

# OXIDIS® AQUEOUS OZONE FAUCET ADAPTER

SAVE, EFFECTIVE, ENVIORNMENTALLY FRIENDLY, AND  
ECONOMICAL

2020

# Oxidis® AQUEOUS OZONE FAUCET ADAPTER DISINFECTION SYSTEM

## Features:

- Oxidis® by Kona® aqueous ozone(O<sub>3</sub>) faucet adapter's patented design makes the point-of-use aqueous ozone production efficient, cost effective, maintenance free, and practical.
- Aqueous ozone is a powerful broad-spectrum microbiological agent which kills bacteria, viruses, mold, yeast and algae within seconds of contact
- Highly Disinfected ozonated water eliminates the need to rinse disinfected medical equipment or hands with tap water.
- Aqueous ozone is an effective surface disinfectant.
- Safe for all surfaces except natural rubber.
- Oxidis® aqueous ozone faucet adapter instantly produces aqueous ozone in concentrations from .8 to 1.5 ppm.
- Passively prevents the development of bio-film in sinks and drains.
- Aqueous ozone is non-toxic and leaves no hazardous residual on surfaces or down the drain.
- Generates 1.2 gallons of aqueous ozone per minute for 10,000 hours.

**Retail Cost \$749.99**



# Ozone Disinfection

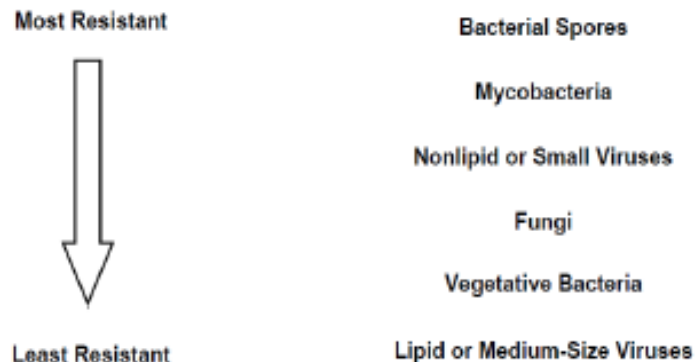
## History of Aqueous Ozone Disinfection

- **AQUEOUS Ozone use for disinfection.**
- **THIS IS NOTHING NEW. OZONE IS MOTHER NATURE'S FOOT SOLDIER IN THE WAR AGAINST DANGEROUS MICROBES THROUGHOUT OUR ENVIRONMENT.** Ozone was first used for disinfecting drinking water treatment in 1893 in the Netherlands (Langlais et al., 1991). Although, used frequently in Europe for drinking water disinfection, its success was slow to transfer to the United States due to early US successes with chlorine disinfection. Most water treatment plants generate ozone by using a high voltage (6 to 20 kilovolt) alternating current across a dielectric discharge gap containing ambient air. The typical ozone concentrations used in the production of the public water supply range from less than 0.1 to roughly 1mg/L (US EPA, 1999). Higher concentrations can be briefly attained under optimum production and mixing conditions.
- **IT'S NOT MAGIC...THE SCIENCE IS WELL ESTABLISHED.**
- **According to the US EPA Office of Water, ozone is one of the most potent and effective germicides** used in water treatment and is effective against bacteria, viruses, and protozoan cysts (US EPA, 1999). FDA Generally regarded as safe (GRAS), approved for ozone disinfection of bottled water was renewed. In 1987, 600 MGD (million gallons per day) ozonation plant comes online in Los Angeles for municipal water sanitation after seven years of pilot testing.
- In response to a Food Additive Petition submitted in August 2000, the **U.S. Food and Drug Administration formally approved the use of ozone as an Antimicrobial Agent for the Treatment, Storage and Processing of Foods in Gas and Aqueous Phases.** Next came approval by the US FDA as an antimicrobial additive for direct contact with foods of all types (FDA 2001). The approval was published on June 26, 2001 (FDA, 2001).
- **As recently as 2014, the FDA cleared several medical devices, which included ozonated water as a final stage disinfectant for semi-critical devices such as endoscopes, dialysis equipment and other temperature sensitive equipment. The FDA has defined Ozone as a class B sterilant.**
- "In summary, with regard to the spectrum of microbial action, each microorganism has an inherent sensitivity to ozone. Bacteria are more sensitive than yeasts and fungi. Gram-positive bacteria are more sensitive to ozone than Gram-negative organisms, and spores are more resistant than vegetative cells. **Enveloped viruses (Covid-19) were more susceptible to ozone than those lacking lipid envelopes**".
- "Due to the mechanism of ozone action, which destroys the microorganism through cell lysis, ***the development of resistance to ozone disinfection is not found***" (Pascual et al. 2007).

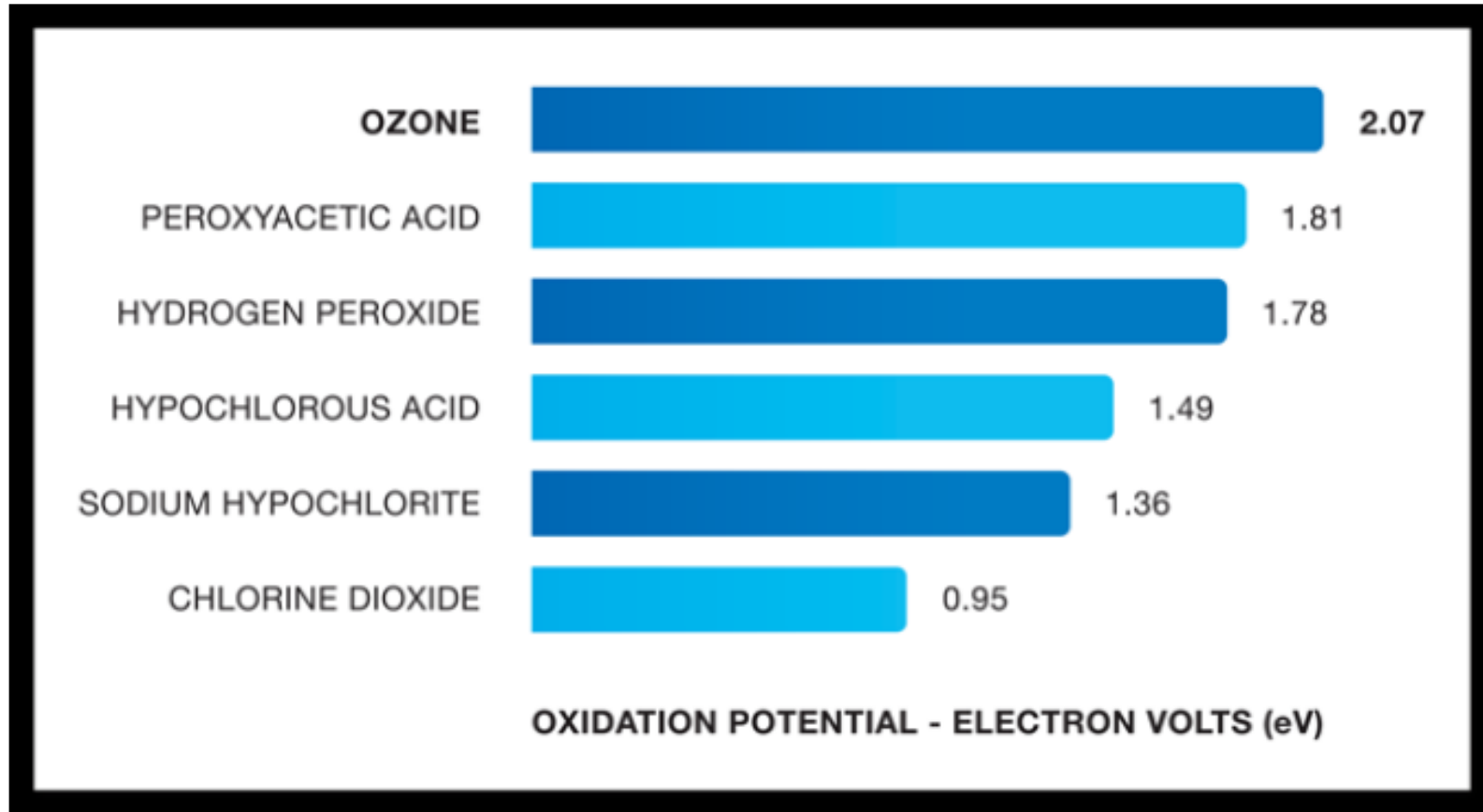
# Guidance for Industry Regarding Covid-19 -Food and Drug Administration March 2020

In the context of the COVID-19 public health emergency, it is necessary to maintain an adequate supply of sterilizers, disinfectant devices, and air purifiers that can facilitate rapid turnaround of sterilized or disinfected medical equipment and that help reduce the risk of viral exposure for patients and health care providers to SARS-CoV-2..

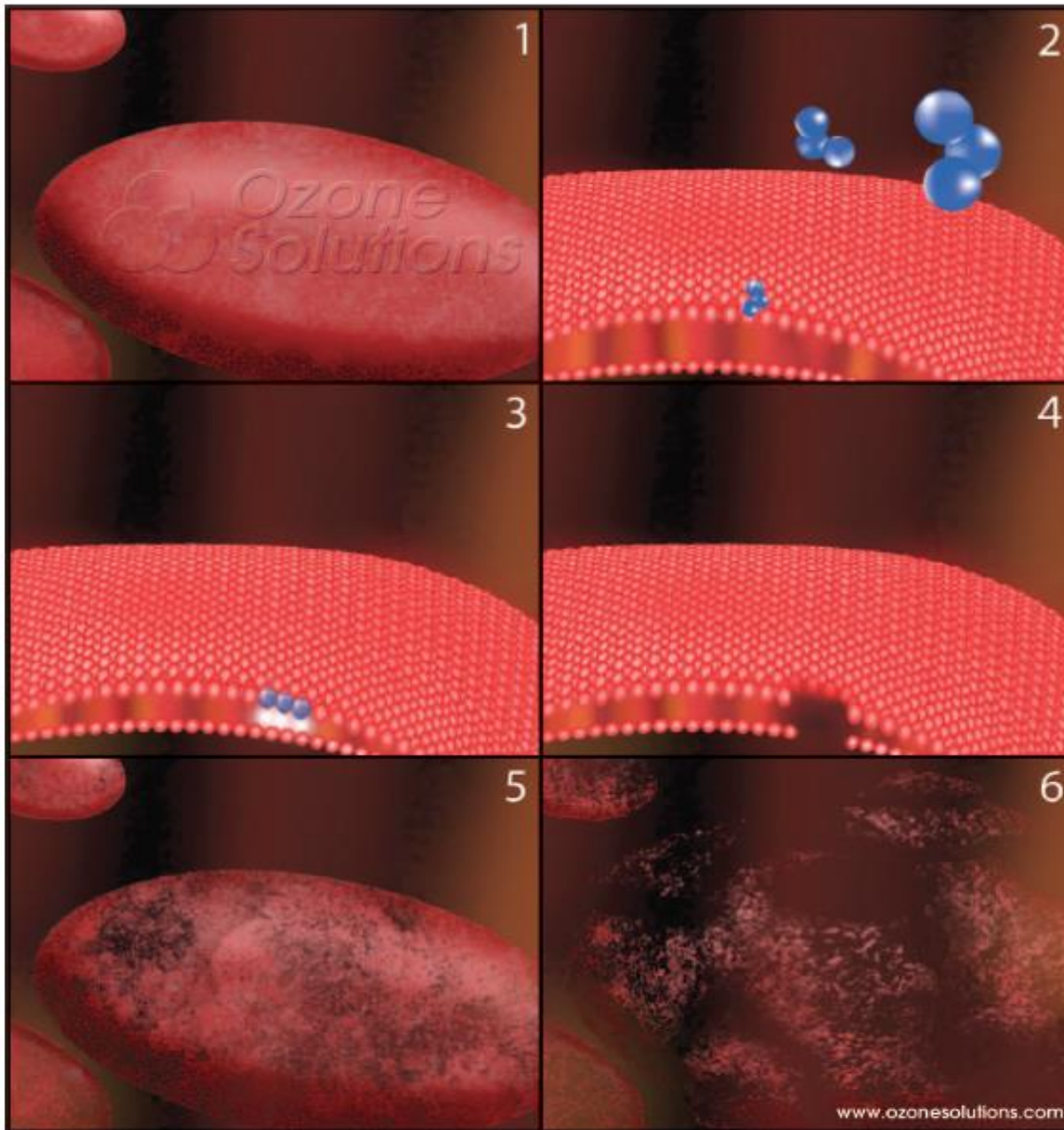
Coronaviruses are RNA viruses enveloped in a lipid bilayer.<sup>9,10</sup> SARS-CoV-2 is a type of coronavirus. As depicted in Figure 1, **lipid viruses are the least resistant microorganisms on the scale of descending order of resistance to germicidal chemicals. Because disinfection kills most recognized pathogenic microorganisms, it can generally be inferred disinfection should minimize the viability of SARS-CoV-2 (as one of the least resistant microorganisms) on surfaces and in the air in confined spaces.**



# Ozone Relative Oxidation Strength







1. A healthy bacillus bacterial cell.

2. Ozone comes into contact with the cell wall. The cell wall is vital to the bacteria because it ensures the organism can maintain its shape.

3. As ozone molecules make contact with the cell wall, an oxidative burst occurs creating a tiny hole in the cell wall.

4. A newly created hole in the cell wall has injured the bacterium.

5. The bacterium begins to lose its shape while ozone molecules continue to create holes in the cell wall.

6. After thousands of ozone collisions over only a few seconds, the bacterial wall can no longer maintain its shape and the cell dies.

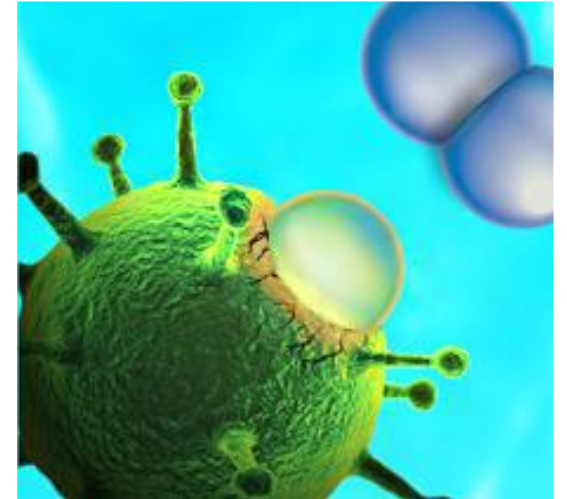
Bacteria cell oxidation via ozone contact typically occurs within 1-10 seconds!

## Reactive Oxidant Species Occurring in Nature, (ROS)

<b>Oxidizing Agent</b>	<b>Electrochemical Oxidation Potential (EOP)V</b>	<b>EOP Relative to Chlorine</b>
Fluorine	3.06	2.25
<b>Hydroxyl Radical</b>	2.80	2.05
<b>Oxygen (Atomic)</b>	2.42	1.78
<b>Ozone</b>	2.08	1.52
<b>Hydrogen Peroxide</b>	1.78	1.30
Hypochlorite	1.49	1.10
Chlorine	1.36 <sup>7</sup>	1.00
Chlorine Dioxide	1.27	0.93
<b>Oxygen (Molecular)</b>	1.23	0.90

# Benefits:

1. Ozone has been safely used in thousands and thousands of applications with no danger to humans or facilities
2. Ozone is a highly efficacious sanitizer, disinfectant and purifier; these provided by its strong oxidation capabilities
3. Ozone is exponentially stronger and more efficacious than all standard sanitizers
4. Ozone has been in commercial use since 1906





# 3rd Party Aqueous Ozone Testing Antimicrobial

## Efficacy Results

1.5-2.0 PPM Dissolved Ozone Dose

### AOAC 961.02 Results

◦ <b>Salmonella choleraesuis</b>	6 log reduction (99.9999%)	180 seconds
◦ <b>Staphylococcus aureus</b>	6 log reduction (99.9999%)	600 seconds
◦ <b>Pseudomonas aeruginosa</b>	6 log reduction (99.9999%)	300 seconds
◦ <b>Trichophyton mentagrophytes</b>	6 log reduction (99.9999%)	30 seconds
◦ <b>Campylobacter jejuni</b>	4 log reduction (99.99%)	180 seconds
◦ <b>Aspergillus flavus</b>	4 log reduction (99.99%)	300 seconds
◦ <b>Brettanomyces bruxellensis</b>	4 log reduction (99.99%)	180 seconds
◦ <b>Listeria monocytogenes</b>	4 log reduction (99.99%)	180 seconds

### AOAC Method 960.09

Escherichia coli	5 log reduction (99.999%)	30 seconds
------------------	---------------------------	------------

# Effective and Environmentally Safe

- Aqueous ozone changes back to pure water in approximately 20 minutes leaving no harmful residue! After the job is done, nothing but pure water left on a surface or down the drain!
- Aqueous Ozone(O<sub>3</sub>) overspill produced by the Sanitas System is well below EPA and FDA safety standards.

EPA REGISTERED ESTABLISHMENT

FDA CLASS 1 MEDICAL DEVICE

Generally regarded as safe by FDA for direct contact on food in both gaseous and aqueous format