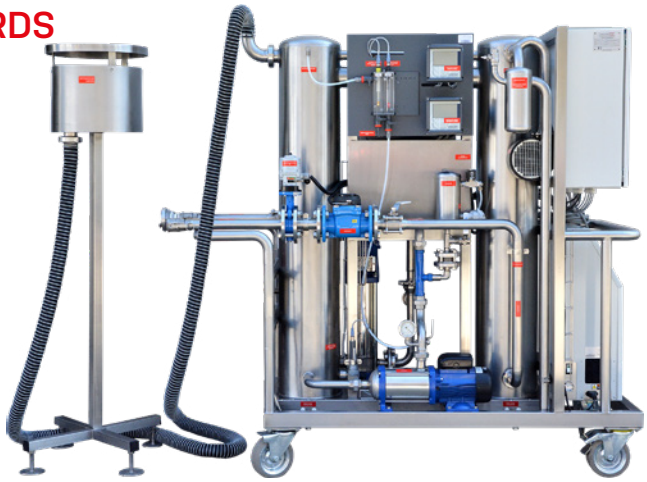
WOFIL® OZONE TECHNOLOGY

GREENEVO AKCELERATOR ZIELONYCH TECHNOLOGII

ECO DISINFECTION

DEGASSED HIGHLY-OZONATED WATER TO DESTROY CORONAVIRUS AND OTHER HAZARDS



Systems provided by a Polish company, WOFIL Robert Muszański, produce degassed highly-ozonated water that can inactivate viruses such as:

- influenza virus
- rotavirus
- GD V11 virus
- hepatitis A
- Vesicular Stomatitis
- SARS

and many more.

See the movie

Ozone, due to its properties, destroys viruses by diffusing through the protective capsid into the nucleic acid core, where it damages viral RNA. At higher concentrations, O_3 destroys the outer protein shell of the virus, which affects its DNA or RNA structures. Ozone prevents a single strand of RNA from splitting into two, disrupting the virus's reproductive function. In this way, it inhibits the formation of new virus cells. Studies have shown that capsid viruses are more susceptible to ozone inactivation than those that are devoid of lipid shells (Bolton et al., 1982). Coronaviruses, including 2019-nCoV, are in the group of capsid viruses.

Research indicates that viruses from the coronavirus family can survive on inanimate objects for up to 9 days (The Journal of Hospital Infection). These studies show that not only is it necessary to separate live carriers of the virus, but there is also a need for decontamination to combat the spread of coronavirus.

Degassed highly-ozonated water, due to its effectiveness, is the best means for decontamination. It may be used for both surface cleaning and spraying.

The properties and possibilities of using degassed highly-ozonated water cause that WOFIL systems are effective, environmentally friendly and ecological means used to counter the spread of the current coronavirus as well as possible other viruses in the future (so-called X virus).

Microorganism	Ozone pH=6-7	Chlorine pH=6-7	Chloramine pH=8-9	Chlorine dioxide pH=6-7
E.coli	**0,02**	0,034 - 0,05	95 - 180	0,4 - 0,75
Virus polio 1	**0,1 - 0,2**	1,1 - 2,5	770 - 3740	0,2 - 6,7
Rotavirus	**0,006 - 0,06**	0,01 - 0,05	3806 - 6480	0,2 - 2,1
Giarda Lamba cysts	**0,5 - 0,6**	47 - > 150	-	-
Giardia muris cysts	**1,8 - 2,0**	30 - 630	-	7,2 - 18,5
Cryptosporidium pavum	**5 - 9**	2250	7200	78

Theoretical values of ratio C · τ [mg·min·dm^{-3}] for various disinfectants at which 99% deactivation of chosen microorganisms can be achieved at 5 °C.

Source: Biń A.K., Wykorzystanie ozonu w uzdatnianiu wody, in:Perkowski J., Zarzycki R. (red.) Zastosowanie ozonu, PAN Oddział w Łodzi 2005, p.235

*Source of decontamination photo: http://trivaria.pl/ciekawostki/medycyna/dekontaminacja-ludnosci-i-sprzetu/

Application of degassed highly-ozonated water technology (further "OWWO technology") in case of contamination with bacteria and viruses on the surface and volume of buildings.

01 Degassed highly-ozonated water

Production of **degassed highly-ozonated water (OWWO)** is based on a proven technology for removing bacteria and viruses from the water with the use of ozone. It is provided by technologically advanced systems that guarantee the safety of the process.

OWWO is safe for people, human skin, the natural environment as well as equipment and infrastructure - it is destructive only to bacteria and viruses.

OWWO, unlike e.g. acids that affect bacteria and viruses from the outside - it comes into them through the cell membrane, destroying pathogens from the inside. Thanks to this, it does not damage the body surface, clothes or organic matter.

After about a few minutes of exposure and disinfection, it decomposes into pure oxygen.

The durability of OWWO produced is several times longer than ordinary ozonated water. Therefore, it maintains its bactericidal and viricidal properties for one hour from its production - during this time you can freely use it for disinfection.

OWWO technology does not introduce any artificial elements into the environment, because it is produced from water, oxygen, and electricity. It works from a dozen to several hundred times faster on pathogens than other disinfectants. The great advantage and uniqueness on a global scale is that it can be produced anywhere using only electricity and water.

WOFIL®
OZONE TECHNOLOGY
www.wofil.pl

Direct use of OWWO

02

Degassed highly-ozonated water can be used for direct spraying to the surface using high-pressure lances that are the elements of the system, or using ordinary high-pressure washers, e.g. KARCHER (possible risk of damage after prolonged use).

To use OWWO in this way, the system in any location should be connected to the power supply and supplied with clean water from the hydrant. Then turn on the device at 60-80% efficiency and produce a solution from 3 to 6 ppm. Then connect PE pipes (collectors) to the system, to which 0.5-inch hoses for high-pressure washers will be connected. You can do it by installing 10-20 cable ties with 0.5-inch drills on one PE pipe.

Moreover, the system can be used for the disinfection of all the surfaces by directing the stream to the ceiling of the rooms so that OWWO freely falls from the ceiling to the ground.

Application of OWWO for manual, portable and stationary devices for disinfecting the surface and the volume of rooms

03

After the production of the OWWO by the system, it should be poured into portable containers that will be used for spraying the surfaces to be disinfected. OWWO's active time is up to one hour. Containers should be rinsed several times with OWWO before the final use to clean them. **WARNING! Extreme caution should be taken - OWWO cannot get into eyes or mouth!!!**

OWWO can also be used for water air fresheners that should be top up with fresh OWWO every half hour. It can be used in public buildings, stations, stores, etc.

Application of OWWO for spraying people in clothes using chambers or curtains

04

Connect the OWWO to a curtain equipped with appropriate nozzles. Firstly people disinfect hands, then put them over the eyes and finally they can pass the curtain.

OWWO disinfects all the clothes on which the virus can be transmitted and at the same time refreshes the air around the curtain. **It can be used at the entrance to hospitals so that the virus cannot migrate with the transport of infected patients.** Higher capacity curtains can be used for ambulances, city cars, and other vehicles.

The use of devices for gassing the volume of buildings

05

Specific requirements:
- cutting off the building from electricity,
- staff must be equipped with gas masks with active carbon and gloves.

Unscrew the hose with a gas valve from the destructor and direct the gas ozone to the surfaces to be disinfected. After introducing ozone into the room, close it for 5 minutes, and then ventilate intensively. (A procedure is similar to the ozonation of car air conditioning).

Ambulances transporting patients can be systematically disinfected in this way. You can also disinfect individual hospital rooms and emergency rooms. Gas disinfection should be started from the ceiling. Ozone is heavier than air - it will fall automatically to the ground.

WOFIL Robert Muszański · Tax Id. No.: 7341398303
ul. Rzeźniana 10/1 · 33-380 Krynica Zdrój · POLAND
Tel: +48 18 414 00 60 · e-mail: wofil@wofil.pl · www.wofil.pl

Robert Muszański
+ 48 604 565 065
e-mail: r.muszanski@wofil.pl

Michał Kosiniak
+ 48 602 463 445
e-mail: m.kosiniak@wofil.pl