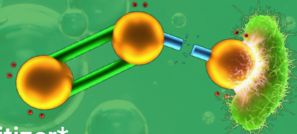




Clean & Sanitize* with Ozone!

Made Inside Your Building - On Demand

Aqueous Ozone is a chemical-free, all-natural effective cleaner, deodorizer, and sanitizer*.



Ozone is Simply Better

Ozone is a powerful sanitizer, disinfectant and oxidizer. Aqueous Ozone at 1 ppm (mg/L) is equivalent to 10 - 4,000 times the concentration of free chlorine, with the right pH, temperature and Micro-Organisms [1]. Ozone, having a short half-life of ~30 mins, needs to be generated on-demand, or quickly used. Using ZER03® Aqueous Ozone (AO), you create a powerful, on-demand cleaning solution for your facilities floors for pennies a day!

1: Morris, J.C. (1975). In: *Disinfection: Water and Wastewater*. J.D. Johnson, Ed. (Ann Arbor, MI: Ann Arbor Science Publishers, Inc.).

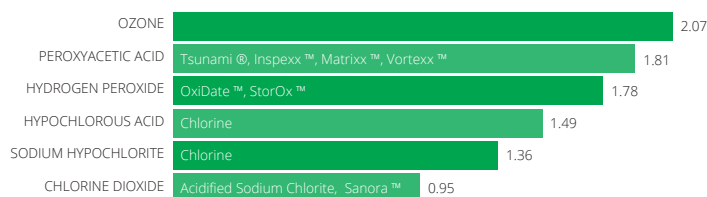
Disinfect Your Floors - Viruses Can Travel on Soles of Shoes

In a recent CDC Study [2], researchers found a 100% positive test rate on the floors for SARS-CoV-2 in the pharmacy where no patients were allowed which shows that floor disinfecting is required to combat the spread.

2: CDC Emerging Infectious Diseases - Aerosol and Surface Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 in Hospital Wards, Wuhan, China, 2020 (https://wwwnc.cdc.gov/eid/article/26/7/20-0885_article).

Oxidation Potential - Electron Volts (eV)

Most Bleach purchased for in home use, is based on Chlorine and contain Sodium Hypochlorite (NaClO). When using Bleach to remove a stain in a garment, the Bleach reacts with the "stain molecule" and an oxidation reaction occurs. The result ends in a removal of the stain [3]. Starting with a powerful oxidizer is important for cleaning, sanitizing, and disinfecting applications.



3: Scientific American - Battles Stains with Bleach (<https://www.scientificamerican.com/article/battling-stains-with-bleach/>)

Aqueous Ozone Pathogen Summary

Antimicrobial Efficacy Protocols: DIS/TSS-1 (AOAC Official Method 961.02, Germicidal Spray Products as Disinfectants, for both broad-spectrum and hospital/medical environment efficacy claims). Testing was conducted with ozone systems generating 1.5 - 2.0 ppm (mg/L) of Aqueous Ozone [3].

Study 1: Micro-Organism	Log Reduction	Dwell Time
* Claim: For use as a food-contact sanitizer on hard, non-porous surfaces		
Salmonella choleraesuis	99.9999% / 6 log reduction	180 seconds
Staphylococcus aureus	99.9999% / 6 log reduction	600 seconds
Pseudomonas aeruginosa	99.9999% / 6 log reduction	300 seconds
Trichophyton mentagrophytes	99.9999% / 6 log reduction	30 seconds
Study 2: Micro-Organism	Log Reduction	Dwell Time
* Claim: For use as a food-contact sanitizer on hard, non-porous surfaces		
Campylobacter jejuni	99.99% / 4 log reduction	180 seconds
Aspergillus flavus	99.99% / 4 log reduction	300 seconds
Brettanomyces bruxellensis	99.99% / 4 log reduction	180 seconds
Listeria monocytogenes	99.99% / 4 log reduction	180 seconds
Study 3: Micro-Organism	Log Reduction	Dwell Time
* Claim: For use as a food-contact sanitizer on hard, non-porous surfaces		
Escherichia coli	99.999% / 5 log reduction	30 seconds

3: NSF International Toxicology Labs Test Results ca 2000-2001

Study 1: AOAC 961.02 Results (AOAC Method 961.02 requires a minimum log 6 reduction)

Study 2: Additional evaluations as per AOAC 961.02 Results (AOAC 961.02 Additional evaluations require a minimum log 4 reduction)

Study 3: AOAC 960.09 Results (AOAC Method 960.09 requires a minimum log 5 reduction)

ZerO3 Aqueous Ozone is registered with the EPA as a pesticide with the EPA Establishment No. 090798-WI-01. Aqueous Ozone is approved by the FDA, USDA, granted GRAS (Generally Recognized as Safe), and is in compliance of the EPA Organic Program as an effective and natural cleaner and sanitizer.



ATP & Why It Matters

What is ATP?

ATP is often referred to as the energy currency of cells.

Cells, plants and animals all use ATP. When plants collect light via photosynthesis, the energy is stored as ATP. When animals digest food, the energy from that food is stored as ATP. The presence of ATP means there is a presence of cells, which in turn can mean viruses, bacteria or other germs that are harmful.

REF: Nature EDUCATION Scitable (<https://www.nature.com/scitable/definition/atp-318/>)

How Low Should My ATP Numbers Be?

This varies by the application. Some critical clean areas be lower, while others higher.

The following information is recommendations of a few different applications in a Hospital setting based upon clinical experiences.

Hospital Area	Pass	Fail
Patient Rooms	<25	25+
Operating Rooms	<10	10+
ICU	<10	10+
Labor & Delivery	<25	25+
NICU / Nursery	<25	25+
Public Areas	<50	50+
Food Service	<10	10+
Sterile Services	<10	10+
Mobile Workstations	<25	25+

REF: Hygiene (<https://www.hygiene.com/rlulimits-hc.html>)



Why Do I Need To Monitor ATP?

You can't improve what you can't measure.

Utilizing ATP meters to ensure cleanliness levels is a multi-industry standard.

“Gauci, et al validated the 100 RLU benchmark, showing that ATP monitoring objectively quantified a 77-92% increase in cleanliness. (Gauci, 2012)”

Gauci, et al (2012). Rapid objective measurement of cleanliness delivers improvements. Welsh NHS.

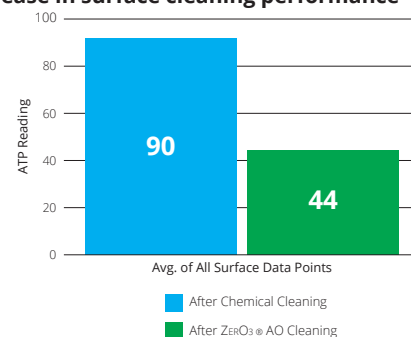
ZER03® Aqueous Ozone Means Cleaner Floors & Air Quality

How Does Onboard Aqueous Ozone Help Me?

A floor scrubber equipped with on-demand ZER03® Aqueous Ozone means powerful cleaning from plain tap water.

Studies conducted in partnership with local Fitness Centers showed an average of **greater than 50% increase in surface cleaning performance** using ZER03® AO, proven by ATP Swab Readings tested before and after on surfaces.

Cleaning with ZER03® Aqueous Ozone ATP Readings			Cleaning with Chemicals ATP Readings		
Equipment	Before	After	Equipment	Before	After
Punching Bag	153	43	Punching Bag	111	58
Stationary Bike	122	34	Stationary Bike	153	89
Wrestling Mat	136	46	Wrestling Mat	71	57
Restrooms	375	54	Restrooms	317	155
Avg. ATP After AO Cleaning:		44	Avg. ATP After Chemical Cleaning:		90

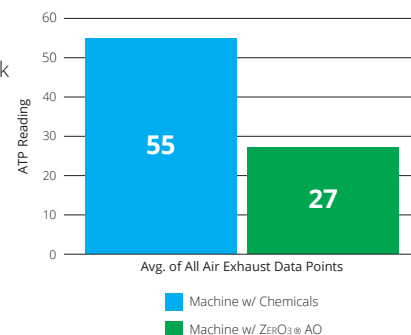


How Does Onboard Aqueous Ozone Help The Air?

All Scrubbers have Vacuum Motors that exhaust air from inside the Recovery Tank.

This means that what you are picking up off the floor, and what lives inside your equipment's Recovery Tank could be exhausted out into the air you are breathing. Studies conducted with local Veterans Hospitals showed an average of **greater than 50% increase in exhaust air cleanliness** using ZER03® AO, proven by ATP Swab Readings tested during a multi-week observation and multiple data point testing.

Air Exhaust Quality ATP Readings	% Improvement of Air Quality over Chemicals
Machine w/ ZER03®	27
Machine w/ Chemicals	55
50.9%	



Government Regulatory Agencies Ozone Approvals

Food and Drug Administration (FDA)

Regulates / Allows Ozone contact with Food products: F&V, Seafood, Shell Eggs, Fish and Bottled Water

FDA recognized ozone as GRAS in 1982 for disinfection of bottled water and later recognized it again as a sanitizing agent for bottled water treatment lines under a similar GRAS petition.

REF: U.S. FDA. GRAS status of ozone. Federal Register 47(215):50209-50210. 1982. (<https://www.accessdata.fda.gov/scripts/cdrh/cfdocs/cfcfr/CFRSearch.cfm?fr=184.1563>)

The FDA recognized as GRAS but after technical drawbacks with initial GRAS recognition, it was unclear to many who could use ozone and on what. EPRI, a team comprised of export food scientists, concluded in June 1997, "The available information supports the safety of ozone when used as a food disinfectant or sanitizer, and further that the available information supports a GRAS classification of ozone as a disinfectant or sanitizer for foods when used at levels and by methods of application consistent with good manufacturing practices".

REF: EPRI. Technical Report-i 08026, Vols. 1, 2, 3: (<https://www.epri.com/#/pages/product/1005962/?lang=en-US>)

FDA recognizing issues in initial GRAS and after working with EPRI, the FDA, on June 26, 2001, formally approved the use of ozone as an Antimicrobial Agent for the Treatment, Storage and Processing of Foods in Gas and Aqueous Phases.

REF: U.S. FDA. Secondary direct food additives permitted in food for human consumption. Federal Register 66(123):33829-33830. 2001. (<https://www.federalregister.gov/documents/2001/06/26/01-15963/secondary-direct-food-additives-permitted-in-food-for-human-consumption>)

United States Department of Agriculture (USDA/FSIS)

Regulates / Allows Ozone contact with Meats, Poultry and Egg Products

On December 21, 2001, the USDA/FSIS approved the use of ozone in contact with poultry and meats up to packaging. Ozone sterilization of meats as well as equipment.

REF: USDA FSIS. Letter from Robert C. Post (FSIS, Washington, DC) to Mark D. Dopp (American Meat Institute, Arlington, VA). Dec. 21, 2001.

REF: FSIS Safe and Suitable Ingredients used in the Production of Meat, Poultry, and Egg Products (<https://www.fsis.usda.gov/wps/wcm/connect/bab10e09-aefa-483b-8be8-809a1f051d4c/7120.1.pdf?MOD=AJPERES>)

USDA National Organic Program (NOP)

Allows Ozone for Organic Food contact

USDA NOP added ozone to the substances allowed as ingredients in or on processed products labeled as "organic" or "made with organic..."

REF: National Organic Program: USDA Organic Regulations (<https://www.federalregister.gov/documents/2017/03/21/2017-05480/national-organic-program-usda-organic-regulations>)

Environmental Protection Agency (EPA)

Regulates Ozone generators under FIFRA for Surface Sanitation and Potable Water

The Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA), passed in 1947 with the intent to organize established procedures and methods to register pesticides with the USDA. The FIFRA act dictates that the Environmental Protection Agency (EPA) the use and sale of pesticides. Ozone is labeled as a pesticide under the EPA.

ZERO3® Aqueous Ozone is registered under the EPA: 090798-WI-01

Occupational Safety and Health Administration (OSHA)

Regulates Ozone gas in workplace air

Occupational Safety and Health Administration (OSHA) controls exposure limits of gaseous ozone to employees in a workplace. OSHA regulates that gaseous ozone levels in ambient air not exceed 0.1 parts per million (PPM) for an 8-hour exposure time.

REF: OSHA Standard Numbers 1910.1000, 29CFR for Air Contaminants (<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1000>)

REF: OSHA Standard Numbers 1910.1200, 29CFR for Hazard Communication (<https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1200>)

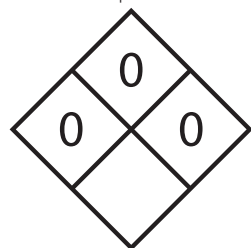
REF: OSHA Letter - Regulation for ozone 1994-09-29 (<https://www.osha.gov/laws-regs/standardinterpretations/1994-09-29-0>)

Aqueous Ozone is Safe to Handle

Do I Need to wear PPE When Handling?

It is not required to wear PPE when working with ZERO3® Aqueous Ozone, however using the correct PPE when cleaning for the correct application is always recommended.

ZERO3® Aqueous Ozone as a triple zero on the NFPA Hazard Rating Diamond.



- NFPA Health Hazard:** 0 - Exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials
- NFPA Fire Hazard:** 0 - Materials that will not burn.
- NFPA Reactivity:** 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.

Bortek Industries, Inc.
4713 Gettysburg Rd.
Mechanicsburg, PA 17055
1-800-626-7835