



AQUAOX™ Disinfectant 275 & 525 & 1650  
Product Efficacy & Safety Test Summary



# AQUAOX™ Hypochlorous Products: Efficacy and Safety Lab Test Documentation

Aquaiox Disinfectant 275 | Aquaiox Disinfectant 525 | Aquaiox Disinfectant 1650

AQUAOX™ Disinfectant 275, 525, and 1650 are solutions made from a Sodium Chloride and water, using an electrochemical process to create Hypochlorous Acid (HOCl), a highly effective, ecologically sound antimicrobial pesticide. The product numbers indicate the products' respective HOCl concentrations (e.g., Aquaiox 275 is a 275-parts-per-million solution of HOCl).

As EPA-approved disinfectants, they are suitable for hospitals and other medical facilities as well as for general use.

This document provides exhaustive details reported from efficacy and safety tests performed on the solutions, conducted following official standards to determine their effectiveness in killing microorganisms in one step as well as assuring usage safety.<sup>1</sup>

We provide this level of information from independent laboratory sources, as you will see, to assure you of the products' effectiveness as antimicrobial agents while simultaneously providing a cutting-edge, user-friendly option for your medical-facility disinfection needs.

This document will be divided into an Efficacy and a Safety section, each listing separate lab tests, their importance, procedures used, and the results in tabular form.

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<sup>1</sup> All three products (275-ppm, 525-ppm, and 1650-ppm HOC, respectively) are Environmental Protection Agency (EPA) registered antimicrobial pesticides bearing a Hospital and a General/Broad Spectrum Disinfectant claims per Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) Section 3(c)(5). Using established American Society for Testing and Materials (ASTM) standards, Association of Official Analytical Chemists - International (AOAC) methods and EPA guidelines.

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# PRODUCT EFFICACY

## Tests Demonstrating Rapid Biocidal Disinfection

### AOAC<sup>2</sup> Use-Dilution Method<sup>3</sup>

*The AOAC Use-Dilution Test is a crucial, high-level test for disinfectants. On a pass-fail basis, it measures how effectively a disinfectant is in a short time, usually less than 10 minutes. If the disinfectant works well in this brief period, it passes the test.*

#### Procedure

1. Bacteria from Table 1 are mixed with a substance to simulate a dirty surface.
2. This mix is cultured for 48 hours.
3. The 48-hour-old bacteria are placed on small steel surfaces, creating at least 10 "contaminated" samples.
4. Each sample is dipped in the disinfectant for 10 minutes at room temperature (20 – 25°C).
5. Afterwards, they're placed in a liquid that stops the disinfectant's effect.
6. This mix is left for 48 hours to see if the bacteria regrow.
7. The number of samples with regrown bacteria is then counted.

**TABLE 1. Aquaox Disinfectants evaluated against Gram+ and Gram- Bacteria in the presence of 5% Organic Soil Load**

<b>Exposure Time:</b> 10 minutes <b>Sample Dilution:</b> Ready to Use (RTU)			
Test Organism	Strain	Number of Positive Carriers per Number Tested	Test Result
Pseudomonas aeruginosa	ATCC 15442	0 / 10	Pass
Staphylococcus aureus	ATCC 6538	0 / 10	Pass
Staphylococcus aureus (HA-MRSA)	ATCC 33591	0 / 10	Pass
Salmonella enterica	ATCC 10708	0 / 60	Pass
Escherichia coli (NDM-1)	ATCC BAA-2469	0 / 10	Pass
Vancomycin Resistant Enterococcus faecalis (VRE)	ATCC 700221	0 / 10	Pass

#### Conclusion

When tested with 5% dirt, Aquaox Disinfectant 275 and 525 effectively killed the listed bacteria in 10 minutes at room temperature.

<sup>2</sup> AOAC = Association of Official Analytical Chemists

<sup>3</sup> AOAC 955.14, 955.15, 964.02

## AOAC Tuberculocidal Activity of Disinfectants

The AOAC Tuberculocidal Activity test is a tough pass-fail standard for disinfectants. To pass, a disinfectant must effectively kill an EPA-approved bacterial surrogate for tuberculosis quickly, in less than 10 minutes.

### Procedure

1. The surrogate bacteria are mixed with a 5% serum to simulate a "dirty" surface.
2. The bacteria is grown for 21 days.
3. It is then placed on several stainless-steel test surfaces.
4. Each surface is exposed to the *disinfectant* for 10 minutes at room temperature.
5. After the exposure, they are moved to a liquid that neutralizes the disinfectant's effect.
6. These neutralized surfaces are then placed in a growth environment.
7. They are incubated there for 60 days.
8. At the end of the incubation, a record is made of how many surfaces show bacterial growth.

**TABLE 2. Aquaox Disinfectants evaluated against *Mycobacterium bovis* BCG in the presence of 5% Fetal Bovine Serum**

<b>Exposure Time:</b> 10 minutes		
<b>Sample Dilution:</b> Ready to Use (RTU)		
<b>Challenge Suspension Initial Population (CFU/mL)</b>	<b>Number of Positive Carriers per Number Tested (All Media Types)</b>	<b>Test Result</b>
2.850 x 10 <sup>7</sup>	0 / 10	Pass
2.850 x 10 <sup>7</sup>	0 / 10	Pass

### Conclusion

When tested with 5% dirt, Aquaox Disinfectant 275 and 525 effectively killed *Mycobacterium bovis* BCG in 10 minutes at room temperature.

# Basic Tests Demonstrating Hard-Surface Virucidal Effectiveness

*This series of tests is designed to provide a real-world analog demonstrating AQUAOX™ Disinfectant 275 and 525 virucidal performance on the kinds of surfaces simulating use in medical settings.*

*The four challenging pathogens designated by the ASTM E1053 certification method are: HIV-1, H1N1, Rhinovirus 16 and Murine Norovirus, again using a simulated dirty surface.*

## Procedure

1. Load the test virus with a 5% organic soil to simulate a "dirty" surface.
2. Spread the virus over a carrier and let it dry.
3. Inoculate the dried virus onto a 100 x 15 mm glass Petri dish.
4. Prepare two carriers for surrogate viruses and one for non-surrogate viruses.
5. Treat the virus films with the disinfectant for 10 minutes at room temperature.
6. Neutralize the films with a solution after contact time.
7. Scrape the films using a cell scraper.
8. Plate and culture the test suspensions.
9. Check for the virus's presence or absence

## Results

**TABLE 3.1. Aquaox Disinfectant evaluated against HIV-1 virus in the presence of 5% Organic Soil Load**

**Virus / Strain:** HIV-1/Mn (ZeptoMetrix #0810027CF)  
**Exposure Time:** 10 minutes  
**Sample Dilution:** Ready to Use (RTU)

Dilution	Virus Control		After Exposure to Test Substance – Lot #1		After Exposure to Test Substance – Lot #2	
	Carrier 1	Carrier 2	Carrier 1	Carrier 2	Carrier 1	Carrier 2
10 <sup>-2</sup>	Not Tested		0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10 <sup>-3</sup>	++++	++++	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10 <sup>-4</sup>	++++	++++	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10 <sup>-5</sup>	++++	++++	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10 <sup>-6</sup>	0 0 0 +	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0

10 <sup>-7</sup>	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
TCID <sub>50</sub> (log 10)	5.750	5.500	≤ 1.50	≤ 1.50	≤ 1.50	≤ 1.50
Average TCID <sub>50</sub> (log 10)	5.625		≤ 1.50		≤ 1.50	
Log 10 Reduction	N/A		≥ 4.125	≥ 4.125	≥ 4.125	≥ 4.125
Average Log 10 Reduction			≥ 4.125		≥ 4.125	
Percent Reduction			> 99.99	> 99.99	> 99.99	> 99.99
Average % Reduction			> 99.99		> 99.99	

Dilution refers to the fold of dilution from virus inoculum

(+) = Positive for the presence of test virus

(0) = No test virus recovered

(≤) = Indicates a viral titer at or below the limit of detection for this assay

**TABLE 3.2. Aquaox Disinfectant evaluated against Swine Influenza A (H1N1) virus in the presence of 5% Fetal Bovine Serum – Virus Controls and Test Results**

**Virus / Strain:** Swine Influenza A (H1N1) Virus, ATCC VR-333  
 Strain A / Swine / Iowa / 15 / 30  
**Exposure Time:** 10 minutes  
**Sample Dilution:** Ready to Use (RTU)

Dilution	Input Virus Control	Dried Virus Control	After Exposure to Test Substance
Cell Control	0 0	0 0 0 0	0 0 0 0
10 <sup>-1</sup>	++	++++	0 0 0 0
10 <sup>-2</sup>	++	++++	0 0 0 0
10 <sup>-3</sup>	++	++++	0 0 0 0
10 <sup>-4</sup>	++	++++	0 0 0 0
10 <sup>-5</sup>	++	++++	0 0 0 0
10 <sup>-6</sup>	0 0	+ 0 + 0	0 0 0 0
10 <sup>-7</sup>	0 0	0 0 0 0	0 0 0 0
10 <sup>-8</sup>	0 0	0 0 0 0	0 0 0 0
TCID <sub>50</sub> (log 10) / 100uL	6.50	6.00	≤ 0.50
Log 10 Reduction	N/A		≥ 5.50



**TABLE 3.3. Aquaox Disinfectant evaluated against Rhinovirus 16 (common cold agent) in the presence of 5% Fetal Bovine Serum – Virus Controls and Test Results**

**Virus / Strain:** Rhinovirus 16 (Rhino 16), ATCC VR-283  
**Exposure Time:** 10 minutes  
**Sample Dilution:** Ready to Use (RTU)

Test Substance	Log 10 Infectious Units per Carrier	Log 10 Reduction after Exposure	Percent Reduction after Exposure
Control	5.80	N/A	N/A
After Exposure to Test Substance	≤ 1.80	≥ 4.00	≥ 99.99%

Viral stock enumeration demonstrated a titer of 7.00 log 10 per 0.1 mL

**TABLE 3.4. Aquaox Disinfectant evaluated against Murine Norovirus (without 5% FBS) – Virus Controls and Test Results**

**Virus / Strain:** Murine Norovirus, Strain MNV-G  
**Exposure Time:** 10 minutes  
**Sample Dilution:** Ready to Use (RTU)

Dilution	Virus Stock Titer Control	Plate Recovery Control	After Exposure to Test Substance – Lot #1	After Exposure to Test Substance – Lot #2
10 <sup>-2</sup>	Not Tested	Not Tested	0 0 0 0	0 0 0 0
10 <sup>-3</sup>	Not Tested	++++	0 0 0 0	0 0 0 0
10 <sup>-4</sup>	++++	++++	0 0 0 0	0 0 0 0
10 <sup>-5</sup>	++++	++++	0 0 0 0	0 0 0 0
10 <sup>-6</sup>	++++	++++	0 0 0 0	0 0 0 0
10 <sup>-7</sup>	0 0 ++	0 0 0 0	0 0 0 0	0 0 0 0
10 <sup>-8</sup>	0 0 0 0	0 0 0 0	Not Tested	Not Tested
10 <sup>-9</sup>	0 0 0 0	Not Tested	Not Tested	Not Tested
TCID <sub>50</sub> (log 10) / mL	7.00	6.50	≤ 1.50	≤ 1.50
TCID <sub>50</sub> (log 10) per Carrier (0.40mL Challenge)	N/A	6.10	≤ 1.10	≤ 1.10
Log 10 Reduction	N/A		≥ 5.00	≥ 5.00

## Conclusion

In the presence of 5% organic soil, Aquaox Disinfectant 275 and 525 showed more than 99.99% (4-log) reduction in H1N1 and *Rhinovirus* 16 after 10 minutes at room temperature. It reduced HIV-1 Virus even further at 99.999% (5-log). Without the soil, it also reduced Murine Norovirus at more than 99.999%.

In short, Aquaox Disinfectant 275 and 525 successfully met the EPA standards for demonstrating virus-killing effectiveness.

**TABLE 3.5. Aquaox 1650 2-minute evaluation against *Feline Calicivirus* in the presence of 5% Fetal Bovine Serum – Virus Controls and Test Results**

*Consistent with the series of tests described above, Aquaox Disinfectant 1650 was evaluated against Feline Calicivirus (an EPA-approved Human norovirus surrogate), strain F-9, ATCC 782, supplemented with a 5% Fetal Bovine Serum -FBS soil load with a 2-minute exposure time.*

		Test Results – Lot: 03082021D2201	
		Replicate 1	Replicate 2
Dilution	10 <sup>-1</sup>	0 0 0 0	0 0 0 0
	10 <sup>-2</sup>	0 0 0 0	0 0 0 0
	10 <sup>-3</sup>	0 0 0 0	0 0 0 0
	10 <sup>-4</sup>	0 0 0 0	0 0 0 0
	10 <sup>-5</sup>	0 0 0 0	0 0 0 0
	10 <sup>-6</sup>	0 0 0 0	0 0 0 0
TCID <sub>50</sub> /0.1 ml		≤0.50 log <sub>10</sub>	≤0.50 log <sub>10</sub>
TCID <sub>50</sub> /Carrier		≤0.80 log <sub>10</sub>	≤0.80 log <sub>10</sub>
Avg. TCID <sub>50</sub> /Carrier		≤0.80 log <sub>10</sub>	
Avg. Log <sub>10</sub> Reduction/Carrier		≥4.50 log <sub>10</sub>	

## Conclusion

At a contact time to two minutes, Aquaox Disinfectant 1650 exceeded the EPA Performance Guidelines with 99.995% kill rate for both of two exposures.

# Further Proof of Efficacy, Including Using AQUAOX™ 1650

As would be expected, AQUAOX™ 1650, having 3 times the HOCl concentration as AQUAOX™ 550, handily passed the EPA requirements for registration as well as being included on EPA's List N for disinfectants that have been proven effective against the novel coronavirus and other emerging pathogens. The results of these and additional test summaries for the other two disinfectants are included in TABLE 4 (275), TABLE 5 (550), and TABLE 6 (AQUAOX™ 1650), below.

## TABLE 4. Efficacy Test Summary - Aquaox Disinfectant 275

Test Product	Study Type	Test Method	Challenge Organisms	Organism Type	Results	Lab
Aquaox Disinfectant 275 (Tested at 10ppm FAC)	Antimicrobial Effectiveness Study using a Time Kill Assay	USP<51> Guideline	<i>Staphylococcus aureus</i> , <i>Pseudomonas aeruginosa</i> , <i>Escherichia coli</i> , <i>Serratia marcescens</i> , <i>Klebsiella pneumoniae</i> , <i>Proteus vulgaris</i> , <i>Acinetobacter baumannii</i>	All Gram-Negative Bacteria except for <i>Staphylococcus aureus</i> , which is Gram-Positive	Log reduction in 15 s: S. aureus: > 5.25 P. aeruginosa: > 5.00 E. Coli: > 4.85 S. marcescens: > 4.88 K. pneumoniae: > 4.98 P. vulgaris: > 4.98 A. baumannii: > 5.12	NAMSA
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Guideline E2315-03	<i>Acinetobacter baumannii</i> - Multi Drug Resistant, <i>Enterococcus faecium</i> - Multi Drug Resistant, Methicillin Resistant <i>Staphylococcus aureus</i> (MRSA), Vancomycin Resistant <i>Enterococcus faecalis</i> (VRE)	Gram-Negative Bacteria Gram-Positive Bacteria Gram-Positive Bacteria Gram-Positive Bacteria	Log reduction in 15 s: A. baumannii: > 5.45 E. faecium: > 5.30 MRSA: > 5.36 VRE: > 5.56	ATS Lab
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Guideline E2315-03	<i>Bacteroides fragilis</i> , <i>Haemophilus influenzae</i> , <i>Streptococcus pyogenes</i>	Gram-Negative Bacteria Gram-Negative Bacteria Gram-Positive Bacteria	Log reduction in 15 s: B. fragilis: > 5.89 H. influenzae: > 4.44 S. pyogenes: > 5.79	ATS Lab
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Guideline E2315-03	<i>Staphylococcus epidermidis</i> , <i>Staphylococcus haemolyticus</i> , <i>Staphylococcus hominis</i> , <i>Staphylococcus saprophyticus</i>	All Gram-Positive Bacteria and of the <i>Staphylococcus</i> genus	Log reduction in 15 s: S. epidermidis: > 5.08 S. haemolyticus: > 5.01 S. hominis: > 5.32 S. saprophyticus: > 5.15	ATS Lab
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Guideline E2315-03	<i>Enterobacter aerogenes</i> , <i>Escherichia coli</i> , <i>Klebsiella pneumoniae</i> , <i>Micrococcus luteus</i> , <i>Proteus mirabilis</i> , <i>Serratia marcescens</i>	All Gram-Negative Bacteria except for <i>Micrococcus luteus</i> which is Gram-Positive to Gram-Variable	Log reduction in 15 s: E. aerogenes: > 5.88 E. coli: > 5.61 K. pneumoniae: > 5.42 M. luteus: > 4.46 P. mirabilis: > 5.92 S. marcescens: > 5.43	ATS Lab
Aquaox Disinfectant 275	Testing Disinfectant against <i>Pseudomonas aeruginosa</i> and <i>Staphylococcus aureus</i>	AOAC Official Method, 964.02, 955.15, Use-Dilution Method	<i>Staphylococcus aureus</i> , <i>Pseudomonas aeruginosa</i>	Gram-Positive Bacteria Gram-Negative Bacteria	Killed 10 out of 10 treated carriers in 5% organic soil load in 10 minutes	Bioscience
Aquaox Disinfectant 275	Testing Disinfectant against <i>Salmonella enterica</i>	AOAC Official Method, 955.14, Use-Dilution Method	<i>Salmonella enterica</i>	Gram-Negative Bacteria	Killed 10 out of 10 treated carriers in 5% organic soil load in 10 minutes	ATS Lab
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Guideline E2315-03	<i>Mycobacterium bovis</i> - BCG	Bacteria that causes Tuberculosis in humans	> 5.21 log reduction in 60 s	ATS Lab
Aquaox Disinfectant 275	Assessment of Microbicidal Activity against Viruses in Suspension	ASTM Guideline E1052, E1482	Hepatitis B Virus	Virus	> 5.25 log reduction in 30 s	ATS Lab
Aquaox Disinfectant 275	Assessment of Microbicidal Activity against Viruses in Suspension	ASTM Guideline E1052, E1482	Rhinovirus type 37	Virus	> 3.75 log reduction in 60 s	ATS Lab
Aquaox Disinfectant 275	Assessment of Microbicidal Activity against Viruses in Suspension	ASTM Guideline E1052, E1482	Swine Influenza A (H1N1) Virus	Virus	> 5.50 log reduction in 5% organic soil load in 10 minutes	ATS Lab
Aquaox Disinfectant 275	Assessment of Microbicidal Activity against Viruses in Suspension	ASTM Guideline E1052	Murine Norovirus	Virus	> 5.00 log reduction in 10 minutes	Microbac Lab
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	USP<51> Guideline	<i>Aspergillus Brasiliense</i>	Fungus	Log reduction in 15 s A. Brasiliense: = 4.11	NAMSA
Aquaox Disinfectant 275 (Tested at 10ppm FAC)	Antimicrobial Effectiveness Study using a Time Kill Assay	USP<51> Guideline	<i>Candida albicans</i>	Fungus	> 4.38 log reduction in 15 s	NAMSA
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Guideline E2315-03	<i>Candida albicans</i>	Fungus	> 5.31 log reduction in 15 s	ATS Lab
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Standard Guideline E2315-03, E2839-11	<i>Clostridium difficile</i> - spore form	Spore	> 5.35 log reduction in 30 s	ATS Lab
Aquaox Disinfectant 275	Virucidal Activity of Liquid, Aerosol, Trigger-spray and Towelettes Disinfectants	ASTM Modified Protocol (E 1053-20) to Determine the virucidal Activity of Liquid	Human Coronavirus	Virus	> 5.25 log reduction in 5% organic soil load (fetal bovine serum) in 10 minutes	CREMCO

**TABLE 5. Efficacy Test Summary - Aquaox Disinfectant 525**

Test Product	Study Type	Test Method	Challenge Organisms	Organism Type	Results	Lab
Aquaox Disinfectant 525	Testing Disinfectant against <i>Pseudomonas aeruginosa</i> and <i>Staphylococcus aureus</i>	AOAC Official Method, 964.02, 955.15, Use-Dilution Method	<i>Staphylococcus aureus</i> , <i>Pseudomonas aeruginosa</i>	<b>Gram-Positive</b> Bacteria <b>Gram-Negative</b> Bacteria	Killed <b>10 out of 10</b> treated carriers in <b>5% organic soil</b> load in 10 minutes	Bioscience
Aquaox Disinfectant 525	Testing Disinfectant against Hospital Acquired Methicillin Resistant <i>Staphylococcus aureus</i> (HA-MRSA)	AOAC Official Method, 964.02, Use-Dilution Method	Hospital Acquired Methicillin Resistant <i>Staphylococcus aureus</i> (HA-MRSA)	<b>Gram-Positive</b> Bacteria	Killed <b>10 out of 10</b> treated carriers in <b>5% organic soil</b> load in 10 minutes	ATS Lab
Aquaox Disinfectant 525	Testing Disinfectant against <i>Salmonella enterica</i>	AOAC Official Method, 955.14, Use-Dilution Method	<i>Salmonella enterica</i>	<b>Gram-Negative</b> Bacteria	Killed <b>60 out of 60</b> treated carriers in <b>5% organic soil</b> load in 10 minutes	ATS Lab
Aquaox Disinfectant 525	Testing Disinfectant against NDM-1 <i>E.coli</i> and VRE	AOAC Official Method, 955.15, Use-Dilution Method	NDM-1 <i>Escherichia coli</i> Vancomycin Resistant <i>Enterococcus faecalis</i> (VRE)	<b>Gram-Negative</b> Bacteria <b>Gram-Positive</b> Bacteria	Killed <b>10 out of 10</b> treated carriers in <b>5% organic soil</b> load in 10 minutes	ATS Lab
Aquaox Disinfectant 525	AOAC Tuberculocidal Activity of Disinfectants	AOAC Official Method, 965.12, 960.09	<i>Mycobacterium bovis</i> - BCG	Bacteria that causes <b>Tuberculosis</b> in humans	Killed <b>10 out of 10</b> treated carriers in <b>5% organic soil</b> load in 10 minutes	Bioscience
Aquaox Disinfectant 525	Assessment of Virucidal Activity against Viruses in Suspension	ASTM Guideline E1053, E1482	<i>Swine Influenza A (H1N1) Virus</i>	<b>Virus</b>	> 5.50 log reduction in <b>5% organic soil</b> load in 10 minutes	ATS Lab
Aquaox Disinfectant 525	Assessment of Virucidal Activity against Viruses in Suspension	ASTM Guideline E1053	<i>Human Immunodeficiency Virus Type 1 (HIV-1)</i>	<b>Virus</b>	> 4.125 log reduction in <b>5% organic soil</b> load in 10 minutes	Bioscience
Aquaox Disinfectant 525	Assessment of Virucidal Activity against Viruses in Suspension	ASTM Guideline E1053	<i>Rhinovirus 16 (Common Cold Agent)</i>	<b>Virus</b>	> 4.000 log reduction in <b>5% organic soil</b> load in 10 minutes	ATL Lab
Aquaox Disinfectant 525	Standard Quantitative Disk Carrier Test Method for Determining Sporicidal Activities	ASTM Standard Guideline E2197-11, Standard Quantitative Disk Carrier Test Method	<i>Clostridium difficile</i> - spore form	<b>Spore</b>	> 5.96 log reduction in 10 minutes in the absence of organic soil load	ATS Lab
Aquaox Disinfectant 525	Standard Practiceto Assess Virucidal Activity of Chemicals for Disinfection of Inanimate, Nonporous Environmental Surfaces	ASTM Standard Guideline E1053-20, Standard Practiceto Assess Virucidal Activity	<i>Human Coronavirus</i>	<b>Virus</b>	> 4.50 log reduction in <b>5% organic soil</b> load (fetal bovine serum) in 10 minutes	ALG Lab
Aquaox Disinfectant 525	Standard Practiceto Assess Virucidal Activity of Chemicals for Disinfection of Inanimate, Nonporous Environmental Surfaces	ASTM Standard Guideline E1053-20, Standard Practiceto Assess Virucidal Activity	<i>Feline Calicivirus</i>	<b>Virus</b>	> 5.50 log reduction in <b>5% organic soil</b> load (fetal bovine serum) in 10 minutes	ALG Lab
Aquaox Disinfectant 525	Standard Practiceto Assess Virucidal Activity of Chemicals for Disinfection of Inanimate, Nonporous Environmental Surfaces	ASTM Standard Guideline E1053-20, Standard Practiceto Assess Virucidal Activity	<i>Murine Norovirus</i>	<b>Virus</b>	> 3.25 log reduction in <b>5% organic soil</b> load (fetal bovine serum) in 10 minutes	Microbac
Aquaox Disinfectant 525	Standard Practiceto Assess Virucidal Activity of Chemicals for Disinfection of Inanimate, Nonporous Environmental Surfaces	ASTM Standard Guideline E1053-20, Standard Practiceto Assess Virucidal Activity	SARS-Cov-2 virus	<b>Virus</b>	> 3.75 log reduction in <b>5% organic soil</b> load (fetal bovine serum) in 10 minutes	Microbac

**TABLE 6. Efficacy Test Summary - Aquaox Disinfectant 1650**

Test Product	Study Type	Test Method	Challenge Organisms	Organism Type	Results	Lab
Aquaox Disinfectant 1650	Testing Disinfectant against <i>Pseudomonas aeruginosa</i> and <i>Staphylococcus aureus</i>	AOAC Official Method, 964.02, 955.15, Use-Dilution Method	<i>Staphylococcus aureus</i> , <i>Pseudomonas aeruginosa</i>	<b>Gram-Positive Bacteria</b> <b>Gram-Negative Bacteria</b>	Killed <b>10 out of 10</b> treated carriers in <b>5% organic soil</b> load in 1 minute	Microchem
Aquaox Disinfectant 1650	Testing Disinfectant against <i>Salmonella aureus</i>	AOAC Official Method, 955.14, Use-Dilution Method	<i>Salmonella aureus</i>	<b>Gram-Positive Bacteria</b>	Killed <b>10 out of 10</b> treated carriers in <b>5% organic soil</b> load in 1 minute	Microchem
Aquaox Disinfectant 1650	Assessment of Virucidal Activity against Viruses in Suspension	ASTM Guideline E1053	<i>Rhinovirus 16 (Common Cold Agent)</i>	<b>Virus</b>	Killed <b>60 out of 60</b> treated carriers in <b>5% organic soil</b> load in 1 minute	Microchem
Aquaox Disinfectant 1650	Virucidal Activity of test substance for use on inanimate, nonporous surfaces	ASTM Guideline E1053	<i>Feline calicivirus ATCC-94)</i>	<b>Virus</b>	>5.3 Log reduction in <b>5% three-part soil</b> load in 2 minutes	Microchem
Aquaox Disinfectant 1650	Testing Disinfectant against spores of <i>Clostridioides difficile</i> , ATCC 43598	AOAC Official Method, 955.15, Use-Dilution Method	<i>Clostridium difficile</i> - spore form	<b>Spore</b>	>4.27 Log reduction in 5% three-part soil load in 10 minutes 1065ppm at 5.90	Microbac
Aquaox Disinfectant 1650	Testing Disinfectant against spores of <i>Clostridioides difficile</i> , ATCC 43598	AOAC Official Method, 955.15, Use-Dilution Method	<i>Clostridium difficile</i> - spore form	<b>Spore</b>	>4.77 Log reduction in 5% three-part soil load in 5 minutes 1305ppm at 5.5	Microbac
Aquaox Disinfectant 1650	Testing Disinfectant against spores of <i>Clostridioides difficile</i> , ATCC 43598	AOAC Official Method, 955.15, Use-Dilution Method	<i>Clostridium difficile</i> - spore form	<b>Spore</b>	>5.59 Log reduction in 5% three-part soil load in 10 minutes 1305ppm at 5.82	Microbac
Aquaox Disinfectant 1650	Testing Disinfectant against spores of <i>Clostridioides difficile</i> , ATCC 43598	AOAC Official Method, 955.15, Use-Dilution Method	<i>Clostridium difficile</i> - spore form	<b>Spore</b>	> Log reduction in 5% three-part soil load in 10 minutes 1500ppm at 6.5	Microbac
Aquaox Disinfectant 1650	Testing Disinfectant against <i>Candida Auris</i> , AR-BANK#0385 (resistant strain)	AOAC Official Method, 955.15, Use-Dilution Method	<i>Candida auris</i> _AR BANK#0385	<b>Fungi</b>	> Log reduction in 5% three-part soil load in 10 minutes 1500ppm at 6.5	Microbac

**TABLE 7: GENERAL USAGE COMPILATION TABLE FOR PATHOGENS**

	Pathogen	Minimum Doses FAC required (ppm)	Minimum Contact time required (minutes)
<b>[Food Contact] Sanitizer Claims</b>			
99764-1	<i>Staphylococcus aureus</i> [(ATCC 6538)]	338 ppm <sup>[5]</sup>	1 minute
99764-1	<i>Salmonella enterica</i> [(ATCC 6539)]	338 ppm <sup>[5]</sup>	1 minute
99764-1	<i>Escherichia coli</i> (ATCC 11229)	338 ppm <sup>[5]</sup>	1 minute
99764-1	<i>Listeria monocytogenes</i> [(ATCC 19117)]	338 ppm <sup>[5]</sup>	1 minute
<b>[Hard Surface] Disinfection Claims – bacteria</b>			
93392-1	<i>Staphylococcus aureus</i> [(ATCC 6538)]	248 ppm <sup>[1]</sup>	10 minutes
93392-2		477 ppm <sup>[2]</sup>	10 minutes
93908-1		460 ppm <sup>[4]</sup>	10 minutes
93392-3		1490 ppm <sup>[3]</sup>	1 minute
93392-2	<i>Methicillin Resistant Staphylococcus aureus – (MRSA)</i> [(ATCC 33591)]	477 ppm <sup>[2]</sup>	10 minutes
93908-1		460 ppm <sup>[4]</sup>	10 minutes
93392-1	<i>Salmonella enterica</i> [(ATCC 10708)]	248 ppm <sup>[1]</sup>	10 minutes
93392-2		477 ppm <sup>[2]</sup>	10 minutes
93908-1		460 ppm <sup>[4]</sup>	10 minutes
93392-1	<i>Pseudomonas aeruginosa</i> [(ATCC 15442)]	248 ppm <sup>[1]</sup>	10 minutes
93392-2		477 ppm <sup>[2]</sup>	10 minutes
93809-1		460 ppm <sup>[4]</sup>	10 minutes
93392-3		1490 ppm <sup>[3]</sup>	1 minute
93392-2	<i>Escherichia coli</i> (NDM) [(ATCC BA-2469)]	477 ppm <sup>[2]</sup>	10 minutes
93392-2	Vancomycin resistant <i>Enterococcus faecalis</i> (VRE) [(ATCC 700221)]	477 ppm <sup>[2]</sup>	10 minutes
93908-1	Vancomycin resistant <i>Enterococcus faecalis</i> (VRE) [(ATCC 51229)]	460 ppm <sup>[4]</sup>	10 minutes
93908-1	<i>Bordetella bronchiseptica</i> [Kennel cough] (ATCC 10580)	460 ppm <sup>[4]</sup>	10 minutes
93908-1	<i>Clostridium difficile</i> – spore (C.Diff or C. Difficile ) (ATCC 43598)	460 ppm <sup>[4]</sup>	10 minutes
93908-1	<i>Escheria coli</i> (E coli) (ATCC 11229)	460 ppm <sup>[4]</sup>	10 minutes
93908-1	<i>Klebsiella pneumonia</i> New Delhi Metallo-Beta Lactamasa (NDM-1), Carbapenem resistant (CRE) <i>Klebsiella pneumoniae</i> (NDM-1) [(CRKP), CDC10002	460 ppm <sup>[4]</sup>	10 minutes
<b>Mycobactericidal Claims</b>			
93392-2	<i>Mycobacterium bovis</i> (BCG) [(ATCC 35734)]	477 ppm <sup>[2]</sup>	10 minutes
<b>Virucidal Claims - Enveloped viruses</b>			
93392-1	Swine Influenza Virus (H1N1)(ATCC VR-333)	248 ppm <sup>[1]</sup>	10 minutes
93392-2		477 ppm <sup>[2]</sup>	10 minutes
93908-1	Swine Flu Virus (H1N1) A/Swine/1976/31 (ATCC VR-99)	460 ppm <sup>[4]</sup>	10 minutes
93908-1	Canine distemper (ATCC VR-1587) [(Strain Snyder Hill)]	460 ppm <sup>[4]</sup>	10 minutes

**TABLE 7: GENERAL USAGE COMPILATION TABLE FOR PATHOGENS – Page 2 of 2**

93908-1	Influenza A (H1N1) [(Strain A/Virginia/ATCC1/2009)][(ATCC VR-1736)][(representative for common flu virus)]	460 ppm <sup>[4]</sup>	2 minutes
93908-1	[Human] Hepatitis C [Virus] [(as bovine diarrhea virus)] [(HCV)] [Strain ADL] [(ATCCVR-1422)]	460 ppm <sup>[4]</sup>	2 minutes
93392-2	Human Coronavirus strain 229E [(ATCC VR-740)] <sup>[1]</sup>	477 ppm <sup>[2]</sup>	10 minutes
93908-1	Respiratory syncytial virus (RSV) (Strain A-2) [(ATCC VR-1540)]	460 ppm <sup>[4]</sup>	10 minutes
93392-2	Human Immunodeficiency Virus Type 1 (HIV-1) <sup>1</sup> [(Strain IIIB)] (Mn;zeptometrix #08110027CF)	477 ppm <sup>[2]</sup>	10 minutes
93908-1		460 ppm <sup>[4]</sup>	10 minutes
<b>Virucidal Claims - Non-enveloped viruses</b>			
93908-1	Adenovirus (1 of Type 1) (Strain 71) (ATCC VR-1)	460 ppm <sup>[4]</sup>	10 minutes
93392-3	Rhinovirus [Type 14 ] [(ATCC VR-283)]	1490 ppm <sup>[3]</sup>	1 minute
93908-1	Rhinovirus [Type 16 ] (Strain 11757) [(ATCC VR-283)]	460 ppm <sup>[4]</sup>	10 minutes
93908-1	Rotavirus (A or Group A) (Strain WA) (ATCC VR-2018) [(the virus that causes diarrhea)]	460 ppm <sup>[4]</sup>	10 minutes
93392-2	Murine Norovirus	477 ppm <sup>[2]</sup>	10 minutes
93908-1	Norovirus or Norwalk Virus (as Feline Calicivirus) (Strain F-9) (ATCC VR-782)	460 ppm <sup>[4]</sup>	10 minutes
93392-2	Feline Calicivirus (ATCCVR-782)	477 ppm <sup>[2]</sup>	10 minutes
93392-2	SARS-CoV-2 Virus	477 ppm <sup>[2]</sup>	10 minutes
<b>Virucidal Claims - Non-enveloped Parvo viruses</b>			
93908-1	Canine parvovirus (ATCC VR-2016) (Strain Cornell)	460 ppm <sup>[4]</sup>	10 minutes
<b>Yeast</b>			
93908-1	Candida albicans (ATCC 10231)	460 ppm <sup>[4]</sup>	10 minutes
<b>Bloodborne Pathogens</b>			
93908-1	[Human] Hepatitis C [Virus] [(as bovine diarrhea virus)] [(HCV)] [Strain ADL] [(ATCCVR-1422)]	460 ppm <sup>[4]</sup>	2 minutes
93392-2	Human Immunodeficiency Virus Type 1 (HIV-1) <sup>1</sup> [(Strain IIIB)] (Mn;zeptometrix #08110027CF)	477 ppm <sup>[2]</sup>	10 minutes
93908-1		460 ppm <sup>[4]</sup>	10 minutes
<b>Fungicidal Claims</b>			
93908-1	<i>Candida albicans</i> [(ATCC 10231)]	460 ppm <sup>[4]</sup>	10 minutes
<b>Sporicidal Claims</b>			
93908-1	<i>Clostridioides difficile</i> spores [formerly <i>Clostridium difficile</i> ] [(ATCC 43598)]	460 ppm <sup>[4]</sup>	10 minutes

[1] This product can be obtained by diluting AX-5000 to a >248ppm FAC solution whereas pH is between 6.3 and 7.2. See EPA product 93392-1  
 [2] This product can be obtained by diluting AX-5000 to a >477ppm FAC solution whereas pH is between 6.3 and 7.2. See EPA product 93392-2  
 [3] This product can be obtained by diluting AX-5000 to a >1490ppm FAC solution whereas pH is between 6.3 and 7.2. See EPA product 93392-3  
 [4] This product can be obtained by diluting AX-5000 to a >460ppm FAC solution whereas pH is between 6.3 and 7.2. See EPA product 93908-1  
 [5] This product can be obtained by diluting AX-5000 to a >338ppm FAC solution whereas pH is between 6.3 and 7.2. See EPA product 9

## PRODUCT SAFETY

As indicated above, AQUAOX™ Disinfectant products contain Hypochlorous Acid as the active ingredient. The sole inactive ingredient, besides the water of the solution, is residual Sodium Chloride (pure salt) from the electrolysis process, which is FDA-approved (CAS RN 8028-77-1) and NSF-certified, ensuring its safety.

### EPA-Required Toxicity Testing for AquaOx 275, 550, 1650

To evaluate potential toxicity, a series of tests were performed at the North American Science Associates (NAMSA) and Illinois Institute of Technology Research Institute (IIT RI), both Association for Assessment and Accreditation of Laboratory Animal Care International (AAALAC)-approved facilities, in line with Good Laboratory Practice (GLP).

The testing program adhered to ISO-10993 standards for biocompatibility of devices in contact with compromised surfaces. Detailed study results can be found in **Table 8**.

**TABLE 8. Nonclinical Toxicity Testing Summary**

Study Type	Test Species	Route	Result	Testing Facility
In vitro Cytotoxicity	L-929 Mouse Fibroblast Cells	In vitro	Not Cytotoxic / Meet USP Requirement	NAMSA
Repeated-Dose Toxicity	Rats	Dermal	No Local or Systemic Toxicity on Intact or Wounded skin	NAMSA
Maximization Sensitization	Guinea Pigs	Dermal	Not a Sensitizer (Does not induce allergic responses)	NAMSA
Acute Toxicity	Rats	Oral	Non-Toxic	NAMSA
Acute Toxicity	Rats	Inhalation / Nose	Non-Toxic	IIT RI
Skin Irritation	Rabbits	Dermal	Not a Skin Irritant on Intact or Abraded Skin	NAMSA
Eye Irritation	Rabbits	Ocular	Not an Eye Irritant	NAMSA

### Conclusion

AQUAOX™ disinfectant products comply with the acceptable levels or criteria of safety and efficacy as defined by the United States Pharmacopeia. Exposure (USP). They didn't irritate the skin or eyes and weren't found to cause allergies. When tested at the highest possible concentration, the product wasn't toxic if ingested or inhaled. Additionally, using the product on skin, even on wounds, for 28 days didn't cause any irritation or wound healing problems. Overall, the tests confirmed the product is safe and biocompatible for its intended use.

**NOTE:** Aquaox 1650 was actually tested at a concentration of 2200-ppm HOCl using an onsite generation process. It still received a Category I rating (on a scale of I to IV), the lowest toxicity rating allowed by the EPA. The EPA does not acknowledge the possibility an antimicrobial disinfectant can be non-toxic. Still, it's the highest HOCl concentration registered by the EPA, underscoring the lack of any toxicity concerns for the lower concentration products.



# Electrostatic Spray Safety Assessment

## INTRODUCTION:

The typical practice with Aquaiox disinfectant use is to spray a surface and then wipe with one of our microfiber cloths, which, not incidentally provide a more effective cleaning step than using a regular wipe would. However, there are other situations where this approach is not practical due, for instance, to the volume of surface involved or the inaccessibility of an area. In that circumstance, we suggest using our Electrostatic Spray option.

There are advantages to the spraying including scales of efficiency. We also want to mention some studies have been done demonstrating that consistent use of the spraying approach over time, even without any wiping step, results in a significant decrease in biofilm accumulation on environmental surfaces.

However, we want to assure users of the safety of our spraying approach. To that end we done extensive research on the issue to minimize any concerns.

A detailed version of findings will be offered in the Appendices of this document in case you want to go into more depth than provided in this summary.

### I. Acute Inhalation Injury and Particle Size of Inhaled Substances

Our airways and lungs are continuously vulnerable to irritants through breathing. This is especially true in the case of cleaning agents, where users can be exposed to fumes like chlorine and ammonia. Another potential vulnerability factor involves the size of particles. Smaller particles can enter the lungs whereas larger ones tend to be trapped by the nose before they can cause any damage to the respiratory system.

Particle size in inhalation impacts where particles settle in our respiratory system. There are three main categories:

1. *Respirable fraction*: Particles  $\leq 10\mu\text{m}$ . These can reach the deepest parts of our lungs.
2. *Extra-thoracic fraction*: Particles  $>25\mu\text{m}$ . These stay between the nostrils/mouth and the end of the larynx.
3. *Thoracic fraction*: Particles  $\leq 25\mu\text{m}$ . These penetrate head airways, reaching the lungs.

Generally, larger particles ( $>25\mu\text{m}$ ) are less concerning as they're often trapped and expelled through actions like sneezing.

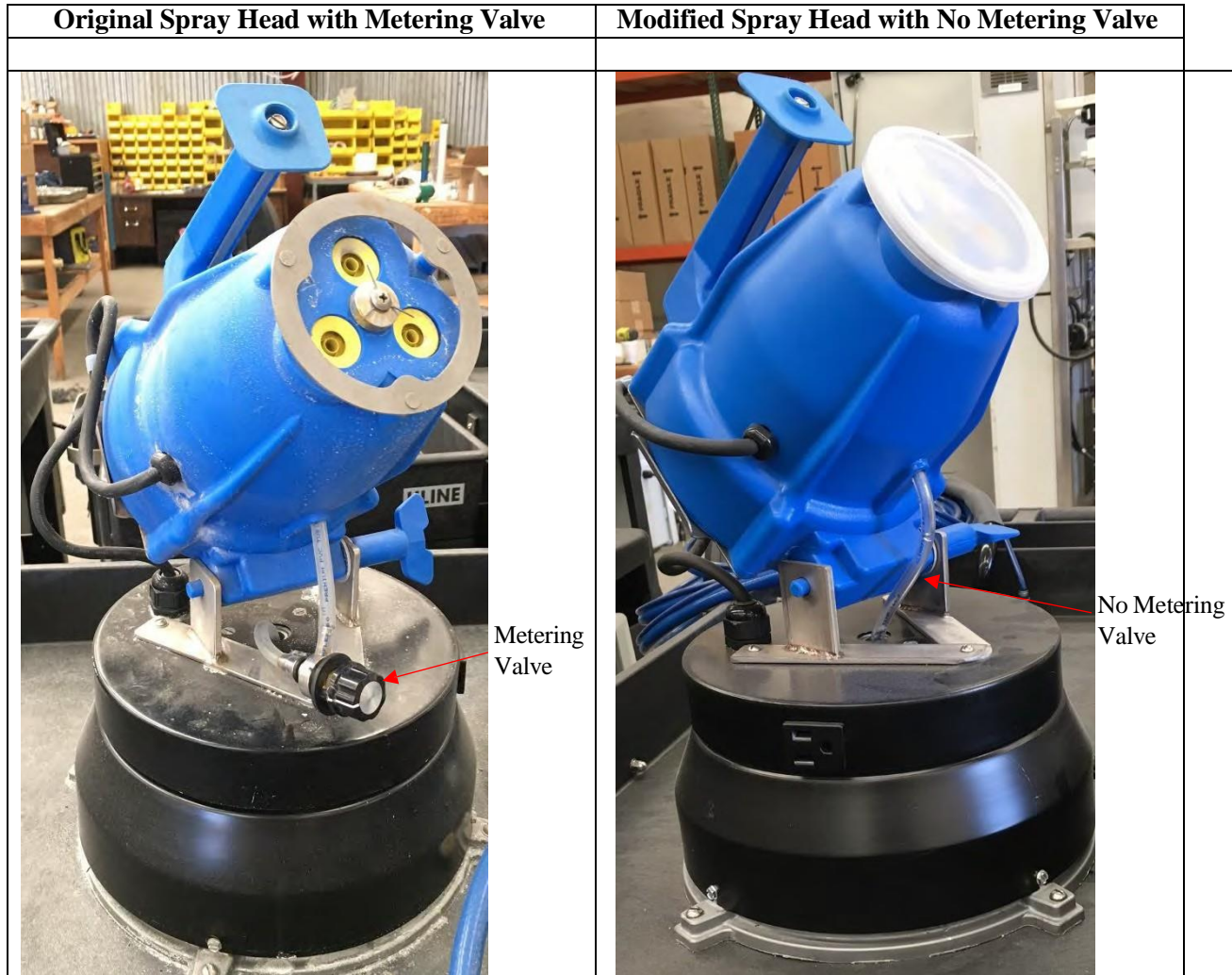
### Aquaiox ESS Sprayer and Dispensed Droplet Size

The Aquaiox ES 3001-5 is a portable electrostatic sprayer designed for water-based solutions and suitable for chemicals labeled for aerosol or mist use. It features a motor/blower, high-voltage power supply, charging components, and a precision metering valve to control flow rate and particle size. Particle output ranges from 10 to 50  $\mu\text{m}$  Volume Mean Diameter (VMD), with size increasing alongside flow rate, adjustable through three valve settings.

*Valve Position Settings, Approximate Flow Rates and Droplet Size*

Position	Flow Rate	Droplet Size ( $\mu\text{m}$ VMD)
1	6 oz/min (177 mL/min)	10 – 20
2	7.5 oz/ min (222 mL/min)	20 – 30
3	9.5 oz/min (281 mL/min)	30 – 50

In response to the respiratory information, described above, Aquaox customized their ESS Sprayer by removing the metering valve and formulation tank, allowing unobstructed liquid flow above 9.5 oz/min producing particle sizes consistently larger than 30  $\mu\text{m}$  VMD, as higher flow rates produce larger droplets. The sprayer is shown below:



The modified sprayer design limits respiratory concerns in three ways:

1. The output particle size: The generated particles are now too large to be inhaled deeply.
2. Falling time of particles: In accordance with the World Health Organization (WHO) table below, most if not all of them will have fallen to the floor by the end of the Aquaox recommended 10-minute wait before re-entry.
3. The effect of the electrostatic ion field: Particles leave the nozzle through the device’s electrostatic ion field. The imparted charge means particles not removed by gravity will be attracted to nearby surfaces, removing them from circulation.

## II. Chlorine Exposure Limits

OSHA has not yet implemented a standard regulating HOCl exposure limits nor a method for determining HOCl concentration, so Chlorine – the active component of HOCl – was measured to assure the spraying procedure rendered amounts that fell within the current Occupational Safety and Health Administration (OSHA) Permissible Exposure Limits (PEL). These regulations include a short-term exposure limit for up to a 15- minute exposure not to exceed 1 ppm (2.9 mg/m<sup>3</sup> where mg/m<sup>3</sup> is defined as mg Chlorine per m<sup>3</sup> of air), and a time-weighted average for up to 8 hours not to exceed 0.5 ppm (1.5 mg/m<sup>3</sup>).

### PROCEDURE:

**Study 1:** Separately, spraying Aquaox 275 and 525, air samples from a controlled experimental room are evaluated for HOCl concentration using the NIOSH 7607 Method after using the Aquaox ESS. Samples are taken following a 5-minute spray and 10-minute wait and analyzed for short-term exposure (15 minutes) and time-weighted average levels (6 hours). The samples, drawn at 1 L/min into a specially prepared tube, are sent to ALS Environmental for ion chromatography analysis, focusing on chlorine compounds, excluding trichloramines.

**Study 2:** The experiment assesses short-term HOCl exposure using the OSHA ID-101 method in a small experimental room. After spraying for 5 minutes and allowing for a 10-minute settling period, air samples are collected for 15 minutes. Samples are drawn through a glass bubbler with an acid solution, and HOCl is measured by its reaction with DPD and potassium iodide, creating a red dye measured at 540nm. A standard curve is generated from known HOCl concentrations to determine the HOCl levels in the test samples.

**Results:** Chlorine concentrations were found to be 0.207ppm for AX275 and 0.262ppm for AX525 after spraying, both below OSHA's Chlorine limit of 1ppm.

**Study 3:** Chlorine gas levels are measured in air samples using the Draeger Chlorine 0.2/a System immediately after spraying and after a 10-minute wait. Draeger tubes react with chlorine to indicate concentration by color change, with results analyzed directly by Aquaox.

**Results:** Chlorine levels were below 1 ppm after using AX275 and AX525 solutions, with immediate readings of 0.2ppm and 0.5ppm, respectively, and both dropping to below 0.2ppm after 10 minutes.

**CONCLUSION:** No indications for concern were raised by these comprehensive measurements. For reference, the levels measured are not only well below the PEL, but they are also far below the mean air concentration measures of roughly 1.36 ppm found in a study of the air around a sample of indoor swimming pools.<sup>4</sup>

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<sup>4</sup> <https://doi.org/10.1016/j.gaceta.2013.02.002>

# Testing of Disinfectant Effects on Surfaces Using the BOEING Protocol for Interior-Cleaning Solutions

*This BOEING D6-7127 protocol includes 11 tests, first listed below and then iteratively detailed with the respective results for AquaOx Disinfectants 275 and 525 provided at the end of each section.*

*This protocol provides the gold standard for rigorously evaluating cleaning and corrosion prevention products to ensure they are safe for Boeing aircraft and won't damage them.*

*These results, of course, can be generalized to surfaces in other settings like the medical arena.*

*Table listing properties of AquaOx Disinfectants 275 and 550:*

## Test Liquid Properties

### AquaOx Disinfectant 275

TEST	ANALYSIS	UNITS
Free Available Chlorine	302	ppm
pH	6.72	n/a
Conductivity	2544	µS/cm
ORP	878	mV

### AquaOx Disinfectant 525

TEST	ANALYSIS	UNITS
Free Available Chlorine	546	ppm
pH	6.86	n/a
Conductivity	2099	µS/cm
ORP	913	mV

## Summary of Procedure – Tests Performed: <sup>5</sup>

- A. Sandwich Corrosion Test
- B. Immersion Corrosion Test
- C. Rubber Test
- D. Sealant Test
- E. Painted Surface Test
- F. Tedlar Surface Test
- G. Vinyl Surface Test
- H. Fabric and Carpet Test
- I. Leather and Naugahyde Test
- J. Polycarbonate Crazeing Test
- K. Flash Point Test

<sup>5</sup> Boeing D6-7127 Rev P incorporating PDD 6-8 –Cleaning Interiors of Commercial Transport Aircraft - Category: Disinfectants

## A. SANDWICH CORROSION TEST (Reference: ASTM F1110)

*This test method checks if chemicals – in this case a disinfectant - can corrode or damage aircraft aluminum alloys.*

### Procedure

This test employs a significant challenge through assessing the disinfectants' effect on how the chemicals might corrode when trapped between aluminum alloy surfaces.<sup>6</sup>

The test results are judged by comparing the appearance of surfaces from three coupon sets. One set is exposed only to water to set a standard. If the surfaces exposed to test chemicals show more corrosion than the water-exposed set, they are deemed non-conforming. The relative corrosion severity rating system below is used to allow for a numerical classification of the test results.

Relative corrosion severity rating system:

- 0—No visible corrosion and no discoloration present
- 1—Very slight corrosion or very slight discoloration, and/or up to 5 % of area corroded<sup>7</sup>
- 2—Discoloration and/or up to 10 % of area corroded
- 3—Discoloration and/or up to 25 % of area corroded
- 4—Discoloration and/or more than 25 % of area corroded, and/or pitting present

#### Aquaox Test Results:

Test Chemical	Clad 7075-T6 Aluminum Alloy	Bare 7075-T6 Aluminum Alloy	Test Result
Aquaox Disinfectant 275	1	1	Conforms
Test Control	1	1	

### Conclusion

- Test results of Aquaox Disinfectant 275 conform for all test surfaces on all test criteria.
- Test result of Aquaox Disinfectant 525 does not conform on the Aluminum Alloy surface because corrosion caused by the test chemical is in excess of that caused by the test control, which means, if left in constant, sandwiched contact with Aluminum, some discoloration or corrosion is possible.

<sup>6</sup> The test uses Clad 7075T6 Aluminum Alloy and Bare 7075-T6 Aluminum Alloy, anodized per MILA-8625 Type I, as testing materials

<sup>7</sup> "Area" refers to area where the test material was applied.

## B. IMMERSION CORROSION TEST (Reference: ASTM F483)

*This method measures how chemicals affect aircraft metals (Aluminum) over time by weighing the metals after they've been fully soaked in the disinfectant.*

### Procedure

Small pieces of the materials are treated with the test chemical and dried. Their weight is checked before and after this process. The chemical shouldn't corrode the materials or change their weight by more than  $\pm 10\text{mg}$  in 24 hours for each 1" x 2" piece.

#### Aquaox 525 Test Results:

Test Chemical	Test Panel	Weight Loss in mg (per 1" x 2" panel)	Test Result
<b>Aquaox Disinfectant 525</b>	Clad 2024-T3 Aluminum (QQ-A-250/5)	0.1	Conforms
	Bare 2024-T3 Aluminum (QQ-A-250/4) alodined per MIL-C-5541	2.3	Conforms
	Bare 2024-T3 Aluminum (QQ-A-250/4) anodized per MIL-A-8625 Type I	0.3	Conforms
	Bare 7178-T6 Aluminum (QQ-A-250/14) anodized per MIL-A-8625 Type I	2.9	Conforms

### Conclusion

The Aquaox Disinfectant 525 conformed on all test panels for all test criteria, that is, no concerns regarding corrosion during immersion arose. If this is true for the 525 concentration, it will hold for the lower 275 concentration

## C. RUBBER TEST (Reference: ASTM D471)

*This test evaluates the comparative ability of rubber and rubber-like compositions to withstand the effect of the disinfectants.*

### Procedure

Rubber specimens (vulcanized rubber sheets, vulcanized-rubber-coated fabric, and articles finished with rubber) are immersed in the most concentrated version of the disinfectant for 24 hours and are evaluated based on the criteria in the table below:

#### Aquaox Test Results:

Test Chemical	Property	Maximum Change Allowed	Test Result
<b>Aquaox Disinfectant 525</b>	Tensile Strength	25 % Loss	< 5 %
	Elongation	25 % Loss	< 5 %
	Volume	$\pm 15$ % Loss	< 5 %

### Conclusion

Aquaox 525 conforms on all test specimens for all test criteria.

## D. SEALANT TEST

*This test evaluates whether the most concentrated disinfectant solution affects a sealed surface.*

### Procedure

A paint-primed Aluminum surface is smeared with a sealant. This treated surface is submerged in a test fluid for approximately 70 hours at a temperature of around 120 degrees Fahrenheit. The expected result is that there should be no signs of the sealant lifting or detaching from the surface after the immersion test.

#### Aquaox Test Results:

Test Chemical	Test Result
Aquaox Disinfectant 525	Sealant did not lift at edges or lose adhesion.
Test Control	No lifting or loss of adhesion when pried away from edge.

### Conclusion

Aquaox Disinfectant 525 conforms on all test surfaces for all test criteria.

## E. PAINTED SURFACE TEST (Reference: ASTM F502)

This test determines the effect of the more concentrated disinfectant on painted aircraft surfaces.

Painted aluminum alloy samples are subjected to a durability test using heated 525 disinfectant (~149). The test checks for any surface damage, such as streaking, color changes, or blistering, and evaluates the paint's softening by identifying the weakest pencil that can penetrate the paint. The paint must not visibly change color or soften by more than two levels of pencil hardness to pass the test.

#### Aquaox Test Results:

Test Chemical	Property	Test Result
Aquaox Disinfectant 525	Pencil Hardness Change	0
	Color Change	None

### Conclusion

Aquaox Disinfectant 525 conformed on all test specimens for all test criteria.

## F. TEDLAR SURFACE TEST

*This test determines whether Aquaox 525 leaves any scratching, color change or staining on Tedlar, a polyvinyl fluoride film.*

### Procedure

Surfaces are observed for scratches or stains needing polish after being exposed to a test liquid at room temperature and rinsed. They shouldn't display scratching, significant color change, or staining.

#### Aquaox Test Results:

Test Chemical	Test Result
Aquaox Disinfectant 525	No Scratching, Color Change or Staining of specimens is observed.

### Conclusion

Test results of Aquaox Disinfectant 525 conform on all test specimens for all test criteria.

## G. VINYL SURFACE TEST

*This test ensures exposure to Aquaox 525 does not leave any cracking, brittleness, color change or staining on the test vinyl surfaces (poly vinyl chloride – generally considered less durable than Tedlar).*

### Procedure

Test surfaces are exposed to Aquaox 525 room temperature and then rinsed and examined.

#### Aquaox Test Results:

Test Chemical	Test Result
Aquaox Disinfectant 525	No Scratching, Color Change or Staining of specimens is observed.

### Conclusion

Test results of Aquaox Disinfectant 525 conform on all test specimens for all test criteria.



## H. FABRIC AND CARPET TEST

*This test determines if exposure to Aquaox 525 causes any color change or staining on the test fabric or carpet and also whether exposure increases flammability.*

### Procedure

Fabric and carpet surfaces are dipped in test liquid, rinsed, and checked for color changes or stains. For flammability, fabric and carpet samples are soaked in the liquid, dried, and then set on fire for 12 seconds. Burn length, self-extinguishing time, and drip extinguish time are then measured and compared to set standards.

#### Aquaox Test Results:

Test Chemical	Test Surface	Property	Maximum Value	Test Result	
Aquaox Disinfectant 525	Upholstery	Color Change	N/A	None	
		Staining	N/A	None	
		Flammability	Extinguishing Time	15 seconds	< 3 seconds
			Burn Length	8 inches	7 inches
			Drip Extinguish Time	5 seconds	< 3 seconds
	Carpet	Color Change	N/A	None	
		Staining	N/A	None	
		Flammability	Extinguishing Time	15 seconds	< 3 seconds
			Burn Length	8 inches	4 inches
			Drip Extinguish Time	5 seconds	< 3 seconds

### Conclusion

Test results of Aquaox Disinfectant 525 conform on all test specimens for all test criteria.

## I. LEATHER AND NAUGAHYDE TEST

*This test evaluates the compatibility of Aquaox Disinfectant 525 leather and Naugahyde surfaces.*

### Procedure

Leather and Naugahyde samples are soaked in Aquaox Disinfectant 525 and examined for any signs of crackling, brittleness, color change, or staining.

#### Aquaox Test Results:

Test Chemical	Property	Test Result
Aquaox Disinfectant 525	Cracking or Brittleness	None
	Color Change or Staining	None

### Conclusion

Aquaox Disinfectant 525 conforms on all test specimens for all test criteria.

## J. POLYCARBONATE CRAZING TEST (Reference: ASTM F484)

This test method covers the procedure for determining the crazing effect (i.e., the creation of fine spider-web-like surface cracks) caused by the Aquaox products when exposed test materials are then subjected to the stress of bending.

### Procedure

Common aircraft plastics are bent slightly and soaked in a the Aquaox 525 liquid for 10 minutes. Afterward, they're checked visually for any cracks or surface damage.

#### Aquaox Test Result / Conclusion:

Test Chemical	Test Surface	Test Result
Aquaox Disinfectant 525	Lexan 9600	No cracking or crazing
	BMS8-400 BAC 70913	No cracking or crazing

### Conclusion

Aquaox Disinfectant 525 results conform on all test specimens for all test criteria.

## K. FLASH POINT TEST (Reference: ASTM D93)

*This test is done for information only. The flash point of the test liquid is determined following the ASTM D93 method, all cleaning candidates having a flash point not lower than 212°F must then be approved by the Fire Protection Engineering before they can be evaluated to be used.*

### Conclusion

As expected, no flash point for the Aquaox Disinfectant is observed to 212°F for the test liquid.

## SUMMARY OF CONCLUSIONS FOR ALL TESTS ON SURFACE EFFECTS<sup>8</sup>

Test results of Aquaox Disinfectant 525 (hence by implication for the lower-concentration product Aquaox 275) conform for all test criteria on all the tests included in the Boeing D6-7127 Protocol except for the Clad 7075 T6 Aluminum Alloy surface of the Sandwich Corrosion Test, where a mild effect occurred with Aquaox 525. By comparison, Aquaox Disinfectant 275 passed the Sandwich Corrosion Test.

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#### <sup>8</sup> References

- SMI Test Report, Boeing D6-7127 Protocol, Aquaox Disinfectant 525, SMI/REF # 1412-370
- SMI Test Report, Boeing D6-7127 Protocol, Aquaox Disinfectant 275, SMI/REF # 1503-629
- Aquaox Certificate of Analysis, Aquaox Disinfectant 525, dated 01/14/15
- Aquaox Certificate of Analysis, Aquaox Disinfectant 275, dated 03/27/15

## APPENDICES





**AQUAOX™ Disinfectant 275 & 525**

Disinfectant 525 is on EPA's List N for Use Against SARS-CoV-2

Disinfectant 525 is on EPA's List Q for Use Against Emerging Viral Pathogens

EPA Registration





UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

January 15, 2021

Kevin Kutcel  
Agent  
Aquaox LLC  
17355 Hamlin Blvd.  
Loxahatchee, FL 33470

Subject: PRIA Label Amendment – Revising Signal Word and Precautionary Statements  
Product Name: AQUAOX Disinfectant 275  
EPA Registration Number: 93392-1  
Application Date: July 30, 2020  
Decision Number: 565345

Dear Mr. Kutcel:

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. You must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under the Federal Insecticide Fungicide and Rodenticide Act and is subject to review by the Agency. If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process. Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Assurance.

Page 2 of 2  
EPA Reg. No. 93392-1  
Decision No. 565345

Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Demson Fuller by phone at (703) 308-8062, or via email at [fuller.demson@epa.gov](mailto:fuller.demson@epa.gov)

Sincerely,

A handwritten signature in black ink, appearing to read 'D. Fuller', with a long horizontal stroke extending to the right.

Demson Fuller, Product Manager 32  
Regulatory Management Branch I  
Antimicrobials Division (7510P)  
Office of Pesticide Programs

Enclosure

# Aquaox Disinfectant 275

## Hypochlorous Acid Solution

### Generated Electrochemically from Sodium Chloride

ACTIVE INGREDIENT:	
Hypochlorous Acid	0.0275%
OTHER INGREDIENTS:	99.9725%
TOTAL:	100.0000%

Contains > 275ppm Free Available Chlorine (FAC)

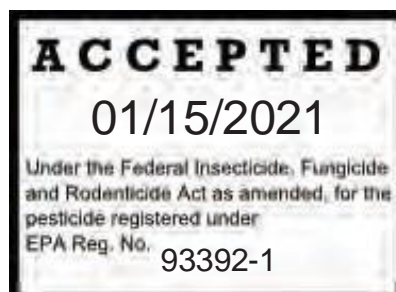
KEEP OUT OF REACH OF CHILDREN

EPA Reg. No. 93392-1

Est. No. xxxxx-xx-xxx

Manufactured by:

**AQUAOX LLC**  
17355 Hamlin Boulevard  
Loxahatchee, Florida 33470  
Phone No.: 800-790-7520  
Email: info@aquaox.net



***Aquaox Disinfectant 275 must be used within 30 days after production OR  
Product must be tested with chlorine test kit provided by Aquaox.  
DO NOT USE PRODUCT when Chlorine concentration is below 248ppm.***

DATE PRODUCED: \_\_\_\_\_

**Container size:** 2 oz., 3.4 oz., 4 oz., 8 oz., 16 oz, 1 gallon, 5 gallon, 30 gallon, 55 gallon, 275 gallon, 330 gallon, 660 gallon

**Aquaox Disinfectant 275** is a Hypochlorous Acid solution produced by passing an aqueous saline solution (brine) through 1 or more electrolytic cells. The current within the electrolytic cell(s) splits the sodium chloride compound into two separate fluids. One fluid is Hypochlorous Acid, a powerful oxidizing agent exhibiting antimicrobial properties.

**Aquaox Disinfectant 275** is produced at a near neutral pH, (approximately pH 6.5) where the predominant antimicrobial agent is Hypochlorous Acid, an efficient and efficacious species of chlorine. Hypochlorous Acid kills bacteria, fungi, molds, viruses and spores.

**Aquaox Disinfectant 275** properties are closely controlled by controlling the voltage and the current to the electrolytic cell(s), brine conductivity, temperature and flow rate through the cells as well as the pH of the Hypochlorous Acid generated in the cell(s).

**Aquaox Disinfectant 275** freezes at 32°F and boils at 212°F. It is a colorless and aqueous solution with a slight chlorine or ozone odor.

After production, **Aquaox Disinfectant 275** must be stored in a closed plastic container in a cool and dark area away from direct sunlight.

**Aquaox Disinfectant 275** is intended to be used soon after being produced.

Optional Marketing Statements:

- Directions Spray cleaned surfaces and allow to air dry
- No wiping needed
- See attached insert for directions for use, storage and disposal statements.
- a cost-effective disinfecting solution;
- produced with low energy and low costs from water and salt;
- produced in a single-stage process by a simple electrolytic cell;
- produced for use in medical, institutional, industrial and commercial applications and
- produced with a controlled pH and controlled concentration of Free Available Chlorine (FAC).
- Aquaox Disinfectant 275 leaves no residue.
- Aquaox Disinfectant 275 is made from salt and water.
- Aquaox Disinfectant 275 will eventually degrade back to salt and water.

## PRECAUTIONARY STATEMENTS

**Physical or Chemical Hazards:** **Aquaox Disinfectant 275** is not compatible with other chemicals such as acids and hydrogen peroxide.



## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

### Hard, Non-Porous Surface Disinfection

**To [Clean and] Disinfect [and Deodorize] Hard, Non-Porous Surfaces:** For heavily soiled areas, a preliminary cleaning is required. Apply [*Wipe, Spray or Dip*] **Aquaox Disinfectant** to hard, non-porous surfaces with a cloth, wipe, mop, sprayer, sponge or a spray applicator. Treated surfaces must remain wet for 10 minutes. Allow surfaces to air dry. Do not use on utensils, glasses or dishes.

(OPTIONAL - Follow the instructions below when applying with a spray applicator for hard, non-porous surface disinfection): (1) Remove disinfectant liquid at or over 1-week-old from the liquid storage tank; (2) Fill the empty liquid storage tank with fresh **Aquaox Disinfectant 275** liquid; (3) Turn on the power on the main electrical switch; (4) Pull out the spray gun and point towards the target area to be sprayed; (5) Press the sprayer button and start spraying at a recommended distance of between 1½ – 4 ft. from the target area; (6) When applying to a large, hard, non-porous surface, use a recommended motion of a 3-ft., side-by-side motion. Allow an overlap of 50% of the sprayed area when spraying from the top to the bottom, and an overlap of 10% when spraying adjacent areas; (7) Sprayed surfaces must remain wet for 10 minutes. Allow surfaces to air dry. Do not use on utensils, glasses or dishes.)

This product is not to be used as a terminal sterilant / high level disinfectant on any surface or instrument that (1) is introduced directly into the human body, or (2) contacts intact mucous membranes but which do not ordinarily penetrate the blood barrier or otherwise enter normally sterile areas of the body. This product may be used to pre-clean or decontaminate critical or semi-critical devices prior to sterilization or high-level disinfection.

<b>Pathogen</b>	<b>Strain</b>	<b>Contact Time</b>
Pseudomonas aeruginosa	ATCC 15442	10 minutes
Staphylococcus aureus	ATCC 6538	10 minutes
Swine Influenza Virus (H1N1)	ATCC VR-333	10 minutes
Salmonella enterica	ATCC 10708	10 minutes

## CLAIMS

- + Broad Spectrum Disinfectant
- + One-Step Cleaner / Disinfectant when Disinfection Directions are followed
- + Aids in the Reduction of Cross-Contamination between Treated Surfaces
- + This Disinfection Process assures Proper Strength, Product Effectiveness and Standardizes Technique
- + Formulated for Bacteria Fighting
- + Bactericide - or - Bactericidal

- + Bathroom Disinfectant
- + Nursery Disinfectant
- + Athletic Facility Disinfectant
- + Cleans and Disinfects Site(s) on Tables 1–4 below
- + Cleans and Disinfects Hard, Non-Porous Surfaces
- + Cleans, Deodorizes and Disinfects
- + Deodorizes by Killing Odor-Causing Bacteria
- + Disinfecting Formula
- + Disinfects and Deodorizes by Killing Bacteria and their Odors
- + Eliminates - or - Reduces Odors caused by Bacteria
- + Eliminates odors at their source; bacteria
- + Disinfects Hard, Non-Porous Surfaces on Site(s) on Tables 1–4 below
- + Easy and Convenient Disinfecting on Site(s) on Tables 1–4 below
- + Easy One-Step Cleaning and Disinfecting when Disinfection Directions are followed
- + Effective against - or - Kills Organism(s) mentioned in Table on Page 2 above
- + Effective against - or - Kills H1N1 Swine Influenza virus
- + Effectively Disinfects Hard, Non-Porous, Environmental Surfaces
- + Fight(s) - and/or - Kill(s) - and/or - Effective against *Salmonella enterica*
- + Fight(s) - and/or - Kill(s) - and/or - Effective against *Staphylococcus aureus*
- + Fight(s) - and/or - Kill(s) - and/or - Effective against *Pseudomonas aeruginosa*
- + Fight(s) - and/or - Stops - and/or - Prevent(s) Cross-Contamination on Hard, Non-Porous Surfaces on Tables 1–4 below
- + Kills Odor-Causing Bacteria mentioned in Table on Page 2 above
- + Kills - or - Effective against Bacteria mentioned in Table on Page 2 above
- + Multi-Purpose Disinfectant
- + One-Step Cleaner and Disinfectant when Disinfection Directions are followed
- + One-Step Cleaner and Disinfectant (when Disinfections Direction are followed) designed for General Cleaning and Disinfecting Hard, Non-Porous Environmental Surfaces in Health Care Facilities and on Sites listed on Tables 1–4 below
- + Pseudomonocidal
- + Staphylocidal
- + Ready-to-Use Hospital Disinfectant
- + The Answer to your Disinfecting Needs
- + The Easy - and/or - Convenient way to Disinfect
- + This Product controls Cross-Contamination on most Hard, Non-Porous Surfaces
- + This Product meets AOAC Efficacy Testing Requirements - or - Standards for Hospital Disinfection
- + Use in Public - or - Common Places where Bacteria may be of concern on Hard, Non-Porous Surfaces
- + Use where Control of the Hazards of Cross-Contamination between Treated Hard Non-Porous Surfaces is of Importance

## GENERAL CLAIMS

- + Convenient
- + For General Use
- + For Use on Nursery Surfaces
- + Suitable for Hospital Use
- + Will not Harm Surfaces listed on Tables 1 – 4
- + Will not Harm Hard, Non-Porous Inanimate Environmental Surfaces
- + Will not Harm Titanium-Coated, Medical Grade Stainless Steel
- + Easy to Handle
- + For Use on Bathroom Surfaces
- + For Use in Athletic Facilities
- + For Use on Athletic Equipment

## TABLE ONE: Medical Environments

### USE SITES

- + Ambulances - or - Emergency Medical Transport Vehicles
- + Anesthesia Rooms - or - Areas
- + Assisted Living - or - Full Care Nursing Homes
- + CAT Laboratories
- + Central Service Areas
- + Central Supply Rooms - or - Areas Critical Care Units - or - CCUs
- + Dialysis Clinics
- + Emergency Rooms - or - RS (Registered Sanitarian) Health Care Settings - or Facilities
- + Home Health Care Settings
- + Hospitals
- + Intensive Care Units - or - ICU Laboratories
- + Medical - or - Physician's - or - Doctor's Offices Newborn - or - Neonatal Nurseries
- + Medical Clinics
- + Medical Facilities
- + Nursing - or - Nurses' Stations
- + Orthopedics
- + Outpatient Clinics
- + Patient Restrooms
- + Patient Rooms
- + Pediatric Examination Rooms - or - Areas
- + Pharmacies
- + Physical Therapy Rooms - or - Areas
- + Radiology - or - X-Ray Rooms - or - Areas
- + Surgery Rooms - or - Operating Rooms - or ORs
- + cpap medical equipment

**SURFACES** (Applicable to Surface Materials listed on Page 9)

- + Bed pans
- + Exam - or - Examination Table:
- + External Surfaces of Medical Equipment - or - Medical Equipment Surfaces
- + External Surfaces of Ultrasound Transducers
- + Gurneys
- + Hard, Non-Porous Environmental Hospital - or - Medical Surfaces
- + Hospital - or - Patient Bed Railings - or - Linings - or - Frames
- + IV Poles
- + Patient Chairs
- + Plastic Mattress Covers
- + Reception Counters - or - Desks - or - Areas
- + Stretchers
- + Wash Basins
- + Wheelchairs

**TABLE TWO: Dental Environment:**

**USE SITES**

- + Dental - or - Dentist's Offices
- + Dental Operatory rooms

**SURFACES** (Applicable to Surface Materials listed on Page 9)

- + Dental Countertops
- + Dental Operatory Surfaces
- + Dentist - or - Dental Chairs
- + Hard, Non-Porous Environmental Dental Surfaces
- + Light Lens Covers
- + Reception Counters - or - Desks - or - Areas

### **TABLE THREE: Veterinary Environments:**

**Animal Premises:** Remove all animals and feed from the premises, vehicles and enclosures. Remove all litter, droppings and manure from the floors, walls and surfaces of barns, pens, stalls, chutes and other facilities and fixtures occupied or traversed by animals. Empty all troughs, racks and other feeding and watering appliances. Thoroughly clean all surfaces with soap and/or detergent and rinse with water.

Apply **Aquaox Disinfectant** and saturate surfaces with solution for 10 minutes. Immerse all halters, ropes and other types of equipment used in handling and restraining animals as well as forks, shovels and scrapers used for removing litter and manure.

After application, ventilate buildings, coops and other closed spaces. Do not house animals or employ equipment until treatment has been absorbed, set or dried. Thoroughly scrub all treated feed racks, mangers, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before reuse.

#### **USE SITES**

- + Animal - or - Pet Grooming Facilities Kennels
- + Animal Housing Facilities
- + Animal Life Science Laboratories
- + Livestock - and/or - Swine - and/or - Poultry Facilities
- + Pet Areas
- + Pet Shops - or - Stores
- + Small Animal Facilities
- + Veterinary - or - Animal Hospitals
- + Veterinary Clinics - or - Facilities
- + Veterinary Offices

#### **SURFACES** (Applicable to Surface Materials listed on Page 9)

- + Animal Equipment Automatic Feeders
- + Cages
- + External Surfaces of Veterinary Equipment
- + Feed Racks
- + Fountains
- + Hard, Non-Porous Environmental Veterinary Surfaces
- + Pens
- + Reception Counters - or - Desks - or - Areas Stalls
- + Troughs
- + Veterinary Care Surfaces
- + Watering Appliances

## TABLE FOUR: Miscellaneous / General Environments

### USE SITES

- + Airplanes
- + Blood Banks
- + Boats
- + Bowling Alleys
- + Chillers
- + Churches
- + Colleges
- + Correctional Facilities
- + Cruise Lines
- + Day Care Centers
- + Dormitories
- + Factories
- + Funeral Homes
- + Grocery Stores
- + Gymnasiums - or - Gyms
- + Health Club Facilities
- + Hotels
- + Industrial Facilities
- + Laundromats
- + Laundry Rooms Locker Rooms
- + Manufacturing Facilities
- + Manufacturing Plants - or - Facilities
- + Military Installations
- + Motels
- + Preschool Facilities
- + Public Areas
- + Recreational Centers - or - Facilities
- + Restrooms - or - Restroom Areas
- + School Buses
- + Schools
- + Shelters
- + Shower Rooms
- + Storage Rooms - or - Areas
- + Supermarkets
- + Trains
- + Universities
- + Wineries
- + Yachts

## **SURFACES** (Applicable to Surface Materials listed on Page 9)

- + Bathroom Fixtures
- + Bath Tubs
- + Behind and under Counters
- + Behind and under Sinks
- + Booster Chairs
- + Cabinets Ceilings
- + Cellular - or - Wireless - or - Mobile - or - Digital Phones
- + Chairs
- + Computer Keyboards
- + Computer Monitors
- + Counters - or - Countertops
- + Cribs
- + Desks
- + Diaper - or - Infant Changing Tables
- + Diaper Pails
- + Dictating Equipment Surfaces
- + Doorknobs
- + Exterior - or - External Toilet Surfaces
- + Exterior - or - External Urinal Surfaces
- + Faucets
- + Floors
- + Garbage - or - Trash Cans
- + Grocery Store - or - Supermarket Carts
- + Hampers
- + Hand Railings
- + Headsets
- + Highchairs
- + Lamps
- + Linoleum
- + Playpens
- + Shelves
- + Showers - or - Shower Stalls
- + Sinks
- + Stall Doors
- + Tables
- + Telephones
- + Tiled Walls
- + Toilet Rims
- + Toilet Seats
- + Towel Dispensers
- + Toys
- + Vanity Tops - or - Vanities
- + Other Telecommunications Equipment Surfaces

## **SURFACE MATERIALS**

- + Baked enamel
- + Chrome
- + Common Hard, Non-Porous Household - or - Environmental Surfaces
- + Formica
- + Glass
- + Glazed Ceramic Tile
- + Glazed Porcelain
- + Glazed Porcelain Enamel
- + Laminated Surfaces
- + Plastic Laminate
- + Stainless Steel
- + Synthetic Marble
- + Vinyl Tile
- + Similar Hard, Non-Porous Surfaces except those excluded by the label

## **Not Recommended For Use On - or - Avoid Contact With**

- + Aluminum Brass
- + Chipped enamel
- + Clear plastic
- + Clothes
- + Copper
- + Fabrics
- + Gold
- + Natural marble
- + Natural rubber
- + Painted surfaces
- + Paper surfaces
- + Sealed granite
- + Silver
- + Unfinished wood
- + Wood



## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

### **For Industrial and Commercial Use Packages:**

**Pesticide Storage:** Store in a closed dark plastic container in a cool, dry area away from heat and sunlight. Do not store near easily oxidizable materials, acids and reducers. In case of spill, isolate container (if possible) and flood area with water to dissolve all material before discarding this container in trash.

**Emergency Handling:** In case of contamination or decomposition. Do not reseal container. Isolate in open, well-ventilated area. Flood with large amounts of water. Cool unopened containers in vicinity by water spray.

**Pesticide Disposal:** Pesticide wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environment Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

### **Small packages (5 gallons or less):**

**Container Handling:** Non-refillable rigid container. Do not reuse or refill this container. Triple-rinse container (or equivalent) promptly after emptying. Triple-rinse as follows: Empty the remaining contents into the application equipment or a mix tank and drain for 10 seconds after the flow begins to drip. Full the container  $\frac{1}{4}$  with water and recap. Shake for 10 seconds. Pour rinsate contents into the application equipment or a mix tank or store rinsate for later use or disposal. Drain for 10 seconds after the flow begins to drip. Repeat this procedure 2 more times. Then offer for recycling or reconditioning if available or puncture and dispose of in a sanitary landfill, or incineration, or, if allowed by state and local authorities, by burning. If burned, stay clear of smoke.

**Container Handling:** Refillable container. Refill this container with Aquaox Disinfectant only. Do not reuse this container for any other purpose. Cleaning before refilling is the responsibility of the refiller. Cleaning the container before final disposal is the responsibility of the person disposing the container. To clean the container before final disposal, empty the remaining contents into the application equipment or a mix tank. Agitate vigorously or recirculate water with the pump for 2 minutes. Dispose of rinsate as pesticide waste. Repeat this rinsing procedure two more times. Then offer for recycling if available or puncture and dispose of in a sanitary landfill, or by incineration, or by procedures allowed by state and local authorities.

### **Large Packages (Greater than 5 Gallons)**

**Container Handling:** Triple rinse as follows: Empty the remaining contents into application equipment or a mix tank. Fill the container  $\frac{1}{4}$  full with water. Replace and tighten closures. Tip container on its side and roll it back and forth, ensuring at least one complete revolution, for 30 seconds. Stand the container on its end and tip it back and forth several times. Turn the container over onto its other end and tip it back and forth several times. Empty the rinsate into application equipment or a mix tank or store rinsate for later use or disposal. Repeat this procedure two more times."



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY  
AND POLLUTION PREVENTION

February 4, 2022

Brian Hogan, Agent  
Aquaax LLC  
17355 Hamlin Blvd.  
Loxahatchee, FL 33470

Subject: PRIA Label Amendment – Additional Studies and Related Claims  
Product Name: Aquaax Disinfectant 525  
EPA Registration Number: 93392-2  
Received Date: June 2, 2021  
Action Case Number: 00304880

Dear Brian Hogan,

The amended label referred to above, submitted in connection with registration under the Federal Insecticide, Fungicide and Rodenticide Act, as amended, is acceptable. This approval does not affect any conditions that were previously imposed on this registration. You continue to be subject to existing conditions on your registration and any deadlines connected with them.

A stamped copy of your labeling is enclosed for your records. This labeling supersedes all previously accepted labeling. Pursuant to 40 CFR 156.10(a)(6), you must submit one copy of the final printed labeling before you release the product for shipment with the new labeling. In accordance with 40 CFR 152.130(c), you may distribute or sell this product under the previously approved labeling for 18 months from the date of this letter. After 18 months, you may only distribute or sell this product if it bears this new revised labeling or subsequently approved labeling. "To distribute or sell" is defined under FIFRA section 2(gg) and its implementing regulation at 40 CFR 152.3.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. See FIFRA section 2(p)(2). If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process, FIFRA section 12(a)(1)(B). Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Assurance.

Page 2 of 2  
EPA Reg. No. 93392-2  
Action Case No. 00304880

Your release for shipment of the product constitutes acceptance of these conditions. If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. If you have any questions, please contact Wanda Henson by phone at (202) 566-0650, or via email at [henson.wanda@epa.gov](mailto:henson.wanda@epa.gov)

Sincerely,

A handwritten signature in black ink, appearing to read 'D Fuller', with a long horizontal stroke extending to the right.

Demson Fuller, Product Manager 32  
Regulatory Management Branch II  
Antimicrobials Division (7510P)  
Office of Pesticide Programs

Enclosure

Throughout label { } used for Notes to Reviewer and [ ] used for Optional Text. ( ) used for acronyms and required clarifiers.

# Aquaox Disinfectant 525

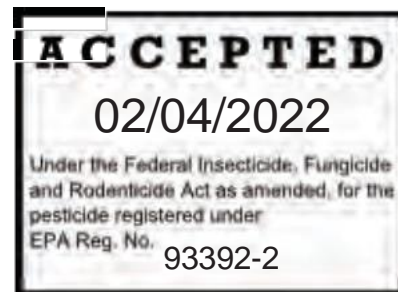
## Hypochlorous Acid Solution

### Generated Electrochemically from Sodium Chloride

ACTIVE INGREDIENT:	
Hypochlorous Acid	0.0525%
OTHER INGREDIENTS:	99.9475%
TOTAL:	100.0000%

Contains > 525ppm Free Available Chlorine (FAC)

**KEEP OUT OF REACH OF CHILDREN**



EPA Reg. No. 93392-2

Est. No. xxxxx-xx-xxx

Manufactured by:

**AQUAOX LLC**  
17355 Hamlin Boulevard  
Loxahatchee, Florida 33470  
Phone No.: 800-790-7520  
Email: info@aquaox.net

***Aquaox Disinfectant 525 must be used within 30 days after production OR Product must be tested with chlorine test kit provided by Aquaox. DO NOT USE PRODUCT when Chlorine concentration is below 473ppm.***

DATE PRODUCED: \_\_\_\_\_

Container size: X[oz][gallon]

**Aquaox Disinfectant 525** is a Hypochlorous Acid solution produced by passing an aqueous saline solution (brine) through 1 or more electrolytic cells. The current within the electrolytic cell(s) splits the sodium chloride compound into two separate fluids. One fluid is Hypochlorous Acid, a powerful oxidizing agent exhibiting antimicrobial properties.

**Aquaox Disinfectant 525** is produced at a near neutral pH, (approximately pH 6.5) where the predominant antimicrobial agent is Hypochlorous Acid.

**Aquaox Disinfectant 525** properties are closely controlled by controlling the voltage and the current to the electrolytic cell(s), brine conductivity, temperature and flow rate through the cells as well the pH of the Hypochlorous Acid generated in the cell(s).

**Aquaox Disinfectant 525** freezes at 32°F and boils at 212°F. It is a colorless and aqueous solution with a slight chlorine or ozone odor.

After production, **Aquaox Disinfectant 525** must be stored in a closed plastic container in a cool and dark area away from direct sunlight.

Optional Marketing Statements:

- a cost-effective disinfecting solution;
- produced with low energy and low costs from water and salt;
- produced in a single-stage process by a simple electrolytic cell;
- produced for use in medical, institutional, industrial and commercial applications and
- produced with a controlled pH and controlled concentration of Free Available Chlorine (FAC).
- Directions Spray cleaned surfaces and allow to air dry
- No wiping needed
- See attached insert for directions for use, storage and disposal statements.
- Aquaox Disinfectant 525 leaves no residue.
- Aquaox Disinfectant 525 is made from salt and water.
- Aquaox Disinfectant 525 will eventually degrade back to salt and water.

## PRECAUTIONARY STATEMENTS

Physical or Chemical Hazards: **Aquaox Disinfectant 525** is not compatible with other chemicals such as acids and hydrogen peroxide.

## DIRECTIONS FOR USE

It is a violation of Federal law to use this product in a manner inconsistent with its labeling.

### Hard, Non-Porous Surface Disinfection

**To Clean and Disinfect [and Deodorize] Hard, Non-Porous Surfaces:** For visibly soiled areas, a preliminary cleaning is required. Apply [*Spray or Dip*] **Aquaox Disinfectant** to hard, non-porous surfaces with a wipe, paper or cloth towel, mop, sprayer, sponge or a spray applicator. Treated surfaces must remain visibly wet for 10 minutes. Allow surfaces to air dry. Do not use on utensils, glasses or dishes.

#### Trigger bottle:

Follow the instructions below when applying Aquaox Disinfectant with a trigger bottle for hard, non-porous surface disinfection.

To Refill: Remove Trigger sprayer. Empty container. Pour in Aquaox Disinfectant from refill container and attach Trigger sprayer.

To Operate: Turn nozzle to ["ON"] [desired] position

To Spray: Target to be disinfected area and pull trigger to spray Aquaox Disinfectant on surface.

**To Disinfect [all] hard, non-porous surfaces:** Spray Aquaox Disinfectant on surface until visibly wet. Let stand for 10 minutes. [If desired] wipe surface dry with a cloth, wipe, sponge or mop. For visible soiled surfaces [a] pre-cleaning [step] is required.

#### Spray Applicator

Follow the instructions below when applying with a spray applicator for hard, non-porous surface disinfection: 1. Remove disinfectant liquid at or over 1-week-old from the liquid storage tank; 2. Fill the empty liquid storage tank with fresh **Aquaox Disinfectant 525** liquid; 3. Turn on the power on the main electrical switch; 4. Pull out the spray gun and point towards the target area to be sprayed; 5. Press the sprayer button and start spraying at a recommended distance of 6-8 inches from the target area; 6. When applying to a large, hard, non-porous surface, use a recommended motion of a 3-ft., side-by-side motion. Allow an overlap of 50% of the sprayed area when spraying from the top to the bottom, and an overlap of 10% when spraying adjacent areas; 7. Sprayed surfaces must remain visibly wet for 10 minutes. Allow surfaces to air dry. Do not use on utensils, glasses or dishes.

This product is not to be used as a terminal sterilant / high level disinfectant on any surface or instrument that (1) is introduced directly into the human body, or (2) contacts intact mucous membranes but which does not ordinarily penetrate the blood barrier or otherwise enter normally sterile areas of the body. This product may be used to pre-clean or decontaminate critical or semi-critical devices prior to sterilization or high-level disinfection.

### Medical applications

**To Pre-clean instruments, equipment and surfaces prior to Disinfection:** Apply directly to surface. Allow to remain wet for 30 seconds. Wipe surface using a cloth, wipe, sponge or mop towel. Discard towel.

**To Disinfect non-critical instruments and equipment Surfaces:** Thoroughly pre-clean surfaces prior to disinfection. Apply directly to pre-cleaned surfaces, thoroughly wetting areas to be disinfected. Allow surface to be wet for 10 minutes. [If desired] wipe surface dry with a cloth, wipe, sponge or mop towel. Discard towel.

**\* Microorganism Table**

<b>Pathogen</b>	<b>Contact Time</b>
<b>Bacteria</b>	
Staphylococcus aureus (ATCC 6538)	10 minutes
Pseudomonas aeruginosa (ATCC 15442)	10 minutes
Salmonella enterica (ATCC 10708)	10 minutes
Staphylococcus aureus (HA-MRSA) (ATCC 33591)	10 minutes
Escherichia coli (NDM) (ATCC BAA-2469)	10 minutes
Mycobacterium bovis (BCG) (ATCC 35734)	10 minutes
Vancomycin Resistant Enterococcus faecalis (VRE) (ATCC 700221)	10 minutes
<b>**Viruses</b>	
Swine Influenza Virus (H1N1) (ATCC VR-333)	10 minutes
Human Immunodeficiency Virus Type 1 (HIV-1) (Mn; ZeptoMetrix #0810027CF)	10 minutes
Human Coronavirus (ATCC VR-740, #229E)	10 minutes
Feline Calicivirus (ATCC VR-782)	10 minutes
Murine Norovirus	10 minutes
SARS-CoV-2	10 minutes

## CLAIMS

- + Broad spectrum disinfectant
- + One-step cleaner/disinfectant when disinfection directions are followed
- + Aids in the reduction of cross-contamination between treated surfaces
- + This Disinfection Process assures proper strength, product effectiveness and standardizes technique
- + Formulated for bacteria killing
- + Bactericide - or - Bactericidal
- + Bathroom disinfectant
- + + Nursery disinfectant
- + Athletic facility disinfectant
- + Cleans and disinfects sites listed on Tables 1 – 4 below
- + Cleans and disinfects hard, non-porous surfaces
- + Cleans, deodorizes and disinfects
- + Deodorizes by Killing Odor-Causing Bacteria
- + Disinfecting formula
- + Disinfects and deodorizes by killing bacteria and their odors
- + Disinfects hard, non-porous surfaces on sites listed on Tables 1 – 4 below
- + Easy and convenient disinfecting on sites listed on Tables 1 – 4 below
- + Easy one-step cleaning and disinfecting when disinfection directions are followed
- + Effective against - or - Kills organisms listed on Table on Page 2above
- + Effective against - or - Kills a wide range of bacteria including *Staphylococcus aureus*, *MRSA*, *Salmonella enterica*, and *Pseudomonas aeruginosa*
- + Effectively disinfects hard, non-porous, environmental surfaces
- + Eliminates odors at their source; bacteria
- + Eliminates - or - Reduces odors caused by bacteria
- + Kills - and/or - Effective against *Salmonella enterica*
- + Kills - and/or - Effective against *Staphylococcus aureus* and *MRSA*
- + Kills - and/or - Effective against *Pseudomonas aeruginosa*
- + Reduces cross-contamination between treated hard, non-porous surfaces.
- + Kills bacteria
- + Kills odor-causing bacteria
- + Kills - or - Effective against bacteria
- + Multi-purpose disinfectant on hard, non-porous surfaces
- + One-step cleaner and disinfectant when disinfection directions are followed
- + One-step disinfectant cleaner when disinfection directions are followed designed for general cleaning and disinfecting hard, non-porous environmental surfaces in health care facilities - or - and sites listed on Tables 1 – 4 below.
- + Ready-to-use hospital disinfectant
- + Virucidal\*\*
- + The answer to your disinfecting needs
- + The quick - and/or - easy - and/or - convenient way to disinfect
- + This product reduces cross-contamination between treated hard, non-porous surfaces.
- + Use in public - or - common places where bacteria may be of concern on hard, non-porous surfaces
- + Use where reduced cross-contamination between treated hard non-porous surfaces is of Prime importance
- + Kills - or - Effective against H1N1 Swine Influenza virus
- + Kills - or - Effective against Human Coronavirus
- + Kills - or - Effective against Feline Calicivirus
- + Kills – or – Effective against Murine Norovirus
- + Kills – or – Effective against SARS-Cov-2 virus on hard, non-porous surfaces



- + Kills – or - Effective against enveloped and non-enveloped viruses\*\*
- + [0%] [none] [No] [free from] [unnecessary ingredients] [ammonia] [[synthetic] [artificial] fragrance[s]] [fragrance] [dyes][fragrance[s] and dye[s]] [harsh [chemical] residue[s]] [harsh formula] [rinse required] [parabens] [artificial coloring] [mineral oil] [triclosan] [Perchloroethylene] [hydrogen peroxide] [peroxide[s]] [peroxide bleach] [phosphates] [phosphates] [sodium hydroxide] [phthalates]
- + A revolutionary, pH balanced [neutralized] [disinfectant]
- + Multi-purpose [antibacterial] [cleaner] [spray] [disinfectant] on hard, non-porous surfaces
- + Antibacterial [daily] [cleaner] [cleanser] [spray] [disinfectant]
- + [Contains] no [harsh] [harmful] [lingering] [cleaning] chemicals
- + [Easy] [and] [convenient] to use
- + For [daily] [everyday] use
- + For a cleaner, fresher [bathroom] [kitchen] [home] [house] [pet areas], [kennel], [litter box] [nursery]
- + Use without gloves
- + For clean [Cleaning] [Cleansing] and disinfected [disinfecting] hard, non-porous surfaces [in] [homes] [nurseries] [play rooms]
- + For use [Daily use] [[For] [Everyday] use] [Suitable for use] [on] hard, non-porous surface [of] [for] [around] [pacifiers] [teethers] [kid's toys] [baby toys] [baby area[s]] [baby surfaces] [children's [play] area[s]] [kids' [play] area[s]] [kids' surfaces] [pet area[s]] [pet surfaces] [pet toys] [pets] [kitchen area[s]] [kitchens] [[kitchen] countertops] [cutting boards] [food contact surfaces] [highchairs] [refrigerators (exterior surfaces)] [refrigerator shelves (allow to come to room temperature before treating)] [pet [water] bowls] [pet beds] [pet crates] [bathroom areas] [[bathroom] make-up [counters] [vanities]] [tooth brush holders]
- + Great for [daycare] [lavatory] [restaurant] [office] [school] use!
- + Great for [all around] [the] [house] [home] [kitchen] [nursery]
- + [Pre-clean] Spray visibly wet and allow to air-dry. [no rinsing –or- wiping [is] necessary]
- + Leaves a streak-free shine
- + Leaves no harsh [chemical] residue
- + Leaves surfaces shiny
- + No harsh [chemical[s]] [residue] [left] [behind]
- + No harsh chemicals = No need to rinse
- + No [harsh fumes] [accidental whitening]
- + No rinsing [necessary] [required]
- + Non-abrasive formula
- + For [hard, non-porous] surfaces that water won't harm
- + [Clean] [-] [Cleanse] [-] [or] [-] [Disinfect] without rinsing
- + [Targeted] [Complete] [Coverage [and] [Spray]
- + For use around [home] [kitchen] [house] [bathroom]
- + [Use] for [preschool] [daycare] [office] [assisted living] [senior care] kitchens
- + No [harsh] chemical residue [=no rinse] [=no need to rinse] [required]
- + For use on all hard, non-porous [kitchen] surfaces
- + Breaks Down to Saline Solution
- + Tough on Germs\*
- + Use around hard, non-porous Pet water bowls
- + [Destroys 99.9%] [Controls] [Eliminates 99.9%] [Kills] [of] [the] germs\* on hard, non-porous [animal] [pet] [children's] [kid's] [baby] toys
- + [Destroys 99.9%] [Controls] [Eliminates 99.9%] [Kills] [of] [the] germs\* on hard, non-porous [animal] [pet] chew toys

- +Spray on hard, non-porous pet chew toys, no rinse required
- +Destroys 99.9% Controls Eliminates 99.9% Kills of the germs\* found on non-porous chew toys
- +Stop the spread of germs\* between hard, non-porous surfaces, spray on animal chew toys
- +Destroys 99.9% Controls Eliminates 99.9% Kills of germs\*, yet effective enough to use on pet cages crates
- +For use in kennels litter box pet areas
- +Controls stops prevents pet odors from bacteria
- +While it's tough on bacteria, it's gentle on surfaces
- +No harm after pet contact with product
- +Rinse-Free Spray; use on around hard, non-porous highchairs and children's kid's baby toys
- +Breathe Easy: Fragrance Free No Harsh Fumes No Harsh Chemicals
- +Phenol Free
- +Alcohol Free
- +Bleach Free
- +Daily Everyday Surface Cleaner Cleanser & Disinfectant for baby's room
- +For Everyday use on insert use site in the kitchen nursery bathroom house home
- [Baby] Toy Cleaner Cleanser & Disinfectant
- +No Rinse Just Spray & Play No Wipe
- +Destroys 99.9% Controls Eliminates 99.9% Kills of Germs\* Bacteria & Viruses\*\*
- +Destroys 99.9% Controls Eliminates 99.9% Kills of Germs\* Bacteria Viruses\*\* Bacteria & Viruses\*\*
- +No Rinse Required
- +Cleans the mess and kills the germs\*
- +Spray anywhere everywhere on hard, non-porous surfaces In Nursery
- +Kills odor causing bacteria Pet
- +For use in newborn nurseries
- +For use in neonatal nurseries
- +No Dyes
- +Non-porous, Hard Surface Kennel Disinfectant
- +Disinfecting Disinfectant Spray
- +Suitable for use on hard, non-porous surfaces of high chairs, changing tables, baby toys
- +No need to rinse
- +Contains only three simple ingredients water, salt and Hypochlorous acid
- +Contains nothing but water, salt, and Hypochlorous acid
- +Daily surface cleanser
- +Daily Cleanser for Baby's Room
- +No harsh chemical[s] residue left behind
- +Suitable for use as a peroxide alternative

## EMERGING VIRAL PATHOGENS CLAIMS

{These statements for claims against emerging viral pathogens shall not appear on marketed (final print) product labels.}

This product qualifies for emerging viral pathogen claims per the EPA's 'Guidance to Registrants: Process for Making Claims Against Emerging Viral Pathogens not on EPA-Registered Disinfectant Labels' when used in accordance with the appropriate use directions indicated below.

This product meets the criteria to make claims against certain emerging viral pathogens from the following viral categories:

- Enveloped Viruses
- Large, non-enveloped virus

<b>For an emerging viral pathogen that is a/an...</b>	<b>...follow the directions for use for the following organisms on the label (contact time):</b>
Enveloped Virus	Murine Norovirus & Feline Calicivirus
Large, non-enveloped virus	Murine Norovirus & Feline Calicivirus

Aquaox Disinfectant 525 has demonstrated effectiveness against viruses similar to [name of emerging virus] on hard, non-porous surfaces. Therefore, Aquaox Disinfectant 525 can be used against [name of emerging virus] when used in accordance with the directions for use against [name of supporting virus(es)] on hard, non-porous surfaces. Refer to the [CDC or OIE] website at [pathogen-specific website address] for additional information.

[Name of illness/outbreak] is caused by [name of emerging virus]. Aquaox Disinfectant 525 kills similar viruses and therefore can be used against [name of emerging virus] when used in accordance with the directions for use against [name of supporting virus(es)] on hard, non-porous surfaces. Refer to the [CDC or OIE] website at [website address] for additional information."

## GENERAL CLAIMS

- + Convenient
- + Easy to Handle
- + For General Use
- + For use on Bathroom Surfaces
- + For use on Nursery Surfaces
- + For use in Athletic Facilities
- + For use on Athletic Equipment
- + Suitable for HOSPITAL USE
- + Will not Harm Surfaces listed in Tables 1 – 4
- + Will not Harm Hard, Non-Porous Inanimate Environmental Surfaces
- + Will not Harm Titanium-Coated, Medical Grade Stainless Steel

## TABLE ONE: Medical Environments

### USE SITES

- + Ambulances - or - Emergency Medical Transport Vehicles
- + Anesthesia Rooms - or - Areas
- + Assisted Living - or - Full Care Nursing Homes
- + CAT Laboratories
- + Central Service Areas
- + Central Supply Rooms - or - Areas Critical Care Units - or - CCUs
- + Dialysis Clinics
- + Emergency Rooms - or - RS (Registered Sanitarian) Health Care Settings - or Facilities
- + Home Health Care Settings
- + Hospitals
- + Intensive Care Units - or - ICU Laboratories
- + Medical - or - Physician's - or - Doctor's Offices Newborn - or - Neonatal Nurseries
- + Medical Clinics
- + Medical Facilities
- + Nursing - or - Nurses' Stations
- + Orthopedic Clinics
- + Outpatient Clinics
- + Patient Restrooms
- + Patient Rooms
- + Pediatric Examination Rooms - or - Areas
- + Pharmacies
- + Physical Therapy Rooms - or - Areas
- + Radiology - or - X-Ray Rooms - or - Areas
- + Surgery Rooms - or - Operating Rooms - or - ORs

### HARD NON-POROUS SURFACES (Applicable to Surface Materials listed below)

- + Bed pans
- + Exam - or - Examination Table
- + External surfaces of Medical Equipment - or - Medical Equipment surfaces
- + External surfaces of Ultrasound Transducers
- + Gurneys
- + Hard, Non-Porous Environmental Hospital - or - Medical Surfaces
- + Hospital - or - Patient Bed Railings - or - Linings - or - Frames
- + IV Poles
- + Patient Chairs
- + Plastic Mattress Covers
- + Reception Counters - or - Desks - or - Areas
- + Stretchers
- + Wash Basins
- + Wheelchairs

## **TABLE TWO: Dental Environment**

### **USE SITES**

- + Dental Operatory rooms
- + Dental - or - Dentist's Offices

### **HARD NON-POROUS SURFACES** (Applicable to Surface Materials listed below)

- + Dental Countertops
- + Dental Operatory Surfaces
- + Dentist - or - Dental Chairs
- + Hard, Non-Porous Environmental Dental Surfaces
- + Light Lens Covers
- + Reception Counters - or - Desks - or - Areas

### **TABLE THREE: Veterinary Environments**

**Animal Premises:** Remove all animals and feed from the premises, vehicles and enclosures. Remove all litter, droppings and manure from the floors, walls and surfaces of barns, pens, stalls, chutes and other facilities and fixtures occupied or traversed by animals. Empty all troughs, racks and other feeding and watering appliances. Thoroughly clean all surfaces with soap and/or detergent and rinse with water.

Apply **Aquaox Disinfectant** and saturate surfaces with solution for 10 minutes. Immerse all hard, non-porous equipment used in handling and restraining animals as well as forks, shovels and scrapers used for removing litter and manure.

After application, ventilate buildings, coops and other closed spaces. Do not house animals or employ equipment until treatment has been absorbed, set or dried. Thoroughly scrub all treated feed racks, mangers, troughs, automatic feeders, fountains and waterers with soap or detergent and rinse with potable water before reuse.

#### **USE SITES**

- + Animal - or - Pet Grooming Facilities Kennels
- + Animal Housing Facilities
- + Animal Life Science Laboratories
- + Livestock - and/or - Swine - and/or - Poultry Facilities
- + Pet Areas
- + Pet Shops - or - Stores
- + Small Animal Facilities
- + Veterinary - or - Animal Hospitals
- + Veterinary Clinics - or - Facilities
- + Veterinary Offices

#### **HARD NON-POROUS SURFACES** (Applicable to Surface Materials listed below)

- + Animal Equipment Automatic Feeders
- + Cages
- + External surfaces of Veterinary Equipment
- + Feed Racks
- + Fountains
- + Hard, Non-Porous Environmental Veterinary Surfaces
- + Pens
- + Reception Counters - or - Desks - or - Stall Areas
- + Troughs
- + Veterinary Care Surfaces
- + Watering Appliances

## **TABLE FOUR: Miscellaneous / General Environments**

### **USE SITES**

- + Airplanes
- + Blood Banks
- + Boats
- + Bowling Alleys
- + Chillers, allow surface to come to room temperature
- + Churches
- + Colleges
- + Correctional Facilities
- + Cruise Lines
- + Day Care Centers
- + Dormitories
- + Factories
- + Funeral Homes
- + Grocery Stores
- + Gymnasiums - or - Gyms
- + Health Club Facilities
- + Hotels
- + Industrial Facilities
- + Laundromats
- + Laundry Rooms Locker Rooms
- + Manufacturing Facilities
- + Manufacturing Plants - or - Facilities
- + Military Installations
- + Motels
- + Preschool Facilities
- + Public Areas
- + Recreational Centers - or - Facilities
- + Restrooms - or - Restroom Areas
- + School Buses
- + Schools
- + Shelters
- + Shower Rooms
- + Storage Rooms - or - Areas
- + Supermarkets
- + Trains
- + Universities
- + Wineries
- + Yachts



**HARD NON-POROUS SURFACES** (Applicable to Surface Materials listed below)

- + Bath Tubs
- + Bathroom Fixtures
- + Behind and under Counters
- + Behind and under Sinks
- + Booster Chairs
- + Cabinets Ceilings
- + Cellular - or - Wireless - or - Mobile - or - Digital Phones
- + Chairs
- + Computer Keyboards
- + Computer Monitors
- + Counters - or - Countertops
- + Cribs
- + Desks
- + Diaper - or - Infant Changing Tables
- + Diaper Pails
- + Dictating Equipment Surfaces
- + Doorknobs
- + Exterior - or - external Toilet Surfaces
- + Exterior - or - external Urinal Surfaces
- + Faucets
- + Floors
- + Garbage - or - Trash Cans
- + Grocery store - or - Supermarket Carts
- + Hampers
- + Hand Railings
- + Headsets
- + Highchairs
- + Lamps
- + Linoleum
- + Playpens
- + Shelves
- + Showers - or - Shower Stalls
- + Sinks
- + Stall Doors
- + Tables
- + Telephones
- + Tiled Walls
- + Toilet Rims
- + Toilet Seats
- + Towel Dispensers
- + Toys
- + Vanity tops - or - Vanities
- + Other Telecommunications Equipment Surfaces

## **SURFACE MATERIALS**

- + Baked enamel
- + Chrome
- + Common Hard, Non-Porous Household - or - Environmental Surfaces
- + Formica
- + Glass
- + Glazed Ceramic Tile
- + Glazed Porcelain
- + Glazed Porcelain Enamel
- + Laminated Surfaces
- + Plastic Laminate
- + Similar Hard, Non-Porous Surfaces except those excluded by the Label
- + Stainless Steel
- + Synthetic Marble
- + Vinyl Tile

## **Not Recommended For Use On - or - Avoid Contact With**

- + Aluminum Brass
- + Chipped Enamel
- + Clear Plastic
- + Clothes
- + Copper
- + Fabrics
- + Gold
- + Natural Marble
- + Natural Rubber
- + Painted Surfaces
- + Paper Surfaces
- + Sealed Granite
- + Silver
- + Unfinished Wood
- + Wood

## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

**Storage:** Store this product in its original sealed container at room temperature, away from direct sunlight and heat to avoid deterioration.

**Disposal:** Pesticide wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environment Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

### Container Handling:

For plastic containers less than or equal to 5 gallons:

Nonrefillable container. Do not reuse or refill this container except *as allowed in the directions for use*. Offer for recycling if available or dispose of in a sanitary landfill.

For plastic containers greater than 5 gallons:

Refillable container. Refill this container with Aquaox Disinfectant only. Do not reuse this container for any other purpose. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean the container before final disposal, Full the container  $\frac{1}{4}$  with water and recap. Shake for 10 seconds. Pour rinsate contents into sewer.



U.S. ENVIRONMENTAL PROTECTION AGENCY  
 Office of Pesticide Programs  
 Antimicrobials Division (7510P)  
 1200 Pennsylvania Ave., N.W.  
 Washington, D.C. 20460

EPA Reg. Number:

93392-3

Date of Issuance:

8/10/23

NOTICE OF PESTICIDE:

Registration  
 Reregistration  
 (under FIFRA, as amended)

Term of Issuance:

Unconditional

Name of Pesticide Product:

Aquaox Disinfectant 1650

Name and Address of Registrant (include ZIP Code):

Brian Hogan  
 Agent for  
 Aquaox LLC  
 17355 Hamlin Blvd  
 Loxahatchee, FL 33470  
 Electronic Transmittal: [brianhogan330@gmail.com]

**Note:** Changes in labeling differing in substance from that accepted in connection with this registration must be submitted to and accepted by the Antimicrobials Division prior to use of the label in commerce. In any correspondence on this product always refer to the above EPA registration number.

On the basis of information furnished by the registrant, the above named pesticide is hereby registered under the Federal Insecticide, Fungicide and Rodenticide Act (FIFRA).

Registration is in no way to be construed as an endorsement or recommendation of this product by the Agency. In order to protect health and the environment, the Administrator, on his motion, may at any time suspend or cancel the registration of a pesticide in accordance with the Act. The acceptance of any name in connection with the registration of a product under this Act is not to be construed as giving the registrant a right to exclusive use of the name or to its use if it has been covered by others.

This product is unconditionally registered in accordance with FIFRA section 3(c)(5) provided that you:

1. Submit and/or cite all data required for registration/reregistration/registration review of your product when the Agency requires all registrants of similar products to submit such data.

Signature of Approving Official

Demson Fuller, Product Manager Team 32  
 Regulatory Management Branch 1  
 Antimicrobials Division (7510P)

Date:

8/10/23

2. Make the following label changes before you release the product for shipment:
  - Revise the EPA Registration Number to read, “EPA Reg. No. 93392-3.”
3. Submit one copy of the revised final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company’s website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. See FIFRA section 2(p)(2). If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product’s label, claims made on the website may not substantially differ from those claims approved through the registration process, FIFRA section 12(a)(1)(B). Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA’s Office of Enforcement and Assurance.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 12/16/2022

If you have any questions, please contact Jack Hall by phone at (202)566-0731, or via email at [hall.john.j@epa.gov](mailto:hall.john.j@epa.gov)

Sincerely,



Demson Fuller, Product Manager 32  
Regulatory Management Branch I  
Antimicrobials Division (7510P)  
Office of Pesticide Programs

Enclosure

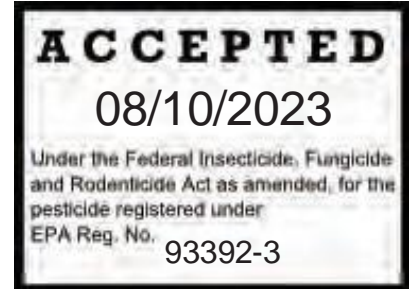
Throughout the label { } used for Notes to Reviewer [ ] used for optional text and ( ) is used for required clarifications and acronyms.

# Aquaox Disinfectant 1650

[Alternate Brand Names: Aquaox Difficile 5min]

Ready to Use Disinfectant for Hard Non-Porous Surfaces

For Institutional, Commercial and Household Use



**Active Ingredient:**

Hypochlorous Acid..... 0.165%

**Other Ingredients**.....99.835%

**Total:** ..... 100.000%

[Contains 2250 ppm Free Available Chlorine (FAC)]

**KEEP OUT OF REACH OF CHILDREN**

NET CONTENTS: \_\_\_\_\_

EPA Est. No. 93392-G  
EPA Est. No. XXXXX-XX-X

**Manufactured by:**

AQUAOX LLC  
17355 Hamlin Boulevard  
Loxahatchee, Florida 33470  
Phone No.: 800-790-7520  
Email: info@aquaox.net

Date produced: \_\_\_\_\_

Aquaox Disinfectant 1650 must be used within 30 days of production or tested with a chlorine test strip. Do not use product when chlorine concentration is below 1490 ppm.

**Aquaox Disinfectant 1650** is a Hypochlorous Acid solution produced by passing an aqueous saline solution (brine) through 1 or more electrolytic cells. The current within the electrolytic cell(s) splits the sodium chloride compound into two separate fluids. One fluid is Hypochlorous Acid, a powerful oxidizing agent exhibiting antimicrobial properties.

**Aquaox Disinfectant 1650** is produced at a near neutral pH, (approximately pH 6.5) where the predominant antimicrobial agent is Hypochlorous Acid, an efficient and efficacious species of chlorine. Hypochlorous Acid kills bacteria, fungi, molds, viruses and spores.

**Aquaox Disinfectant 1650** properties are closely controlled by controlling the voltage and the current to the electrolytic cell(s), brine conductivity, temperature and flow rate through the cells as well as the pH of the Hypochlorous Acid generated in the cell(s).

**Aquaox Disinfectant 1650** freezes at 32°F and boils at 212°F. It is a colorless and aqueous solution with a slight chlorine or ozone odor.

After production, **Aquaox Disinfectant 1650** must be stored in a closed plastic container in a cool and dark area away from direct sunlight.

**Aquaox Disinfectant 1650** is intended to be used soon after being produced.

## PRECAUTIONARY STATEMENTS

**Physical or Chemical Hazards:** Do not mix Aquaox Disinfectant 1650 with other chemicals such as other household or industrial chemicals such as toilet bowl cleaners, rust removers, acids, strong bases, or products containing ammonia.

[Prolonged contact with metal may cause pitting or discoloration.] [Wiping metal surfaces, after drying, with a clean water-dampened soft cloth helps ensure best protection from pitting or discoloration.]

## DIRECTIONS FOR USE

It is a violation of the federal law to use this product in a manner inconsistent with its labeling.

**To Clean, Disinfect, and Deodorize Hard, Non-Porous Surfaces and/or Floors:** Visibly soiled areas must be pre-cleaned prior to application. Spray onto surfaces and allow to remain visibly wet for 1 minute. Then air dry or wipe dry. Rinse or wipe dry on metal surfaces.

### Trigger bottle:

Follow the instructions below when applying Aquaox Disinfectant 1650 with a trigger bottle for hard, non-porous surface disinfection.

To Refill: Remove Trigger sprayer. Empty container. Pour in **Aquaox Disinfectant 1650** from refill container and attach Trigger sprayer.

To Operate: Turn nozzle to ["ON"] [desired] position

To Spray: Target to be disinfected area and pull trigger to spray **Aquaox Disinfectant 1650** on surface.

## Spray Applicator

Follow the instructions below when applying with a spray applicator for hard, non-porous surface disinfection: (1) Remove disinfectant liquid at or over 1-week-old from the liquid storage tank; (2) Fill the empty liquid storage tank with fresh **Aquaox Disinfectant 1650** liquid; (3) Turn on the power on the main electrical switch; (4) Pull out the spray gun and point towards the target area to be sprayed; (5) Press the sprayer button and start spraying at a recommended distance of between 1½ – 4 ft. from the target area; (6) When applying to a large, hard, non-porous surface, use a recommended motion of a 3-ft., side-by-side motion. Allow an overlap of 50% of the sprayed area when spraying from the top to the bottom, and an overlap of 10% when spraying adjacent areas; (7) Sprayed surfaces must remain visibly wet for 10 minutes. Allow surfaces to air dry. Do not use on utensils, glasses or dishes.

This product is not to be used as a terminal sterilant / high level disinfectant on any surface or instrument that (1) is introduced directly into the human body, or (2) contacts intact mucous membranes but which does not ordinarily penetrate the blood barrier or otherwise enter normally sterile areas of the body. This product may be used to pre-clean or decontaminate critical or semi-critical devices prior to sterilization or high-level disinfection.

### \* Microorganism Table

Target Pathogens for Disinfection	Strain	Contact Time
Staphylococcus aureus	ATCC 6538	1 Minute
Pseudomonas aeruginosa	ATCC 15442	1 Minute
† Rhinovirus 16	ATCC VR-283	1 Minute

**To Clean and Deodorize Toilet Bowls and/or Urinals and/or Bidets above the water line:** Remove visible soil prior to disinfection. Empty toilet bowl or urinal and liberally spray to exposed surfaces including under the rim until the surface is thoroughly wet. Brush or swab all surfaces thoroughly. Treated surfaces must remain visibly wet for at least 1 minute before flushing again. Allow to air dry.

**To Clean and Disinfect Hard, Non-Porous Surfaces in Veterinary / Animal Facilities and Kennels:** Remove all litter, droppings, and manure from walls, floors, and surfaces or facilities occupied or traversed by animals. Empty all feeding and watering equipment. Remove visible debris from surfaces before applying this product. Spray onto the surface until thoroughly wet. Allow surfaces to remain visibly wet for 1 minute. Rinse or wipe dry on metal surfaces.

**Refilling Spray Bottle:** Refill this container with Aquaox Disinfectant 1650 only. Do not reuse this container for any other purpose. Twist spray cap counter-clockwise. Clean container promptly after emptying. Refill the bottle with the amount of solution intended for use. Store remainder in the pouch in a cool, dark place. Replace cap by twisting clockwise to tighten spray head on the bottle.

## USE SITES

### Hard, Non-porous Use Sites: General

- Agricultural facilities
- Agriculture Facility[s]
- Airplanes
- Airports
- Animal [Cages] [Equipment]
- Animal [Feed Rack]
- Animal [Utensils] [Instruments]
- Apartments
- Arcades
- Automobiles



- Bars, breweries, distilleries
- Basements
- Bathroom facilities
- Bed rail, frame, headboard, footboard
- Beverage shops
- Bidet
- Blood Banks
- Boats
- Booster seat
- Bowling Alleys
- Bus
- Businesses
- Cafeteria[s]
- Call Centers
- Campers
- Cars
- Carts
- Catteries
- Chair
- Churches or Religious Facilities
- Coffee shops
- Coliseums
- Colleges and Universities
- Colleges
- Commercial buildings
- Condominiums
- Construction Site
- Convention Center
- Convenience stores
- Cooler (exterior surfaces)
- Counter Tops
- Cribs
- Cruise Liners or Ships
- Day care center or Schools
- Delicatessens
- Desk
- Dishes
- Doorknob
- Facilities
- Faucet
- Fish Cleaning Station and equipment
- Fitness centers
- Fitness facilities
- Floors
- Food processing facilities
- Food service facilities
- Food serving areas
- Glassware
- Grocery stores
- Medical Gurneys
- Hamper
- Handrails
- Homes
- Hospitals, health clinics, physician offices, dental offices, chiropractic offices, acupuncture facilities
- Hotels, Motels, bed-and-breakfasts, hostels
- Indoor playgrounds
- Industrial and commercial facilities
- Kennels
- Laboratories
- Light Switches
- Locker rooms
- Meeting Rooms
- Microwave Surface
- Nursing Homes
- Office buildings
- Oven Surface (room temperature)
- Parks
- Pet Care Facilities
- Pharmaceutical and medical device-producing establishments
- Physical therapy facilities
- Police and fire stations
- Prisons and correctional facilities
- Public restrooms
- Recreational Centers -or- Facilities
- Recreational facilities
- Refrigerator (exterior surfaces)
- Rehabilitation facilities
- Restaurants
- Restrooms -or- Bathroom Areas
- Retail and wholesale establishments
- Schools
- Seafood warehousing and/or fisheries]
- Shelf
- Showers and Shower Curtains
- Ships
- Shops
- Sinks
- Stables
- Storage areas
- Subway, Tram, Metro-line Equipment
- Tables
- Tackle Boxes

- Toilet (Exterior Surfaces)
- Trains
- Transit facilities
- Truck Cabs
- Trucks
- Urinal
- Vanity top

- Vehicles
- Veterinary clinics and animal hospitals
- Vinyl Tile
- Water Drinking fountain
- Wheelchair
- Yachts

### **Hard, Non-porous Use Sites: Medical/Dental**

- Blood, Plasma, Semen, Bone Marrow, Milk, Apheresis Donation Centers
- [Eye] Examination Rooms – or – Areas
- [Eye] Surgical Centers
- Ambulances or Emergency Medical Transport Vehicles
- Ambulatory Surgery Centers
- Anesthesia Rooms or Areas
- Assisted Living or Full Care Nursing or Retirement Homes or Convalescent Centers
- CAT Laboratories Central Service Areas
- Central Supply Rooms or Areas Hoods
- Chiropractic Office Clinics
- Critical Care Units or CCUs
- Dental or Dentist's Offices
- Dental countertops
- Dental Facilities
- Dental operatory surfaces
- Dentist or dental chairs Hard, non-porous environmental dental surfaces
- Dialysis Clinics
- Emergency Rooms or Examination Rooms
- Examination or Exam Rooms or Areas
- Health Care Settings or Facilities
- High Touch Surfaces
- Home Health Care Settings
- Hospices
- Hospitals
- Intensive Care Units
- Isolation Areas or Rooms
- Laboratories
- Medical Clinics, Medical Facilities Medical or Physician's Offices
- Neonatal Intensive Care Units [(NICU)] Newborn – or – Neonatal Nurseries
- Nursing or Nurses' Stations
- Ophthalmic Offices
- Optometry Offices
- Orthopedics
- Outpatient Clinics
- Outpatient Surgical Centers
- Patient Care Areas
- Patient Restrooms
- Patient Rooms
- Pediatric Intensive Care Units
- Pharmacies
- Physical Therapy Rooms or Areas
- Physicians' Offices
- Medical or Surgical Procedure Rooms
- Radiology or X-Ray Rooms or Areas
- Reception counters or desks or areas
- Recovery Rooms
- Rehabilitation Therapy Facilities
- Surgery Rooms
- Transport Vehicles X-Ray Rooms

### **Hard, Non-porous Use Sites: Veterinarian**

- Coops
- Zoo Facilities

- [Aviaries

- Amphibian Areas
- Animal or Pet Grooming Facilities
- Animal equipment automatic feeders

- Animal Housing Facilities
- Animal Life Science Laboratories
- Aquariums
- Cages External surfaces of veterinary equipment
- Feed Lots
- Fountains
- Hard, non-porous environmental veterinary surfaces
- High Touch Surfaces
- Kennels
- Livestock, Swine, Equine, Poultry Facilities
- Pet Areas, Pens
- Pet Hotels or Motels
- Pet Shops or Stores
- Reception areas
- Small Animal Facilities
- Stalls
- Toys, non-porous
- Troughs
- Veterinary care surfaces
- Veterinary Clinics, Facilities, animal hospitals
- Watering appliances

### **Hard, Non-porous Use Sites: Athletic Facilities**

- Bands
- Benches
- Climbing Walls
- Door Handles
- Elliptical
- Exercise Balls or Medicine Balls
- Exercise Bike
- Exercise Equipment
- Gymnastics Mats
- Helmets
- High Touch Surfaces
- Jump Ropes
- Locker Rooms
- Massage Tables
- Mats
- Personal Storage or Cubbies
- Pool
- Protective Gear
- Pylo Boxes
- Reception counters and desks
- Row Machine (handles and seats)
- Sauna
- Stair Machine
- Steam Room
- Storage Bins
- Treadmill
- Weight Plates
- Wrestling Mats
- Yoga Blocks

### **Hard, Non-porous Use Sites: School or Childcare Facility**

- Baby toys
- Break Rooms
- Chairs
- Children's Play Table and Chairs
- Children's Wading Pool
- Cribs
- Desks
- Diaper or infant changing tables and

Diaper pail

- Dining Rooms/Halls
- Drinking Fountains
- Exam Examination Tables
- Garbage and trash cans
- High Touch Surfaces
- Highchair Trays
- Highchairs
- Medical Surfaces
- Nurse office

- Offices and Reception counters and desks
- Patient Care Areas
- Patient Restrooms Patient Rooms
- Pencil boxes
- Personal Storage or Cubbies
- Play Sets
- Playpens
- Playpens and Play Sets
- Potty Chairs

- Recovery Rooms
- Riding Toys
- Sinks
- Stroller handles and Trays
- Student and Patient Areas Rooms
- Tables
- Tiled walls
- Toilet rims
- Toilet seats
- Toys

## **USE SURFACES**

- Sealed Enamel
- Formica
- Glass
- Glazed porcelain
- Glazed tile
- Laminated Surfaces
- Linoleum
- Synthetic Marble
- Vinyl

- Mirrors
- Non-porous plastic
- Polyacrylic
- Polycarbonate
- Sealed stone surface
- Sealed Tile

Before using on metal or unsealed stone surfaces, test in an inconspicuous place for color washout or contact incompatibility.

## EMERGING VIRAL PATHOGENS CLAIMS

{Note to Reviewer: These statements for claims against emerging viral pathogens shall not appear on marketed (final print) product labels.}

This product qualifies for emerging viral pathogen claims per the EPA's 'Guidance to Registrants: Process for Making Claims Against Emerging Viral Pathogens not on EPA-Registered Disinfectant Labels' when used in accordance with the appropriate use directions indicated below.

This Product meets the criteria to make claims against certain emerging viral pathogens from the following viral categories:

- Enveloped Viruses
- Large Non-Enveloped Viruses

For an emerging viral pathogen that is a/an...	...follow the directions for use for the following organisms on the label:
Enveloped Virus	Rhinovirus 16
Large, non-enveloped virus	Rhinovirus 16

Aquaox Disinfectant 1650 has demonstrated effectiveness against viruses similar to [name of emerging virus] on hard, nonporous surfaces. Therefore, Aquaox Disinfectant 1650 can be used against [name of emerging virus] when used in accordance with the directions for use against Rhinovirus 16 on hard, non-porous surfaces.

Refer to the [CDC or OIE] website at [pathogen-specific website address] for additional information. [Name of illness/outbreak] is caused by [name of emerging virus]. Aquaox Disinfectant 1650 kills similar viruses and therefore can be used against [name of emerging virus] when used in accordance with the directions for use against Rhinovirus 16 on hard, non-porous surfaces. Refer to the [CDC or OIE] website at [website address] for additional information.

## MARKETING CLAIMS

- Directions: Spray on cleaned surfaces and allow to air dry
- No wiping needed
- See attached insert for directions for use, storage and disposal statements.
- a cost-effective disinfecting solution;
- produced with low energy and low costs from water and salt;
- produced in a single-stage process by a simple electrolytic cell;
- produced for use in medical, institutional, industrial and commercial applications and
- produced with a controlled pH and controlled concentration of Free Available Chlorine (FAC).

- Aquaox Disinfectant 1650 leaves no residue.
- Aquaox Disinfectant 1650 is made from salt and water.
- Aquaox Disinfectant 1650 will eventually degrade back to salt and water.
- 3 in 1 Formula (cleaner, deodorizer and disinfectant)
- A mild, non-irritating way to clean
- Active ingredient, hypochlorous acid (HOCl), derived from naturally occurring salt minerals and water
- Aids in the reduction of cross-contamination between treated surfaces
- Assures proper strength, product effectiveness and standardizes technique
- Bactericide or Bactericidal; Germicide\*; Germicidal\*
- Alcohol Free
- Athletic Facility Disinfectant
- Bathroom Disinfectant
- Bleach free
- Broad spectrum disinfectant
- Broad Spectrum Disinfectant + One-Step Cleaner / Disinfectant when Disinfection Directions are followed
- [Eliminates] [removes] Odors
- Non-greasy [formula]
- Cleans and Disinfects Hard, Non-Porous Surfaces
- Cleans quickly
- Cleans, Deodorizes and Disinfects



- Consumer Disinfectant
- Commercial Disinfectant
- Cruise Line Disinfectant
- Deodorizes by Killing Odor-Causing Bacteria
- Disinfectant to go
- Disinfecting formula
- Disinfects [common] hard, non-porous household surfaces
- Disinfects and Cleans
- Disinfects and Deodorizes by Killing Bacteria and their Odors
- Disinfects and deodorizes by killing bacteria and their odors
- Easy and Convenient Disinfecting
- Easy One-Step Cleaning and Disinfecting when Disinfection Directions are followed
- Effective against - or - Kills Organisms mentioned in Microorganism Table
- Effectively Disinfects Hard, Non-Porous, Environmental Surfaces
- Eliminates - or - Reduces Odors caused by Bacteria + Eliminates odors at their source; bacteria + Disinfects Hard Surfaces
- Eliminates – or – Removes [smoke] [urine] [feces] [fish] [foul] [body] odors
- Eliminates – or – Removes food odors
- Eliminates – or – Removes pet odors [like urine – and/or – feces – and/or – vomit – and/or – “wet dog” smell]
- Eliminates odors at their source; bacteria
- Kill[s] - and/or - Effective against Pseudomonas aeruginosa
- Kill[s] - and/or - Effective against Rhinovirus
- Kill[s] - and/or - Effective against Staphylococcus aureus
- For daily use [disinfection]
- For use in {insert one or more of the Use Sites listed on the label}
- For use in {list any use site[s]} [applications] [environment]
- For use in kennels, litter box, pet areas
- For use on high touch surfaces
- Fragrance free [formula] [will not irritate your [dog's] [pet's] nose]
- Freight Disinfectant
- Fresh clean scent
- Hospital Disinfectant
- Hypochlorous Acid [(HOCl)] Solution
- Industrial Disinfectant
- Janitorial [Jan-San] Disinfectant
- Kills – or – Effective against pathogens\*
- Kills bacteria
- Kills common household bacteria\* – and/or – viruses†
- Kills common bacteria\*
- Kills odor-causing bacteria
- Kitchen disinfectant
- Leaves no [sticky] [greasy] [flammable] [harmful] [harsh] [chemical] residual – or – residue [on surfaces] [after evaporation]
- Made in the USA {may include graphic of American flag}
- Multi-Purpose Cleaner, Disinfectant and Deodorizer
- No harsh chemicals, residue, left, behind
- No harsh fumes to irritate [children]

- No harsh fumes to irritate [pet] [dog]
- No mixing required
- No rinse formula
- No rinsing required
- No wiping required
- No worries about pet licking after cleaning
- Non-irritating to the skin
- Non-sticky [formula]
- Nursery Disinfectant
- One-Step Cleaner and Disinfectant (when Disinfection Directions are followed) designed for General Cleaning and Disinfecting Hard, Non-Porous Environmental Surfaces in Health Care Facilities
- Phenol free [formula]
- Public Transportation Disinfectant
- Contains no quaternary ammonium compounds
- Ready-to-use [cruise line] [daycare] [dental] [hospital] [household] [institutional] [residential] [veterinarian] disinfectant
- Ready-to-Use Hospital Disinfectant
- Residential Disinfectant
- Retail Disinfectant
- Rinse free spray, formula
- The simple solution for a clean[er] home
- The smell of clean
- This Product was tested using the AOAC Test Methods
- Use for a [fresh] [home] [environment] [kitchen]
- Use in Public - or - Common Places where Bacteria may be of concern on Hard, Non-Porous Surfaces
- Use in Public - or - Common Places where Bacteria may be of concern on Hard, Non-Porous Surfaces
- Use where Control of the Cross-Contamination between Treated Hard Nonporous Surfaces is of Importance
- Use where Control of the Hazards of Cross-Contamination between Treated Hard Non-Porous Surfaces is of Importance
- Use without gloves
- Veterinarian Disinfectant
- Veterinarian Disinfectant
- Virucide† – or – Virucidal†
- VOC free [formula]
- Worry free use in [kennels] [litter box] [pet areas] [baby rooms] [nurseries]
- Germicide\*

OPTIONAL GRAPHICS



## STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

**Storage:** Store this product in its original sealed container at room temperature or cool place away from direct sunlight and heat.

**Disposal:** Pesticide wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. Improper disposal of excess pesticide, spray mixture or rinsate is a violation of Federal Law. If these wastes cannot be disposed of by use according to label instructions, contact your State Pesticide or Environment Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

### Container Handling:

{Use This Language for Pouches}

Nonrefillable container. Do not reuse or refill this container. Offer for recycling, if available.

{Use This Language for Spray Bottles}

Refillable container. Refill this container with Aquaox Disinfectant 1650 only. Follow refilling instructions provided in the Directions for Use. Cleaning the container before final disposal is the responsibility of the person disposing of the container. Cleaning before refilling is the responsibility of the refiller. To clean container, rinse thoroughly with water.

## WARRANTY

Aquaox LLC warrants that this product conforms to the product specification on this label and is reasonably fit for the purposes set forth in the Directions for Use. TO THE EXTENT CONSISTENT WITH APPLICABLE LAW, NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTY OF FITNESS FOR PARTICULAR PURPOSE OR MERCHANTABILITY IS MADE

3. Make the following label changes before you release the product for shipment:
  - Revise the EPA Registration Number to read, "EPA Reg. No. 95292-1."
4. Submit one copy of the revised final printed label for the record before you release the product for shipment.

Should you wish to add/retain a reference to the company's website on your label, then please be aware that the website becomes labeling under FIFRA and is subject to review by the Agency. See FIFRA section 2(p)(2). If the website is false or misleading, the product would be misbranded and unlawful to sell or distribute under FIFRA section 12(a)(1)(E). 40 CFR 156.10(a)(5) lists examples of statements EPA may consider false or misleading. In addition, regardless of whether a website is referenced on your product's label, claims made on the website may not substantially differ from those claims approved through the registration process, FIFRA section 12(a)(1)(B). Therefore, should the Agency find or if it is brought to our attention that a website contains false or misleading statements or claims substantially differing from the EPA approved registration, the website will be referred to the EPA's Office of Enforcement and Assurance.

If these conditions are not complied with, the registration will be subject to cancellation in accordance with FIFRA section 6. Your release for shipment of the product constitutes acceptance of these conditions. A stamped copy of the label is enclosed for your records. Please also note that the record for this product currently contains the following CSFs:

- Basic CSF dated 12/28/2021

If you have any questions, please contact Wanda Henson by phone at (202) 566-0650, or via email at [henson.wanda@epa.gov](mailto:henson.wanda@epa.gov)

Sincerely,



Demson Fuller, Product Manager 32  
Regulatory Management Branch I  
Antimicrobials Division (7510P)  
Office of Pesticide Program

Enclosure



**AQUAOX™ Disinfectant & Cleaner Safety Data Sheets**





## Safety Data Sheet

# AQUAOX™ CLEANER 112

### SECTION I – IDENTIFICATION

Product Name: AQUAOX™ Cleaner 112 | Product Number: AX112  
Product Description: 0.02% Sodium Hydroxide Solution generated Electro-Chemically from Diluted Brine  
Container: 2 oz 4 oz 16 oz 1 gallon 15 gallon 55 gallon 330 gallon  
3.5 oz 8 oz 32 oz 5 gallon 30 gallon 275 gallon 660 gallon  
CAS Number: None (Mixture)  
Recommended Use: This product is a ready-to-use, all-purpose surface cleaner for removing grease and oil deposits.  
Restricted Use: This product is not for human or animal use.

Manufacturer: AQUAOX™ LLC  
Address: 17355 Hamlin Blvd., Loxahatchee, Florida, 33470 USA  
Number: (800) 790-7520  
Chemtrec Emergency Number: (800)-424-9300

### SECTION II – HAZARDS IDENTIFICATION

The following values are obtained using the guidelines prepared by the National Fire Protection Association (NFPA) and the American Coatings Association.

<u>HMIS Rating:</u>	<u>NFPA/HMIS Definitions</u>
• Health = 0	0 = Minimal Hazard
• Flammability = 0	1 = Slight Hazard
• Physical = 0	2 = Moderate Hazard
• Reactivity = 0	3 = Serious Hazard
	4 = Severe Hazard

#### Hazard Information Disclosures:

TSCA: All chemicals in this product are listed on the EPA TSCA inventory list.  
CERCLA / SARA: This product does not fall under any hazardous categories under SARA Sections 311 and 312.  
OSHA: This product is not a hazardous chemical as defined by the OSHA Hazard Communication Standard, 29 CFR § 1910.1200.

#### Product Label on Hazard Information:

- Keep out of Reach of Children

### SECTION III – COMPOSITION AND INFORMATION ON INGREDIENTS

<u>Component(s)</u>	<u>CAS #</u>
Water	7732-18-5
Sodium Hydroxide	1310-73-2
Sodium Chloride	7647-14-5

The product contains a maximum of 200 ppm (0.02%) disassociated Sodium Hydroxide (NaOH). Sodium Hydroxide is considered GRAS (Generally Recognized as Safe) under 21 CFR §184.1763.

# Safety Data Sheet

## AQUAOX™ CLEANER 112

### SECTION IV – FIRST-AID MEASURES

Not Applicable. This product has no precautionary First-Aid measurements.

### SECTION V – FIRE-FIGHTING MEASURES

Not Applicable, this product is Non-Flammable and Non-Explosive. No extinguishing techniques or equipment are required.

### SECTION VI – ACCIDENTAL RELEASE MEASURES

In case of spill or leakages, dike spill with inert absorbent materials (e.g. sand, “oil-dry” or other commercially spill absorbents) to contain and soak spilled liquid. Place wastes into an appropriate waste disposal container. If necessary, neutralize the residue with a dilute solution of acetic acid.

### SECTION VII – HANDLING AND STORAGE

Handling: No special handling requirements; follow use instructions on product label. Open air or good room ventilation and appropriate PPE are adequate for the safe use of this product.

Storage: Keep container tightly closed in a dry and well-ventilated place at room temperature. Avoid freezing and extreme heat.

### SECTION VIII – EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA PEL: Unknown.

Cal/OSHA PEL: Unknown.

NIOSH REL: Unknown.

ACGIH TLV: Unknown.

Engineering Control: None Required. Open air or good room ventilation is adequate for the safe use of this product.

#### Personal Protective Equipment (PPE):

Respiratory Protection: Not necessary as long as there is adequate ventilation.

Protective Clothing: Not required under normal conditions of use.

Hand Protection: Not required under normal conditions of use.

Eye Protection: Not required under normal conditions of use.-

### SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Odorless
pH:	11.0 – 12.5
Specific Gravity (H <sub>2</sub> O = 1 at 20°C):	1.00 – 1.06
Density:	8.34 lbs/gal
Viscosity:	Comparable to Water
Boiling Point:	Comparable to Water
Melting Point / Range:	NA
Evaporation Rate:	Comparable to Water
Solubility:	Complete in Water
Flash Point:	NA
Flammability:	Non-Flammable
Explosive Limits:	Non-Explosive
Vapor Pressure (mmHg at 20°C):	NA
Vapor Density:	NA



# Safety Data Sheet

## AQUAOX™ CLEANER 112

### SECTION X – STABILITY AND REACTIVITY

Reactivity:	Not Reactive under recommended handling and storage conditions.
Chemical Stability:	Stable under recommended handling and storage conditions.
Hazardous Reactions:	Product is Not Hazardous.
Conditions to Avoid:	Freezing and extreme heat.
Materials to Avoid	Strong oxidizing agents, strong acids and organic materials.
Hazardous Decomposition Products:	May form under fire conditions; nature of decomposition products is unknown.
Hazardous Polymerization	Will not occur.

### SECTION XI – TOXICOLOGICAL INFORMATION

<u>Route of Entry / Exposure:</u>	Skin Contact
	Eye Contact
	Inhalation
	Ingestion

#### Potential Acute Health Effects:

Skin Contact: No potential health effects; product is non-hazardous.

Eye Contact: No potential health effects; product is non-hazardous.

Inhalation: No potential health effects; product is non-hazardous.

Ingestion: No potential health effects; product is non-hazardous.

#### Potential Chronic Health Effects:

Carcinogenic Effects: Not Applicable.

Mutagenic Effects: Not Applicable.

Teratogenic Effects: Not Applicable.

Developmental: Not Applicable.

Numerical Measures of Toxicity: Unknown.

### SECTION XII – ECOLOGICAL INFORMATION

Product presents no hazards to the environment. Product is bio-degradable and eco-friendly.

### SECTION XIII – DISPOSAL CONSIDERATION

Dispose of unused product; offer surplus and non-recyclable solutions to a licensed disposal company. Follow local ordinance for waste and recycling.

### SECTION XIV – TRANSPORT INFORMATION

DOT: Not DOT regulated. No DOT label required.

IATA: Not dangerous good.

IMDG: Not dangerous good

OSHA: No label required.

NMFL code: 57104

HS code: 3808500

### SECTION XV – REGULATORY INFORMATION

See "Hazard Information Disclosures" under Section II.

# Safety Data Sheet

## AQUAOX™ CLEANER 112

### SECTION XVI – OTHER INFORMATION

Preparation Date of Latest Revision: March 1, 2020

Disclaimer:

This Safety Data Sheet (SDS) was prepared in accordance with the provisions and requirements of 29 CFR § 1910.1200(g) and discloses the physical and health hazards of all hazardous chemicals contained in the product described in this SDS. Unless otherwise noted, this SDS does not describe or disclose all of the chemicals/components in the product, some of which may be Trade Secrets.

The information included in this SDS is based on data developed or compiled by AQUAOX™ from open literature, independent laboratory studies, and other available scientific evidence, and is believed to be accurate and complete to the best of our knowledge. However, AQUAOX™ makes no warranty with respect thereto. Anyone intending to use the product described in this SDS should satisfy herself that the Product (1) is suitable for their particular purposes and intended uses, and (2) meets any safety and health standards applicable thereto. It is the obligation of each user of the product described in this SDS to determine and comply with all statutes, local, state and federal requirements, which are applicable to its use, storage and disposal.

Abbreviations:

ACGIH:	American Conference of Industrial Hygienists
CAL/OSHA:	California Division of Occupational Safety and Health
CAS Number:	Chemical Abstracts Service Register Number
CERCLA:	Comprehensive Environmental Response Compensation and Liability Act
DOT:	Department of Transportation
EPA:	Environmental Protection Agency
GRAS:	Generally Recognized as Safe
HMIS:	Hazardous Materials Identification System
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods
NA:	Not Applicable
NIOSH:	National Institute for Occupational Safety and Health
OSHA:	Occupational Safety and Health Administration
PEL:	Permissible Exposure Limits
REL:	Recommended Exposure Limits
SARA:	Superfund Amendment and Reauthorization Act of 1986
TLV:	Threshold Limit Values
TSCA:	Toxic Substances Control Act of 1976



## Safety Data Sheet AQUAOX™ Disinfectant 275

### SECTION I – IDENTIFICATION

Product Name: AQUAOX™ Disinfectant 275 | Product Number: AX 275  
 Product Description: Hypochlorous Acid Solution Generated Electro-Chemically from Diluted Brine  
 Container Size: 2 oz 4 oz 16 oz 1 gallon 15 gallon 55 gallon 330 gallon  
                           3.5 oz 8 oz 32 oz 5 gallon 30 gallon 275 gallon 660 gallon  
 CAS Number: None (Mixture)  
 Recommended Use: This product is a ready-to-use, one-step cleaner and disinfectant for general cleaning and disinfecting on non-porous surfaces.  
 Restricted Use: This product is not for human or animal use.  
 Manufacturer: AQUAOX™ LLC  
 Address: 17355 Hamlin Blvd., Loxahatchee, Florida 33470, USA  
 Number: (800) 790-7520  
 Chemtrec Emergency Number: (800)-424-9300

### SECTION II – HAZARDS IDENTIFICATION

The following values are obtained using the guidelines prepared by the National Fire Protection Association (NFPA) and the American Coatings Association.

<u>HMIS Rating:</u>	<u>NFPA/HMIS Definitions</u>
• Health = 0	0 = Minimal Hazard
• Flammability = 0	1 = Slight Hazard
• Physical = 0	2 = Moderate Hazard
• Reactivity = 0	3 = Serious Hazard
	4 = Severe Hazard

Hazard Information Disclosures:

TSCA: All chemicals in this product are listed on the EPA TSCA inventory list.  
 CERCLA / SARA: This product does not fall under any hazardous categories under SARA Sections 311 and 312.  
 OSHA: This product is not a hazardous chemical as defined by the OSHA Hazard Communication Standard, 29 CFR § 1910.1200.

Product Label on Hazard Information:

- Keep out of Reach of Children

### SECTION III – COMPOSITION AND INFORMATION ON INGREDIENTS

Component(s)	CAS #
Water	7732-18-5
Hypochlorous Acid	7790-92-3
Hypochlorite Ion	7681-52-9
Sodium Chloride	7647-14-5

The product contains approximately 300 ppm free available chlorine (FAC).

# Safety Data Sheet

## AQUAOX™ Disinfectant 275

### SECTION IV – FIRST-AID MEASURES

Not Applicable. This product has no precautionary First-Aid measurements.

### SECTION V – FIRE-FIGHTING MEASURES

Not Applicable. This product is Non-Flammable and Non-Explosive. No extinguishing techniques or equipment are required.

### SECTION VI – ACCIDENTAL RELEASE MEASURES

In case of spill or leakages, dike spill with inert absorbent materials (e.g. sand, "oil-dry" or other commercially spill absorbents) to contain and soak spilled liquid. Place wastes into an appropriate waste disposal container.

### SECTION VII – HANDLING AND STORAGE

Handling: No special handling requirements; follow use instructions on product label. Open air or good room ventilation and appropriate PPE are adequate for the safe use of this product.

Storage: Keep container tightly closed in a dry and well-ventilated place at room temperature. Avoid direct light exposure, freezing and extreme heat.

### SECTION VIII – EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA PEL: Unknown.

Cal/OSHA PEL: Unknown.

NIOSH REL: Unknown.

ACGIH TLV: Unknown.

Engineering Control: None Required. Open air or good room ventilation is adequate for the safe use of this product.

#### Personal Protective Equipment (PPE):

Respiratory Protection: Not necessary as long as there is adequate ventilation.

Protective Clothing: Not required under normal conditions of use.

Hand Protection: Not required under normal conditions of use.

Eye Protection: Not necessary under normal conditions of use.

### SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Slight Chlorine Odor
pH:	6.2 – 7.0
Specific Gravity (H <sub>2</sub> O = 1 at 20°C):	1.00 – 1.06
Density:	8.34 lbs/gal
Viscosity:	Comparable to Water
Boiling Point:	Comparable to Water
Melting Point / Range:	NA
Evaporation Rate:	Comparable to Water
Solubility:	Complete in Water
Flash Point:	NA
Flammability:	Non-Flammable

# Safety Data Sheet

## AQUAOX™ Disinfectant 275

Explosive Limits: Non-Explosive  
Vapor Pressure (mmHg at 20°C): NA  
Vapor Density: NA

### SECTION X – STABILITY AND REACTIVITY

Reactivity: Not Reactive under recommended handling and storage conditions.  
Chemical Stability: Stable under recommended handling and storage conditions.  
Hazardous Reactions: Product is Not Hazardous.  
Conditions to Avoid: Direct light exposure, freezing and extreme heat.  
Materials to Avoid: Strong oxidizing agents, strong acids and organic materials.  
Hazardous Decomposition Products: May form under fire conditions; nature of decomposition products is unknown.  
Hazardous Polymerization: Will not occur.

### SECTION XI – TOXICOLOGICAL INFORMATION

Route of Entry / Exposure: Skin Contact  
Eye Contact  
Inhalation  
Ingestion

Potential Acute Health Effects:

Skin Contact: No potential health effects; product is non-hazardous.  
Eye Contact: No potential health effects; product is non-hazardous.  
Inhalation: No potential health effects; product is non-hazardous.  
Ingestion: No potential health effects; product is non-hazardous.

Potential Chronic Health Effects:

Carcinogenic Effects: Not Applicable.  
Mutagenic Effects: Not Applicable.  
Teratogenic Effects: Not Applicable.  
Developmental: Not Applicable.

Numerical Measures of Toxicity: Unknown

### SECTION XII – ECOLOGICAL INFORMATION

Product presents no hazards to the environment. Product is bio-degradable and eco-friendly.

### SECTION XIII – DISPOSAL CONSIDERATIONS

Follow disposal instructions on product label. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

### SECTION XIV – TRANSPORT INFORMATION

DOT: Not DOT regulated. No DOT label required.  
IATA: Not dangerous good.  
IMDG: Not dangerous good

# Safety Data Sheet

## AQUAOX™ Disinfectant 275

OSHA: No label required.  
NMFL code: 57104  
HS code: 3808500

### SECTION XV – REGULATORY INFORMATION

This product is bleach-free. See Section II of this document.

### SECTION XVI – OTHER INFORMATION

Preparation Date of Latest Revision: March 1, 2021

#### Disclaimer:

This Safety Data Sheet (SDS) was prepared in accordance with the provisions and requirements of 29 CFR § 1910.1200(g) and discloses the physical and health hazards of all hazardous chemicals contained in the product described in this SDS. Unless otherwise noted, this SDS does not describe or disclose all of the chemicals/components in the product, some of which may be Trade Secrets. The information included in this SDS is based on data developed or compiled by AQUAOX™ from open literature, independent laboratory studies, and other available scientific evidence, and is believed to be accurate and complete to the best of our knowledge. However, AQUAOX™ makes no warranty with respect thereto. Anyone intending to use the product described in this SDS should satisfy herself that the Product (1) is suitable for their particular purposes and intended uses, and (2) meets any safety and health standards applicable thereto. It is the obligation of each user of the product described in this SDS to determine and comply with all statutes, local, state and federal requirements, which are applicable to its use, storage and disposal.

#### Abbreviations:

ACGIH: American Conference of Industrial Hygienists  
CAL/OSHA: California Division of Occupational Safety and Health  
CAS Number: Chemical Abstracts Service Register Number  
CERCLA: Comprehensive Environmental Response Compensation and Liability Act  
DOT: Department of Transportation  
EPA: Environmental Protection Agency  
GRAS: Generally Recognized as Safe  
HMIS: Hazardous Materials Identification System  
IATA: International Air Transport Association  
IMDG: International Maritime Dangerous Goods  
NA: Not Applicable  
NIOSH: National Institute for Occupational Safety and Health  
OSHA: Occupational Safety and Health Administration  
PEL: Permissible Exposure Limits  
REL: Recommended Exposure Limits  
SARA: Superfund Amendment and Reauthorization Act of 1986  
TLV: Threshold Limit Values  
TSCA: Toxic Substances Control Act of 1976



# Safety Data Sheet

## AQUAOX™ Disinfectant 525

### SECTION I – IDENTIFICATION

Product Name: AQUAOX™ Disinfectant 525 | Product Number: AX 525  
Product Description: Hypochlorous Acid Solution Generated Electro-Chemically from Diluted Brine  
Container: 2 oz 4 oz 16 oz 1 gallon 15 gallon 55 gallon 330 gallon  
3.5 oz 8 oz 32 oz 5 gallon 30 gallon 275 gallon 660 gallon  
CAS Number: None (Mixture)  
Recommended Use: This product is a ready-to-use, one-step cleaner and disinfectant for general cleaning and disinfecting on hard, non-porous surfaces.  
Restricted Use: This product is not for human or animal use.  
Manufacturer: AQUAOX™ LLC  
Address: 17355 Hamlin Blvd., Loxahatchee, Florida, 33470, USA  
Number: (800) 790-7520  
Chemtrec Emergency Number: (800)-424-9300

### SECTION II – HAZARDS IDENTIFICATION

The following values are obtained using the guidelines prepared by the National Fire Protection Association (NFPA) and the American Coatings Association.

#### HMIS Rating:

- Health = 0
- Flammability = 0
- Physical = 0
- Reactivity = 0

#### NFPA/HMIS Definitions

- 0 = Minimal Hazard
- 1 = Slight Hazard
- 2 = Moderate Hazard
- 3 = Serious Hazard
- 4 = Severe Hazard

#### Hazard Information Disclosures:

TSCA: All chemicals in this product are listed on the EPA TSCA inventory list.  
CERCLA/ SARA: This product does not fall under any hazardous categories under SARA Sections 311 and 312.  
OSHA: This product is not a hazardous chemical as defined by the OSHA Hazard Communication Standard, 29 CFR § 1910.1200.

#### Product Label on Hazard Information:

- Keep out of Reach of Children

# Safety Data Sheet

## AQUAOX™ Disinfectant 525

### SECTION III – COMPOSITION AND INFORMATION ON INGREDIENTS

Component(s)	CAS #
Water	7732-18-5
Hypochlorous Acid	7790-92-3
Hypochlorite Ion	7681-52-9
Sodium Chloride	7647-14-5

The product contains approximately 575ppm free available chlorine (FAC).

### SECTION IV – FIRST-AID MEASURES

Not Applicable. This product has no precautionary First Aid measurements.

### SECTION V – FIRE-FIGHTING MEASURES

Not Applicable, this product is Non-Flammable and Non-Explosive. No extinguishing techniques or equipment are required.

### SECTION VI – ACCIDENTAL RELEASE MEASURES

In case of spill or leakages, dike spill with inert absorbent materials (e.g. sand, "oil-dry" or other commercially spill absorbents) to contain and soak spilled liquid. Place wastes into an appropriate waste disposal container.

### SECTION VII – HANDLING AND STORAGE

Handling: No special handling requirements; follow use instructions on product label. Open air or good room ventilation and appropriate PPE are adequate for the safe use of this product.

Storage: Keep container tightly closed in a dry and well-ventilated place at room temperature. Avoid direct light exposure, freezing and extreme heat.

### SECTION VIII – EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA PEL: Unknown.

Cal/OSHA PEL: Unknown.

NIOSH REL: Unknown.

ACGIH TLV: Unknown.

Engineering Control: None Required. Open air or good room ventilation is adequate for the safe use of this product.

Personal Protective Equipment (PPE):

Respiratory Protection: Not necessary as long as there is adequate ventilation.

Protective Clothing: Not required under normal conditions of use.

Hand Protection: Not required under normal conditions of use.

Eye Protection: Not necessary under normal conditions of use.



# Safety Data Sheet

## AQUAOX™ Disinfectant 525

### SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Slight Chlorine Odor
pH:	6.2 – 7.0
Specific Gravity (H <sub>2</sub> O = 1 at 20°C):	1.00 – 1.06
Density:	8.34 lbs/gal
Viscosity:	Comparable to Water
Boiling Point:	Comparable to Water
Melting Point/ Range:	NA
Evaporation Rate:	Comparable to Water
Solubility:	Complete in Water
Flash Point:	NA
Flammability:	Non-Flammable
Explosive Limits:	Non-Explosive
Vapor Pressure (mmHg at 20°C):	NA
Vapor Density:	NA

### SECTION X – STABILITY AND REACTIVITY

Reactivity:	Not Reactive under recommended handling and storage conditions.
Chemical Stability:	Stable under recommended handling and storage conditions.
Hazardous Reactions:	Product is Not Hazardous.
Conditions to Avoid:	Direct light exposure, freezing and extreme heat.
Materials to Avoid	Strong oxidizing agents, strong acids and organic materials.
Hazardous Decomposition Products:	May form under fire conditions; nature of decomposition products is unknown.
Hazardous Polymerization	Will not occur.

### SECTION XI – TOXICOLOGICAL INFORMATION

<u>Route of Entry / Exposure:</u>	Skin Contact
	Eye Contact
	Inhalation
	Ingestion

#### Potential Acute Health Effects:

Skin Contact: No potential health effects; product is non-hazardous.  
Eye Contact: No potential health effects; product is non-hazardous.  
Inhalation: No potential health effects; product is non-hazardous.  
Ingestion: No potential health effects; product is non-hazardous.

#### Potential Chronic Health Effects:

Carcinogenic Effects: Not Applicable.  
Mutagenic Effects: Not Applicable.  
Teratogenic Effects: Not Applicable.  
Developmental: Not Applicable.

Numerical Measures of Toxicity: Unknown

# Safety Data Sheet

## AQUAOX™ Disinfectant 525

### SECTION XII – ECOLOGICAL INFORMATION

Product presents no hazards to the environment. Product is bio-degradable and eco-friendly.

### SECTION XIII – DISPOSAL CONSIDERATIONS

Follow disposal instructions on product label. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

### SECTION XIV – TRANSPORT INFORMATION

DOT: Not DOT regulated. No DOT label required.  
IATA: Not dangerous good.  
IMDG: Not dangerous good  
OSHA: No label required.  
NMFL code: 57104  
HS code: 3808500

### SECTION XV – REGULATORY INFORMATION

See "Hazard Information Disclosures" under Section II.

### SECTION XVI – OTHER INFORMATION

Preparation Date of Latest Revision: March 1, 2021

#### Disclaimer:

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# Safety Data Sheet

## AQUAOX™ Disinfectant 525

### Abbreviations :

ACGIH:	American Conference of Industrial Hygienists
CAL/OSHA:	California Division of Occupational Safety and Health
CAS Number:	Chemical Abstracts Service Register Number
CERCLA:	Comprehensive Environmental Response Compensation and Liability Act
DOT:	Department of Transportation
EPA:	Environmental Protection Agency
GRAS:	Generally Recognized as Safe
HMIS:	Hazardous Materials Identification System
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods
NA:	Not Applicable
NIOSH:	National Institute for Occupational Safety and Health
OSHA:	Occupational Safety and Health Administration PEL: Permissible Exposure Limits
REL:	Recommended Exposure Limits
SARA:	Superfund Amendment and Reauthorization Act of 1986
TLV:	Threshold Limit Values
TSCA:	Toxic Substances Control Act of 1976



## Safety Data Sheet AQUAOX™ Disinfectant 1650

### SECTION I – IDENTIFICATION

Product Name: AQUAOX™ Disinfectant 1650 | Product Number: AX1650  
Product Description: Hypochlorous Acid Solution Generated Electro-Chemically from Diluted Brine  
Container: 2 oz 4 oz 16 oz 1 gallon 15 gallon 55 gallon 330 gallon  
3.5 oz 8 oz 32 oz 5 gallon 30 gallon 275 gallon 660 gallon  
CAS Number: None (Mixture)  
Recommended Use: This product is a ready-to-use, one-step cleaner and disinfectant for general cleaning and disinfecting on hard, non-porous surfaces.  
Restricted Use: This product is not for human or animal use.  
Manufacturer: AQUAOX™ LLC  
Address: 17355 Hamlin Blvd., Loxahatchee, Florida, 33470, USA  
Number: (800) 790-7520  
Chemtrec Emergency Number: (800)-424-9300

### SECTION II – HAZARDS IDENTIFICATION

The following values are obtained using the guidelines prepared by the National Fire Protection Association (NFPA) and the American Coatings Association.

#### HMIS Rating:

- Health = 0
- Flammability = 0
- Physical = 0
- Reactivity = 0

#### NFPA/HMIS Definitions

- 0 = Minimal Hazard
- 1 = Slight Hazard
- 2 = Moderate Hazard
- 3 = Serious Hazard
- 4 = Severe Hazard

#### Hazard Information Disclosures:

TSCA: All chemicals in this product are listed on the EPCATSCA inventory list.  
CERCLA/SARA: This product does not fall under any hazardous categories under SARA Sections 311 and 312.  
OSHA: This product is not a hazardous chemical as defined by the OSHA Hazard Communication Standard, 29 CFR § 1910.1200.

#### Product Label on Hazard Information:

- Keep out of Reach of Children

# Safety Data Sheet

## AQUAOX™ Disinfectant 1650

### SECTION III – COMPOSITION AND INFORMATION ON INGREDIENTS

Component(s)	CAS #
Water	7732-18-5
Hypochlorous Acid	7790-92-3
Hypochlorite Ion	7681-52-9
Sodium Chloride	7647-14-5

The product contains approximately 2250ppm free available chlorine (FAC).

### SECTION IV – FIRST-AID MEASURES

Not Applicable. This product has no precautionary First Aid measurements.

### SECTION V – FIRE-FIGHTING MEASURES

Not Applicable, this product is Non-Flammable and Non-Explosive. No extinguishing techniques or equipment are required.

### SECTION VI – ACCIDENTAL RELEASE MEASURES

In case of spill or leakages, dike spill with inert absorbent materials (e.g. sand, "oil-dry" or other commercially spill absorbents) to contain and soak spilled liquid. Place wastes into an appropriate waste disposal container.

### SECTION VII – HANDLING AND STORAGE

Handling: No special handling requirements; follow use instructions on product label. Open air or good room ventilation and appropriate PPE are adequate for the safe use of this product.

Storage: Keep container tightly closed in a dry and well-ventilated place at room temperature. Avoid direct light exposure, freezing and extreme heat.

### SECTION VIII – EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA PEL: Unknown.

Cal/OSHA PEL: Unknown.

NIOSH REL: Unknown.

ACGIH TLV: Unknown.

Engineering Control: None Required. Open air or good room ventilation is adequate for the safe use of this product.

Personal Protective Equipment (PPE):

Respiratory Protection: Not necessary as long as there is adequate ventilation.

Protective Clothing: Not required under normal conditions of use.

Hand Protection: Not required under normal conditions of use.

Eye Protection: Not necessary under normal conditions of use.

# Safety Data Sheet

## AQUAOX™ Disinfectant 1650

### SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Slight Chlorine Odor
pH:	6.2 – 7.0
Specific Gravity (H <sub>2</sub> O = 1 at 20°C):	1.00 – 1.06
Density:	8.34 lbs/gal
Viscosity:	Comparable to Water
Boiling Point:	Comparable to Water
Melting Point/ Range:	NA
Evaporation Rate:	Comparable to Water
Solubility:	Complete in Water
Flash Point:	NA
Flammability:	Non-Flammable
Explosive Limits:	Non-Explosive
Vapor Pressure (mmHg at 20°C):	NA
Vapor Density:	NA

### SECTION X – STABILITY AND REACTIVITY

Reactivity:	Not Reactive under recommended handling and storage conditions.
Chemical Stability:	Stable under recommended handling and storage conditions.
Hazardous Reactions:	Product is Not Hazardous.
Conditions to Avoid:	Direct light exposure, freezing and extreme heat.
Materials to Avoid	Strong oxidizing agents, strong acids and organic materials.
Hazardous Decomposition Products:	May form under fire conditions; nature of decomposition products is unknown.
Hazardous Polymerization	Will not occur.

### SECTION XI – TOXICOLOGICAL INFORMATION

<u>Route of Entry / Exposure:</u>	Skin Contact
	Eye Contact
	Inhalation
	Ingestion

#### Potential Acute Health Effects:

Skin Contact: No potential health effects; product is non-hazardous.  
Eye Contact: No potential health effects; product is non-hazardous.  
Inhalation: No potential health effects; product is non-hazardous.  
Ingestion: No potential health effects; product is non-hazardous.

#### Potential Chronic Health Effects:

Carcinogenic Effects: Not Applicable.  
Mutagenic Effects: Not Applicable.  
Teratogenic Effects: Not Applicable.  
Developmental: Not Applicable.

Numerical Measures of Toxicity: Unknown

# Safety Data Sheet

## AQUAOX™ Disinfectant 1650

### SECTION XII – ECOLOGICAL INFORMATION

Product presents no hazards to the environment. Product is bio-degradable and eco-friendly.

### SECTION XIII – DISPOSAL CONSIDERATIONS

Follow disposal instructions on product label. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

### SECTION XIV – TRANSPORT INFORMATION

DOT: Not DOT regulated. No DOT label required.  
IATA: Not dangerous good.  
IMDG: Not dangerous good  
OSHA: No label required.  
NMFL code: 57104  
HS code: 3808500

### SECTION XV – REGULATORY INFORMATION

See “Hazard Information Disclosures” under Section II.

### SECTION XVI – OTHER INFORMATION

Preparation Date of Latest Revision: November 1, 2022

#### Disclaimer:

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## AQUAOX™ Disinfectant 1650

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CAS Number:	Chemical Abstracts Service Register Number
CERCLA:	Comprehensive Environmental Response Compensation and Liability Act
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NA:	Not Applicable
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TLV:	Threshold Limit Values
TSCA:	Toxic Substances Control Act of 1976





# Safety Data Sheet

## AQUAOX™ Disinfectant 1650

### SECTION I – IDENTIFICATION

Product Name: AQUAOX™ Disinfectant 1650 | Product Number: AX1650  
Product Description: Hypochlorous Acid Solution Generated Electro-Chemically from Diluted Brine  
Container: 2 oz 4 oz 16 oz 1 gallon 15 gallon 55 gallon 330 gallon  
3.5 oz 8 oz 32 oz 5 gallon 30 gallon 275 gallon 660 gallon  
CAS Number: None (Mixture)  
Recommended Use: This product is a ready-to-use, one-step cleaner and disinfectant for general cleaning and disinfecting on hard, non-porous surfaces.  
Restricted Use: This product is not for human or animal use.  
Manufacturer: AQUAOX™ LLC  
Address: 17355 Hamlin Blvd., Loxahatchee, Florida, 33470, USA  
Number: (800) 790-7520  
Chemtrec Emergency Number: (800)-424-9300

### SECTION II – HAZARDS IDENTIFICATION

The following values are obtained using the guidelines prepared by the National Fire Protection Association (NFPA) and the American Coatings Association.

<u>HMIS Rating:</u>	<u>NFPA/HMIS Definitions</u>
• Health = 0	0 = Minimal Hazard
• Flammability = 0	1 = Slight Hazard
• Physical = 0	2 = Moderate Hazard
• Reactivity = 0	3 = Serious Hazard
	4 = Severe Hazard

#### Hazard Information Disclosures:

TSCA: All chemicals in this product are listed on the EPA TSCA inventory list.  
CERCLA/ SARA: This product does not fall under any hazardous categories under SARA Sections 311 and 312.  
OSHA: This product is not a hazardous chemical as defined by the OSHA Hazard Communication Standard, 29 CFR § 1910.1200.

#### Product Label on Hazard Information:

- Keep out of Reach of Children

### SECTION III – COMPOSITION AND INFORMATION ON INGREDIENTS

Component(s)	CAS #
Water	7732-18-5
Hypochlorous Acid	7790-92-3
Hypochlorite Ion	7681-52-9
Sodium Chloride	7647-14-5

The product contains approximately 2250ppm free available chlorine (FAC).

### SECTION IV – FIRST-AID MEASURES

Not Applicable. This product has no precautionary First Aid measurements.

### SECTION V – FIRE-FIGHTING MEASURES

Not Applicable, this product is Non-Flammable and Non-Explosive. No extinguishing techniques or equipment are required.

### SECTION VI – ACCIDENTAL RELEASE MEASURES

In case of spill or leakages, dike spill with inert absorbent materials (e.g. sand, "oil-dry" or other commercially spill absorbents) to contain and soak spilled liquid. Place wastes into an appropriate waste disposal container.

### SECTION VII – HANDLING AND STORAGE

Handling: No special handling requirements; follow use instructions on product label. Open air or good room ventilation and appropriate PPE are adequate for the safe use of this product.

Storage: Keep container tightly closed in a dry and well-ventilated place at room temperature. Avoid direct light exposure, freezing and extreme heat.

### SECTION VIII – EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA PEL: Unknown.

Cal/OSHA PEL: Unknown.

NIOSH REL: Unknown.

ACGIH TLV: Unknown.

Engineering Control: None Required. Open air or good room ventilation is adequate for the safe use of this product.

Personal Protective Equipment (PPE):

Respiratory Protection: Not necessary as long as there is adequate ventilation.

Protective Clothing: Not required under normal conditions of use.

Hand Protection: Not required under normal conditions of use.

Eye Protection: Not necessary under normal conditions of use.

## SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Slight Chlorine Odor
pH:	6.2 – 7.0
Specific Gravity (H <sub>2</sub> O = 1 at 20°C):	1.00 – 1.06
Density:	8.34 lbs/gal
Viscosity:	Comparable to Water
Boiling Point:	Comparable to Water
Melting Point/ Range:	NA
Evaporation Rate:	Comparable to Water
Solubility:	Complete in Water
Flash Point:	NA
Flammability:	Non-Flammable
Explosive Limits:	Non-Explosive
Vapor Pressure (mmHg at 20°C):	NA
Vapor Density:	NA

## SECTION X – STABILITY AND REACTIVITY

Reactivity:	Not Reactive under recommended handling and storage conditions.
Chemical Stability:	Stable under recommended handling and storage conditions.
Hazardous Reactions:	Product is Not Hazardous.
Conditions to Avoid:	Direct light exposure, freezing and extreme heat.
Materials to Avoid	Strong oxidizing agents, strong acids and organic materials.
Hazardous Decomposition Products:	May form under fire conditions; nature of decomposition products is unknown.
Hazardous Polymerization	Will not occur.

## SECTION XI – TOXICOLOGICAL INFORMATION

<u>Route of Entry / Exposure:</u>	Skin Contact
	Eye Contact
	Inhalation
	Ingestion

### Potential Acute Health Effects:

Skin Contact: No potential health effects; product is non-hazardous.  
Eye Contact: No potential health effects; product is non-hazardous.  
Inhalation: No potential health effects; product is non-hazardous.  
Ingestion: No potential health effects; product is non-hazardous.

### Potential Chronic Health Effects:

Carcinogenic Effects: Not Applicable.  
Mutagenic Effects: Not Applicable.  
Teratogenic Effects: Not Applicable.  
Developmental: Not Applicable.

Numerical Measures of Toxicity: Unknown

## **SECTION XII – ECOLOGICAL INFORMATION**

Product presents no hazards to the environment. Product is bio-degradable and eco-friendly.

## **SECTION XIII – DISPOSAL CONSIDERATIONS**

Follow disposal instructions on product label. Wastes resulting from the use of this product may be disposed of on site or at an approved waste disposal facility. If these wastes cannot be disposed of according to label instructions, contact State Pesticide or Environmental Control Agency, or the Hazardous Waste Representative at the EPA Regional Office for guidance.

## **SECTION XIV – TRANSPORT INFORMATION**

DOT: Not DOT regulated. No DOT label required.  
IATA: Not dangerous good.  
IMDG: Not dangerous good  
OSHA: No label required.  
NMFL code: 57104  
HS code: 3808500

## **SECTION XV – REGULATORY INFORMATION**

See “Hazard Information Disclosures” under Section II.

## **SECTION XVI – OTHER INFORMATION**

Preparation Date of Latest Revision: November 1, 2022

### Disclaimer:

This Safety Data Sheet (SDS) was prepared in accordance with the provisions and requirements of 29 CFR § 1910.1200(g) and discloses the physical and health hazards of all hazardous chemicals contained in the product described in this SDS. Unless otherwise noted, this SDS does not describe or disclose all of the chemicals/components in the product, some of which may be Trade Secrets.

The information included in this SDS is based on data developed or compiled by AQUAOX™ from open literature, independent laboratory studies, and other available scientific evidence, and is believed to be accurate and complete to the best of our knowledge. However, AQUAOX™ makes no warranty with respect thereto. Anyone intending to use the product described in this SDS should satisfy herself that the Product (1) is suitable for their particular purposes and intended uses, and (2) meets any safety and health standards applicable thereto. It is the obligation of each user of the product described in this SDS to determine and comply with all statutes, local, state and federal requirements, which are applicable to its use, storage and disposal.

Abbreviations :

ACGIH:	American Conference of Industrial Hygienists
CAL/OSHA:	California Division of Occupational Safety and Health
CAS Number:	Chemical Abstracts Service Register Number
CERCLA:	Comprehensive Environmental Response Compensation and Liability Act
DOT:	Department of Transportation
EPA:	Environmental Protection Agency
GRAS:	Generally Recognized as Safe
HMIS:	Hazardous Materials Identification System
IATA:	International Air Transport Association
IMDG:	International Maritime Dangerous Goods
NA:	Not Applicable
NIOSH:	National Institute for Occupational Safety and Health
OSHA:	Occupational Safety and Health Administration PEL: Permissible Exposure Limits
REL:	Recommended Exposure Limits
SARA:	Superfund Amendment and Reauthorization Act of 1986
TLV:	Threshold Limit Values
TSCA:	Toxic Substances Control Act of 1976



# AQUAOX ELECTROSTATIC SPRAY SAFETY ASSESSMENT - DETAILS

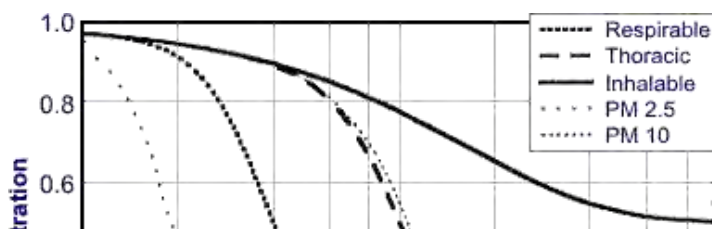
## I. Particle Size

### Acute Inhalation Injury and Particle Size of Inhaled Substances

The airways and lungs receive continuous first-pass exposure to non-toxic and irritant or toxic gases via inhalation. Smoke, chlorine, phosgene, sulfur dioxide, hydrogen chloride, hydrogen sulfide, nitrogen dioxide, ozone, and ammonia are common irritants. Damage can be widespread due to the gaseous nature of these elements. Acute inhalation injury may result from frequent and widespread inhalation of these elements, which are commonly caused by the use of household cleaning agents and industrial gases including chlorine and ammonia<sup>1</sup>.

Inhaled substances may affect the respiratory system at various levels according to various factors, an important factor of which is the particle size of that substance. Bigger particles have enough mass and inertia to be trapped in the airway between the nostril and bronchi when inhaled, while smaller particles are drawn deeper into the lungs. Particularly large particles tend to become trapped in the nose, and are expelled by sneezing or blowing the nose. Therefore, the bigger the particle of the inhaled substance, the less likely they are to cause any damage to the respiratory system<sup>2</sup>.

Particle size in inhalation toxicity is usually defined by their mass median aerodynamic diameter (MMAD) and aerodynamic equivalent diameter (AED) in micrometers ( $\mu\text{m}$ ). According to Human Health Risk Assessment of Inhaled Materials, the term inhalable fraction refers to the mass fraction of particles capable of entering into the respiratory system. Among the inhalable fraction there are three categories, extrathoracic fraction, the thoracic fraction, and the respirable fraction. Particles of  $>25\mu\text{m}$  AED generally fall into the extrathoracic fraction, the fraction of the inhalable particles that can deposit in the area of the respiratory tract lying between the nostrils/ mouth and the distal end of the larynx. Particles of  $\leq 25\mu\text{m}$  AED fall into the thoracic fraction, fraction of inhalable particles that can penetrate the head airways and enter the airways of the lung. Particles of  $\leq 10\mu\text{m}$  AED fall into the respirable fraction, fraction of particles capable of penetrating the respiratory tract to the level of the on-ciliated airways and gas-exchange regions of the lungs. Figure 1 below shows the relationship between the % penetration into the respiratory system vs the particle size of the inhaled particles. Tree pollens have a particle size of 10 – 100  $\mu\text{m}$  and atmospheric dust has a particle size of 0.001 - 40  $\mu\text{m}$  whereas viruses have a particle size of 0.002 – 0.03  $\mu\text{m}$ . The US EPA generally controls substances with a particle size of less than 10 $\mu\text{m}$ . The SEHSC recommends using 30 $\mu\text{m}$  MMAD (Mass Median Aerodynamic Diameter) with no more than 1% of particles having an AED of  $\leq 10\mu\text{m}$  as the cutoff when considering a consumer aerosol application to ensure all aerosol particles to be trapped in the nasopharyngeal region<sup>3</sup>. In general, inhaled particles with larger particle size of  $>25\mu\text{m}$  are of a less concern because they tend to be trapped in the nasopharyngeal region and be expelled through sneezing and talking, thus less likely to harm the respiratory system.



## Background of Aquaox ESS Sprayer and Dispensed Droplet Size

The Aquaox Electrostatic Sprayer features the ES 3001-5 Model. The device is a portable electrostatic aerosol applicator that utilizes a 3-nozzle air-assist design. The device is intended for applications of water-based formulations and is useful for dispensing most chemicals which are labeled aerosol or mist applications.

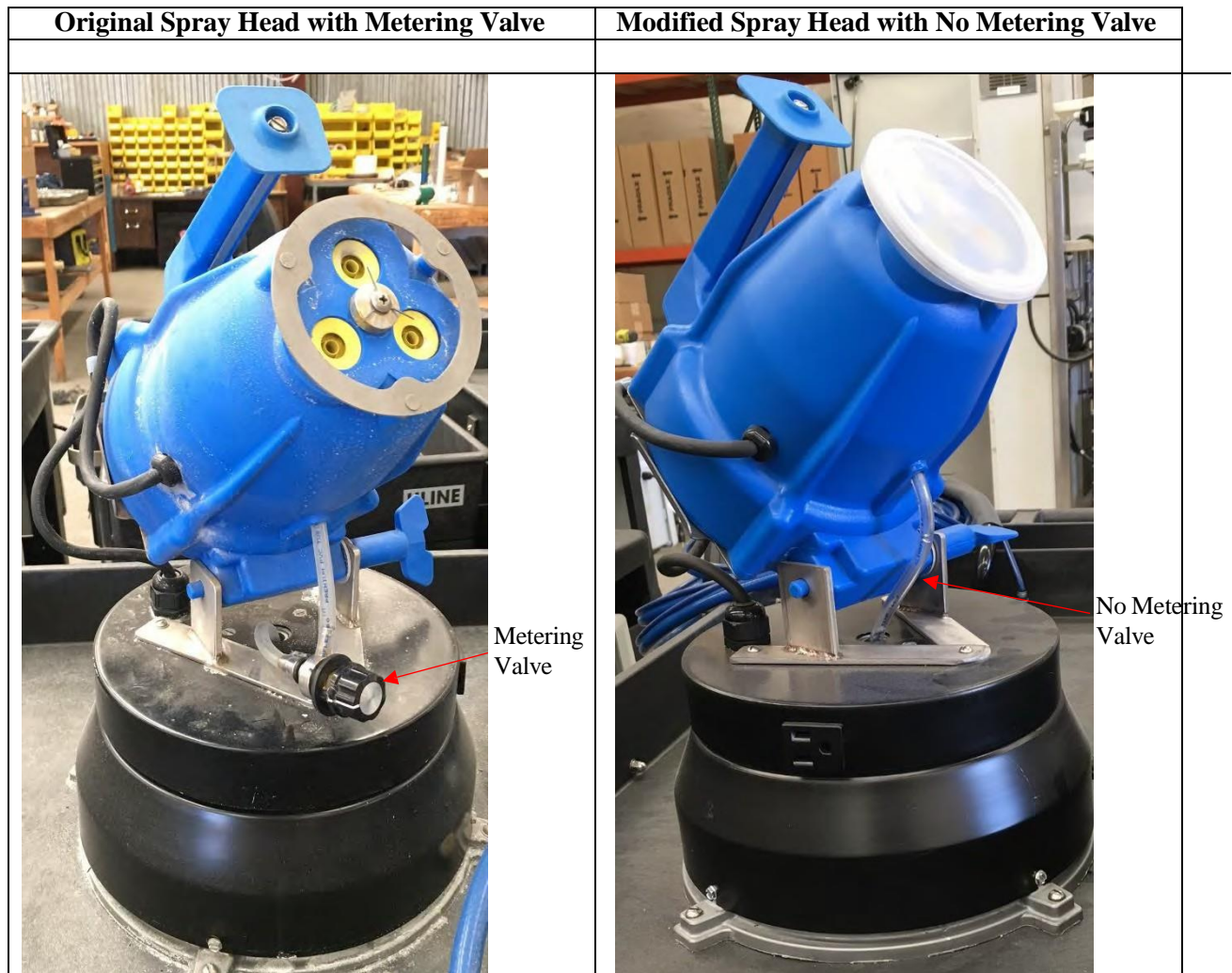
The device consists mainly of a motor/blower assembly, a high voltage power supply, a charging ring and electrode, a blower housing, a nozzle, a formulation tank and a metering valve. The flow rate of the liquid to be dispensed is regulated by a one-turn precision metering valve and determines the output particle sizes. The particle sizes of the dispensed particles typically range from 10 to 50  $\mu\text{m}$  VMD (Volume Mean Diameter). There are three positions on the metering valve, positions 1, 2, and 3. Each position designates a different flow rate, which results in a different particle size range. Table 1 below shows the approximate flow rate and resulting droplet size of each position setting. Generally, the output droplet size increases with increasing flow rate.

*Table 1: Valve Position Settings, Approximate Flow Rates and Droplet Size*

Position	Flow Rate	Droplet Size ( $\mu\text{m}$ VMD)
1	6 oz/min (177 mL/min)	10 – 20
2	7.5 oz/ min (222 mL/min)	20 – 30
3	9.5 oz/min (281 mL/min)	30 – 50

## Aquaox's Modification and Droplet Size of the Aquaox ESS

The metering valve mentioned above functions as an obstruction to the liquid being delivered to the device, and thus regulates the liquid flow rate. Aquaox has removed this metering valve and the formulation tank as part of the customization of this device. The removal of the metering valve results in no obstruction of the liquid flow into the device, thus the liquid is delivered to the device with a flow rate of above 9.5 oz/min. According to Table 1 above, the flow rate of 9.5 oz/min correlates to a droplet size range of 30 – 50  $\mu\text{m}$  VMD. Since increasing flow rate associates with increasing particle size, the particle size will definitely be larger than 30  $\mu\text{m}$  VMD as a result of the removal of the metering valve.



### Aquaox ESS and Effect of Sprayed Droplets on Respiratory System

The dispensed particles of the Aquaox Electrostatic Sprayer should not cause any harm to the respiratory system due to the following reasons, 1) the output particle size, 2) falling time of particles, and 3) electrostatic ion field. These rationales are further explained below.

The output droplet size of the Aquaox ESS should always be larger than 30  $\mu\text{m}$  VMD due to the modification of the device. As explained in the previous page, inhaled substances with a particle size of larger than 30  $\mu\text{m}$  tend to be trapped in the nasopharyngeal region and thus expelled through sneezing, thus less likely to harm the respiratory system, according to previous research literatures. Therefore, the droplet size of the Aquaox ESS should be large enough not to cause any respiratory issues.

Secondly, according to the WHO Pesticide Evaluation Scheme (Table 2 below), the time it takes for a droplet size ranging from 20 – 50  $\mu\text{m}$  VMD to fall 10 meters ranges from 14 minutes to 135 seconds. Aquaox implements a 10-minute dwelling time before reentry into the sprayed area as part of Aquaox instructions in the operation of the sprayer. Therefore, by the time one reenters the sprayed area, most, if not all, particles should have fallen and deposited on the floor, and thus not likely to be inhaled.



**Table 2: Time required for a droplet to fall 10 meters (WHO Pesticide Evaluation Scheme)**

<b>Droplet Size (µm VMD)</b>	<b>Time to fall 10 meters</b>	<b>Droplet Density (no/cm<sup>3</sup>)</b>
1	93.7 hours	19120.0
5	3.7 hours	152.0
10	56 minutes	19.2
20	14 minutes	2.38
50	135 seconds	0.150
100	36 seconds	0.0192

Last but not least, the device features “electrostatic ion field,” which the dispensed droplets pass through as they exit the nozzles. This results in electrostatically charged droplets which gravitate to neutral objects to form a uniform coverage. Particles of the smaller particle size range will be attracted to the nearby surfaces as a result of the electrostatic charge. Thus, upon completion of the dwelling time, larger particles will have deposited onto the floor due to gravity while smaller particles will be attracted to nearby surfaces due to electrostatic charge. This results in very few, if not none, air particles floating in the air and to be inhaled when someone reenters the room after the dwelling time.

In conclusion, the output particle size of the Aquaox ESS should be above 30 µm VMD, which should be big enough to be trapped in the nasopharyngeal region and not likely to harm the respiratory system. Furthermore, large particles should have deposited onto the floor due to gravity and small particles should have attached onto nearby surfaces due to electrostatic charge upon collapse of the dwell time, which results in theoretically no particles floating in the air and being inhaled by someone reentering the sprayed area. All the above rationales support that the Aquaox ESS should not cause any harm to the respiratory system if used following the Aquaox protocol.

## **II. Chlorine Exposure Limits**

### **OSHA Standards on Chlorine Exposure Limits**

The solutions that the Aquaox ESS dispenses include Aquaox Disinfectant 275 (AX275) and Aquaox Disinfectant 525 (AX525). The former solution contains 275 ppm Hypochlorous Acid (HOCl) while the latter contains 525 ppm HOCl as active ingredient. OSHA has not yet implemented a standard regulating HOCl exposure limits nor a method for determining HOCl concentration. Therefore, the standards for Chlorine have been adopted when concerning the safety of sprayed particles of the Aquaox ESS. Current OSHA permissible exposure limits (PEL) for Chlorine include a short-term exposure limit for up to a 15-minute exposure not to exceed 1 ppm (2.9 mg/m<sup>3</sup> where mg/m<sup>3</sup> is defined as mg Chlorine per m<sup>3</sup> of air), and a time-weighted average for up to 8 hours not to exceed 0.5 ppm (1.5 mg/m<sup>3</sup>). Two experiments have been conducted internally to verify that the Aquaox ESS complies with the above required limits.

#### **Experiment 1: Assessment of HOCl Concentration in Air Samples following NIOSH 7607 Method**

The HOCl concentration in air samples in a sprayed area is assessed via the NIOSH 7607 Method. The Aquaox ESS is operated following the Aquaox ICS protocol in a 12ft x 18ft experimental room that has been constructed to mimic an average patient room in a hospital. Air samples are collected from the experimental room after a 5-minute spraying time and a 10-minute dwelling time. Upon completion of the dwelling time, air samples are collected for a period of 15-minutes (for determining the short term exposure level) and a period of 6 hours (for determining the time-weighted average level). Air sample is pumped into

a pre-coated sample collection tube via a calibrated AirChek sample pump at a rate of 1 L/minute. Samples are collected internally at Aquaox and sent out to ALS Environmental at Salt Lake City for analysis.

The sample collection tubes are prepared and the analysis is done following the NIOSH 7607 method. The sample collection tube is a tube of silica gel coated with sulfamic acid and potassium iodide. The collection tubes do not contain the filter cassettes because we do not intend to analyze trichloramines in our samples. The treated silica gel is nonspecific and traps soluble chlorine compounds including mono- and dichloramines, hypochlorous acid, hypochlorites, and chlorine. The reaction of these chlorine compounds with potassium iodide in an acid medium yields chloride ion, which are then analyzed. Mobile Phase Ion Chromatography with suppressed conductivity detection is the technique used in the analysis. The analysis results should only capture hypochlorous acid, hypochlorites, and chlorine because there are no nitrogenous compounds in our samples to form any chloramines.

Specifications of Test Solutions:

1<sup>st</sup> Trial:

Air Sample Collection Date:     October 5, 2015 (AX275)  
   October 6, 2015 (AX525)

Specifications of Test Solutions:

	<b>Aquaox Disinfectant 275</b>	<b>Aquaox Disinfectant 525</b>
FAC (ppm)	300	546
pH	6.79	6.58
ORP	832	873
Conductivity	2323	3250

2<sup>nd</sup> Trial:

Air Sample Collection Date:     October 8, 2015 (AX275)  
   October 9, 2015 (AX525)

	<b>Aquaox Disinfectant 275</b>	<b>Aquaox Disinfectant 525</b>
FAC (ppm)	281	556
pH	6.78	6.52
ORP	842	877
Conductivity	2405	4832

Interpretation:

Experiment 2: Assessment of HOCl Concentration in Air Samples following the OSHA ID-101 Method

The above experiment is repeated internally following the OSHA ID-101 method and only short-term exposure is determined. The Aquaox ESS is operated following the Aquaox ICS protocol in a 12in x 18in experimental room as described above. Air samples are analyzed from the experimental room after a 5-minute spraying time and a 10-minute dwelling time. Upon completion of the dwelling time, air samples are collected for a period of 15-minutes for determining the short term exposure level. Air sample is pumped into a midget fritted glass bubbler containing 0.1% sulfamic acid solution using a calibrated AirChek sample pump at a rate of 1 L/minute. The collected sample then reacts with DPD (N,N-diethyl-p-phenylenediamine) in the presence of potassium iodide to yield a red-colored product that absorbs at a wavelength of 540nm. The concentration of HOCl in the original air sample can be determined by determining the absorbance at 540nm.

The experiment is done as described below. A standard solution with a known HOCl concentration is first generated. The absorbances of different volumes of this standard solution will then be determined and that will correspond to the different HOCl concentrations at different volumes of standard solutions (Graphs 1 and 2). The absorbances of different weights of the standard solutions will then be plotted against the corresponding HOCl concentrations (Graph 3) to generate a standard curve. The HOCl concentration of the test sample can be determined by comparing the absorbance of the test sample to the standard curve.

Test Result:

Air Sample Collection Date:     October 7, 2015 (AX275)  
   October 7, 2015 (AX525)

Specifications of Test Spray Solutions:

	<b>Aquaox Disinfectant 275</b>	<b>Aquaox Disinfectant 525</b>
FAC (ppm)	287	525
pH	6.82 / 25.7C	6.57 / 25.7C
ORP	852	878
Conductivity	2420	3162

Specifications of Standard Solution:

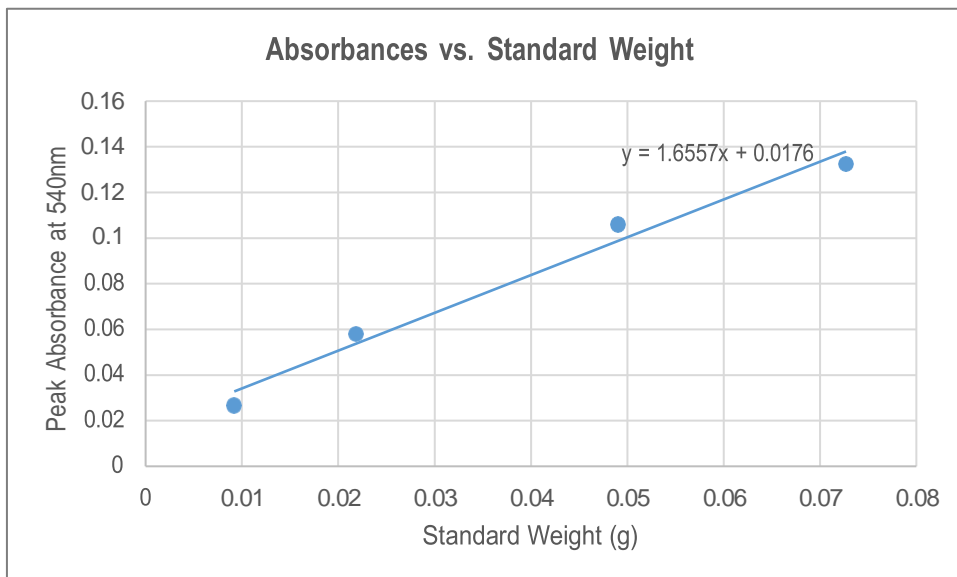
FAC (ppm)	295
pH	6.90 / 25.7C

**Aquaox Disinfectant 275:**

Absorbances of Standard and Collected Sample:

		<b>Peak Absorbance at 540nm</b>
<b>295ppm Standard</b>	0.0092g (10uL)	0.0266
	0.0218g (25uL)	0.0580
	0.0490g (50uL)	0.1060
	0.0727g (75uL)	0.1325
<b>Collected Sample</b>		<b>0.0550</b>

Standard Curve:



Calculations:

Absorbance of the Collected Sample:	0.0550
Corresponding Standard Weight: (determined using the linear equation $y = 1.6557x + 0.0176$ )	0.0226g
HOCl Concentration of Standard:	295ppm
Corresponding Weight of HOCl in Air Sample:	$0.0226g \times 295ppm = 6.667ug$
Volume of Air Sample Collected:	15L
Molecular Weight of HOCl:	52.46 g/mol
* HOCl Concentration of Air Sample, $mg/m^3$ :	<b>0.444<math>mg/m^3</math></b>
* HOCl Concentration of Air Sample, ppm:	<b>0.207ppm</b>

\* The formulae for direct comparison with OSHA PEL for gas and aerosol is used according to NIOSH Manual of Analytical Methods as explained below.

<u>Physical Form of Substance Sampled</u>	<u>Unit of Air Concentration</u>	<u>Formula for Direct Comparison With OSHA PEL Table</u>
Gas	ppm	$C_v = \frac{m \cdot 10^3}{V} \cdot \frac{24.46}{MW}$
Gas	$mg/m^3$	$C = \frac{m \cdot 10^3}{V}$
Aerosol	$mg/m^3$	$C = \frac{m \cdot 10^3}{V}$

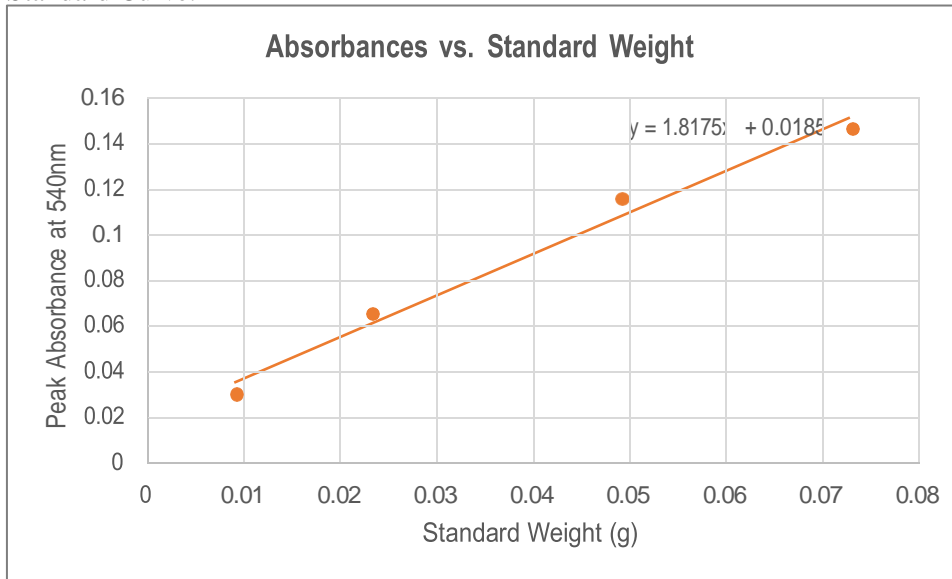
where: m = actual mass of substance, in mg, found on the sampling device  
V = air volume, L, taken at the sampling site, ambient temperature and pressure  
24.46 = the volume (L) of 1 mole of gas at 25 °C and 760 mm Hg  
 $C_v$  = air concentration, ppm by volume, at 25 °C and 760 mm Hg  
C = air concentration,  $mg/m^3$   
MW = molecular weight, grams/mole

## Aquaox Disinfectant 525

Absorbances of Standard and Collected Sample:

		Peak Absorbance at 540nm
<b>295ppm Standard</b>	0.0092g (10uL)	0.0295
	0.0233g (25uL)	0.0648
	0.0492g (50uL)	0.1152
	0.0731g (75uL)	0.1460
<b>Collected Sample</b>		<b>0.0704</b>

Standard Curve:



Calculations:

Absorbance of the Collected Sample:	0.0704
Corresponding Standard Weight: (determined using the linear equation $y = 1.8175x + 0.0185$ )	0.0286g
HOCl Concentration of Standard:	295ppm
Corresponding Weight of HOCl in Air Sample:	$0.0286g \times 295ppm = 8.424ug$
Volume of Air Sample Collected:	15L
Molecular Weight of HOCl:	52.46 g/mol
* HOCl Concentration of Air Sample, $mg/m^3$ :	<b>0.562<math>mg/m^3</math></b>
* HOCl Concentration of Air Sample, ppm:	<b>0.262ppm</b>

Interpretation:


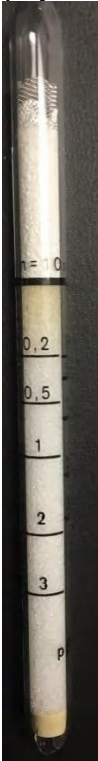


After a 5-minute spray time and a 10-minute dwell time using the AX275 solution, the HOCl concentration in the air sample collected in a 15-minute collection time is  $0.444mg/m^3$  ( $0.444mg$  HOCl per  $m^3$  of air volume or 0.207ppm). For the AX525 solution, the HOCl concentration is  $0.562mg/m^3$  ( $0.562mg$  HOCl per  $m^3$  of air volume or 0.262ppm). Since there is not a standard level established for Hypochlorous Acid, the current OSHA PEL for Chlorine, 1 ppm (or  $2.9 mg/m^3$ ), is used. The HOCl levels in the collected air samples when using both test solutions are well below the OSHA PEL for Chlorine.

**Experiment 3: Immediate Assessment of Chlorine Gas Concentration in Air Samples via the Draeger System**

Chlorine gas concentration in immediate air samples is assessed via the Draeger Chlorine 0.2/a System. This system has a measurement range of 0.2 – 3 ppm for Chlorine gas and is widely used for detecting gases and vapors in industrial workspaces. The system contains the Draeger accuro pump and the Draeger tubes. The Aquaox ESS is operated following the Aquaox ICS protocol in the 12in x 18in experimental room as discussed above. Air samples are collected from the experimental room at two different time frames, 1) immediately after the 5-minute spray time and 2) upon completion of the 10-minute dwelling time after the spray time. Air samples are collected into the Draeger tube and test results are interpreted by the length of color change in the tube. Samples are collected and analyzed internally at Aquaox.

The chemistry behind this method is further explained below. The Draeger tubes are glass vials filled with a chemical reagent that reacts to the target chemical (or family of chemicals) to be measured. In this case, the tubes contain the chemical o-tolidine, which when reacts with Chlorine will yield a yellow orange reaction product. The pump draws a calibrated 100 mL of air sample into the tube with each stroke, and 10 strokes are performed for each experiment. Any Chlorine in the air sample will react with the reagent and yield a yellow orange reaction product. The length of the color change in the tube indicates the amount of reaction product, and thus the Chlorine gas concentration in the original air sample.

Test Result:

<b>Aquaox Disinfectant 275</b>		<b>Aquaox Disinfectant 525</b>	
Immediate after Spray Time	10 Minutes after Spray Time	Immediate after Spray Time	10 Minutes after Spray Time
			

	<b>Aquaox Disinfectant 275</b>	<b>Aquaox Disinfectant 525</b>
Test Date	October 8, 2015	October 7, 2015
Test Time	10:05am / 10:15am	9:30am / 9:40am
Immediately after Spray Time	0.2ppm	0.5ppm
10-Minute after Spray Time	<0.2ppm	0.2ppm

Specifications of Test Solutions:

	<b>Aquaox Disinfectant 275</b>	<b>Aquaox Disinfectant 525</b>
FAC (ppm)	281	525
pH	6.78	6.57
ORP	842	878
Conductivity	2405	3162

Interpretation:

After spraying with the AX275 solution for 5 minutes, a residual Chlorine of 0.2ppm immediately after the spray time and less than 0.2ppm was detected 10 minutes after the spray time. For the AX525 solution, a residual Chlorine of 0.5ppm immediately after the spray time and 0.2ppm was detected 10 minutes after the spray time. As a result, the residual Chlorine level in the air is always below the regulated concentration of 1 ppm under both scenarios (immediately or 10 minutes after),

