AQUAOX Disinfectant 275 & 525

Product Efficacy & Safety Test Summary

TECHNICAL SUMMARY

Aquaox Disinfectant 275 | Aquaox Disinfectant 525

PRODUCT EFFICACY

Aquaox Disinfectant 275 and Aquaox Disinfectant 525 are Hypochlorous Acid solutions generated electrochemically from Sodium Chloride. Both products are EPA registered antimicrobial pesticides bearing a Hospital and a General/Broad Spectrum Disinfectant claims per FIFRA Section 3(c)(5). Using established ASTM standards, AOAC methods and EPA guidelines, a series of studies have been conducted to characterize the solutions' abilities to disinfect and reduce microorganisms through a one-step disinfecting mechanism. These studies are further discussed below.

1. AOAC Use-Dilution Method (AOAC 955.14, 955.15, 964.02)

The AOAC Use-Dilution Test is considered a "high-level" test for disinfectants, i.e., an antimicrobial solution must have appreciable biocidal activity on a relatively short time frame, < 10 minutes, to pass the test.

A culture of the challenge microorganism, listed in Table 1 below, is amended with a 5% organic soil load to mimic a "dirty" surface to challenge test article's one-step cleaning and disinfecting efficacy. The bacteria is then cultured for 48 hours and the 48-hour is dried onto a number of small small, cylindrical, and stainless steel test surfaces test surfaces called penicylinders to create a contaminated surface. At least 10 contaminated surfaces are prepared.

Using a wire hook, each dry, containated test surface is then transferred individually to a test tube filled with the the test article (Aquaox Disinfectant 275 or 525) for the exposure (contact) time of 10 minutes at room temperature (20 – 25°C). After the exposure time has elasped, the treated test surfaces are transferred to test tubes containing a liquid growth medium that will neutralize the action of the disinfectant. The treated test surfaces are then incuated in the neutralizing growh medium for 48 hours to recover the microorganism. After incubation in the neutralization media, the number of test tubes showing recovery of the challenge microorganism is recorded.

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

Exposure Time: 10 minutes **Sample Dilution:** 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
Vancomydin Resistant Enterococcus feacalis (VRE)	ATCC 700221	0 / 10	Pass

Conclusion: Under the condition of this study, in the presence of 5% organic soil load, Aquaox Disinfectant, ready to use, demonstrated efficacy against the above listed microorganisms following a 10-minute exposure time at room temperature.

2. AOAC Tuberculocidal Activity of Disinfectants Test Method

The AOAC Tuberculocidal Activity of Disinfectants Test is considered a "high-level" test for disinfectants, i.e., an antimicrobial solution must have appreciable biocidal activity on a relatively short (<10 minutes) time frame to pass the test.

A culture of the *Mycobacterium bovis BCG*, an EPA recommended surrogate of Mycobacterium tuberculosis, is amended with a 5% fetal bovine serum to mimic a "dirty" surface to challenge test article's one-step cleaning and disinfecting efficacy. The bacteria is then cultured for 21 days, and dried onto a number of penicylinders to create a test surface. At least 10 contaminated test surfaces are created.

Each dry, containated test surface is then transferred, individually, to a test tube filled with the test article for the exposure (contact) time of 10 minutes near room temperature. After the contact time has elapsed, the treated test surfaces are transferred to test tubes containing a liquid medium that has been amended with chemical agents to immediately neutralize the action of the disinfectant. Immediately after transfer from the disinfectant into the neutralizer, the treated test surfaces are transferred into bacterial growth medium and are incubated for 60 days. After the 60-day incubation, the number of tubes showing growth of *Mycobacterium bovis BCG* is recorded.

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

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

Conclusion: Under the condition of this study, in the presence of 5% organic soil load, Aquaox Disinfectant, ready to use, met the required performance criteria versus *Mycobacterium bovis BCG* following a 10-minute exposure time at room temperature.

3. Virucidal Hard Surface Disinfection Evluation using ASTM E1053 Method

This test is performed to verify the performance capability of a test substance as a virucidal agent.

Aquaox Disinfectant has been tested against four different viruses, HIV-1, H1N1, Rhinovirus 16 and Murine Norovirus. The test virus, HIV-1, H1N1 or Rhinovirus 16, is loaded with a 5% organic soil load to mimic a "dirty" surface to challenge test article's one-step cleaning and disinfecting efficacy. An inoculum of the test virus is spread over the carrier surface and allowed to dry. The

test virus is then innoculated onto a hard, nonporous surface (100 x 15 mm glass Petri dish) to create a dried film carrier. Two dried film carriers are prepared per lot of test substance for surrogate viruses and one dried film carrier for non-surrogate viruses.

The dried virus films are treated with the test article for the exposure (contact) time of 10 minutes near room temperature. At the close of the contact time, the test carrier films are neutralized by addition of a neutralizer solution followed by scraping of the carrier surface using a cell scraper. The test suspensions are then plated, cultured, and observed for virus presence or absence.

TABLE 3.1. *Aquaox Disinfectant evaluated against HIV-1 virus in the presence of 5% Fetal Bovine Serum*
Virus / Strain: *HIV-1/Mn (ZeptoMetrix #0810027CF)*
Exposure Time: 10 minutes
Sample Dilution: Ready to Use (RTU)

	Virus Control		**After Exposure to Test Substance – Lot #1**		**After Exposure to Test Substance – Lot #2**	
Dilution	**Carrier 1**	**Carrier 2**	**Carrier 1**	**Carrier 2**	**Carrier 1**	**Carrier 2**
10^{-2}	Not Tested		0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10^{-3}	+ + + +	+ + + +	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10^{-4}	+ + + +	+ + + +	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10^{-5}	+ + + +	+ + + +	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10^{-6}	0 0 0 +	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
10^{-7}	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0	0 0 0 0
$TCID_{50}$ (log 10)	5.750	5.500	≤ 1.50	≤ 1.50	≤ 1.50	≤ 1.50
Average $TCID_{50}$ (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 dectection 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^{-1}	+ +	+ + + +	0 0 0 0
10^{-2}	+ +	+ + + +	0 0 0 0
10^{-3}	+ +	+ + + +	0 0 0 0
10^{-4}	+ +	+ + + +	0 0 0 0
10^{-5}	+ +	+ + + +	0 0 0 0
10^{-6}	0 0	+ 0 + 0	0 0 0 0
10^{-7}	0 0	0 0 0 0	0 0 0 0
10^{-8}	0 0	0 0 0 0	0 0 0 0
$TCID_{50}$ (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% Fetal Bovine Serum) – 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^{-2}	Not Tested	Not Tested	0 0 0 0	0 0 0 0
10^{-3}	Not Tested	+ + + +	0 0 0 0	0 0 0 0
10^{-4}	+ + + +	+ + + +	0 0 0 0	0 0 0 0
10^{-5}	+ + + +	+ + + +	0 0 0 0	0 0 0 0
10^{-6}	+ + + +	+ + + +	0 0 0 0	0 0 0 0
10^{-7}	0 0 + +	0 0 0 0	0 0 0 0	0 0 0 0
10^{-8}	0 0 0 0	0 0 0 0	Not Tested	Not Tested
10^{-9}	0 0 0 0	Not Tested	Not Tested	Not Tested
$TCID_{50}$ (log 10) / mL	7.00	6.50	≤ 1.50	≤ 1.50
$TCID_{50}$ (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: Under the condition of the above studies, in the presence of 5% organic soil load, Aquaox Disinfectant, ready to use, demonstrated at least a 4-log reduction (> 99.99%) of H1N1 Virus and Rhinovirus 16, and at least a 5-log reduction of the HIV-1 Virus, following a 10-minute exposure time at room temperature. For Murine Norovirus, Aquaox Disinfectant, ready to use, demonstrated at leas a 5-log reduction of the test virus, in the absence of an organic soil load. Aquaox Disinfectant was able to meet the EPA success criteria for virucidal efficacy of a disinfectant, i.e. a minimum of 4-log reduction of the test virus.

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	*Staphylococcus aureus,* *Pseudomonas aeruginosa,* *Escherichia coli,* *Serratia marcescens,* *Klebsiella pneumoniae,* *Proteus vulgaris,* *Acinetobacter baumannii*	All **Gram-Negative** Bacteria except for *Staphylococcus aureus* , 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	*Acinetobacter baumannii* - Multi Drug Resistant, *Enterococcus faecium* - Multi Drug Resistant, Methicillin Resistant *Staphylococcus aureus* (MRSA), Vancomycin Resistant *Enterococcus faecalis* (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	*Bacteroides fragilis,* *Haemmophilus influenzae,* *Streptococcus pyogenes*	**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	*Staphylococcuss epidermidis,* *Staphylococcus haemolyticus,* *Staphylococcus hominis,* *Staphylococcus saprophyticus*	All **Gram-Positive** Bacteria and of the *Staphylococcus* 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	*Enterobacter aerogenes,* *Escherichia coli,* *Klebsiella pneumoniae,* *Micrococcus luteus,* *Proteus mirabilis,* *Serratia marcescens*	All **Gram-Negative** Bacteria except for *Micrococcus luteus* , 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 *Pseudomonas aeruginos* and *Staphylococcus aureus*	AOAC Official Method, 964.02, 955.15, Use-Dilution Method	*Staphylococcus aureus,* *Pseudomonas aeruginosa*	**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 Dieinfectant against *Salmonella enterica*	AOAC Official Method, 955.14, Use-Dilution Method	*Salmonella enterica*	**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	*Myobacterium bovis - BCG*	Bacteria that causes **Tuberculosis** in humans	> 5.21 log reduction in **60 s**	ATS Lab

TABLE 4. Efficacy Test Summary – Aquaox Disinfectant 275 (Cont.)

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	*Aspergillus brasiliensis*	**Fungus**	Log reduction in **15 s** A. brasiliensis: = 4.11	NAMSA
Aquaox Disinfectant 275 (Tested at **10ppm** FAC)	Antimicrobial Effectiveness Study using a Time Kill Assay	USP<51> Guideline	*Candida albicans*	**Fungus**	> 4.38 log reduction in **15 s**	NAMSA
Aquaox Disinfectant 275	Antimicrobial Effectiveness Study using a Time Kill Assay	ASTM Guideline E2315-03	*Candida albicans*	**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	*Clostridium difficile* - spore form	**Spore**	> 5.35 log reduction in **30 s**	ATS Lab

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 *Pseudomonas aeruginos* and *Staphylococcus aureus*	AOAC Official Method, 964.02, 955.15, Use-Dilution Method	*Staphylococcus aureus, Pseudomonas aeruginosa*	**Gram-Positive** Bacteria **Gram-Negative** Bacteria	Killed **10 out of 10** treated carriers in **5% organic soil** load in 10 minutes	Bioscience
Aquaox Disinfectant 525	Testing Disinfectant against Hospital Acquired Methicillin Resistant *Staphylococcus aureus* (HA-MRSA)	AOAC Official Method, 964.02, Use-Dilution Method	Hospital Acquired Methicillin Resistant *Staphylococcus aureus (HA-MRSA)*	**Gram-Positive** Bacteria	Killed **10 out of 10** treated carriers in **5% organic soil** load in 10 minutes	ATS Lab
Aquaox Disinfectant 525	Testing Disinfectant against *Salmonella enterica*	AOAC Official Method, 955.14, Use-Dilution Method	*Salmonella enterica*	**Gram-Negative** Bacteria	Killed **60 out of 60** treated carriers in **5% organic soil** load in 10 minutes	ATS Lab
Aquaox Disinfectant 525	Testing Disinfectant against NDM-1 *E.Coli and VRE*	AOAC Official Method, 955.15, Use-Dilution Method	*NDM-1 Escherichia coli Vancomycin Resistant Enterococcus faecalis (VRE)*	**Gram-Negative** Bacteria **Gram-Positive** Bacteria	Killed **10 out of 10** treated carriers in **5% organic soil** load in 10 minutes	
Aquaox Disinfectant 525	AOAC Tuberculocidal Activity of Disinfectants	AOAC Official Method, 965.12, 960.09	*Myobacterium bovis - BCG*	Bacteria that causes **Tuberculosis** in humans	Killed **10 out of 10** treated carriers in **5% organic soil** load in 10 minutes	Bioscience
Aquaox Disinfectant 525	Assessment of Virucidal Activity against Viruses in Suspension	ASTM Guideline E1053, E1482	Swine Influenza A (H1N1) Virus	**Virus**	> 5.50 log reduction in **5% organic soil load** in 10 minutes	ATS Lab
Aquaox Disinfectant 525	Assessment of Virucidal Activity against Viruses in Suspension	ASTM Guideline E1053	Human Immunodeficiency Virus Type 1 (HIV-1)	**Virus**	> 4.125 log reduction in **5% organic soil load** in 10 minutes	Bioscience
Aquaox Disinfectant 525	Assessment of Virucidal Activity against Viruses in Suspension	ASTM Guideline E1053	Rhinovirus 16 (Common Cold Agent)	**Virus**	> 4.000 log reduction in **5% organic soil load** in 10 minutes	ATL Lab
Aquaox Disinfectant 525	Standard Quantitative Disk Carrier Test Method for Determining Sporocidal Activities	ASTM Standard Guideline E2197-11, Standard Quantitative Disk Carrier Test Method	*Clostridium difficile* - spore form	**Spore**	> 5.96 log reduction in 10 minutes in the absernce of organic soil load	ATS Lab

PRODUCT SAFETY

A nonclinical toxicology investigation has been done on the above products as following. The Aquaox Disinfectant products contain Hypochlorous Acid as the active ingredients. The only inactive ingredient in the product solution is residual Sodium Chloride from the electrolysis process. Sodium Chloride (CAS RN 8028-77-1) is listed as an inactive ingredient in FDA CDER database for use in approved drug products. Moreover, the Sodium Chloride used in Aquaox electrolysis process is NSF certified. Therefore, the presence of Sodium Chloride in the Aquaox Disinfectant products does not present a safety concern.

A series of non-clinical toxicology testing has been done on the product solutions to assess their potential local and systemic toxicity. The toxicology studies were conducted at NAMSA and IIT Research Institute (IITRI), both of which being AALAC approved facilities. All toxicology studies conducted were in compliance with Good Laboratory Practice (GLP) regulations.

The GLP toxicology testing program was based on ISO-10993 requirements on biocompatibility testing for a surface device with contact with breached or compromised surface. These studies, together with the study results, are listed in Table 4.

TABLE 6. *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

Exposure to L-929 cells *in vitro* to the product solutions produced a slight cell lysis, which was not considered cytotoxic per USP requirement. Product solutions were also not considered a primary dermal or ocular irritant, and did not show sensitization potential in the dermal and ocular irritation studies. Product was considered non-toxic in both the acute oral toxicity study and the single dose inhalation study when tested at the maximal feasible concentration. In a 28-day repeated dose toxicity study, topical application of the product to intact and wounded skin areas did not result in any treatment-related skin irritation or wound healing issues. Therefore, the results of the toxicology testing program confirmed the biocompatibility and safety profile of the product solutions for its intended use.

AQUAOX Disinfectant 275 & 525

Boeing D6-7127 Test Summary

TECHNICAL SUMMARY – BOEING D6-7127 PROTOCOL

Aquaox Disinfectant 275 | Aquaox Disinfectant 525

I. Protocol: **Boeing D6-7127 Rev P incorporating PDD 6-8 – Cleaning Interiors of Commercial Transport Aircraft**
Category: **Disinfectants**

II. Test Liquids / Properties (as shown on Certificate of Analysis):

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

III. Summary of Test Protocol

The above mentioned liquids have been evaluated according to the Boeing D6-7127 Test Protocol. The test protocol includes 11 different tests as mentioned in a) – k), and each test will be summarized in the subsequent paragraphs. The chemicals, Aquaox Disinfectants 275 and 525, tested for each test are stated under the result table and conclusion of each section.

a) Sandwich Corrosion Test
b) Immersion Corrosion Test
c) Rubber Test
d) Sealant Test
e) Painted Surface Test
f) Tedlar Surface Test
g) Viyle Surface Test
h) Fabric and Carpet Test
i) Leather and Naugahude Test
j) Polycarbonate Crazing Test
k) Flash Point Test

a) SANDWICH CORROSION TEST (Reference: ASTM F1110)

This test method is intended to be used to qualify and approve chemicals employed in aircraft maintenance operations. The method determines whether aircraft structural aluminum alloys are liable to be corroded or damaged by application of the test chemicals during routine maintenance operations. It evaluates the corrosiveness of test chemicals when present between faying surfaces of aluminum alloys commonly used for aircraft structures. Clad 7075-T6 Aluminum Alloy (AMS 4049) and

Bare 7075-T6 Aluminum Alloy (AMS 4045) anodized per MILA-8625 Type I are used as the test surfaces for this test.

Interpretation of the test results is based on a comparison of the appearance of faying surfaces of three sets of coupons. One set of test coupons is exposed with reagent water only in the faying surfaces to establish the baseline controls. The surfaces exposed to the test chemicals are compared with those exposed to reagent water only. Any corrosion in excess of that shown by the control group is considered as non-conformed.

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
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
(A) "Area" refers to area where the test material was applied.

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 result of Aquaox Disinfectant 525 does not conform on the Clad 7075 T6 Aluminum Alloy surface because corrosion caused by the test chemical is in excess of that caused by the test control.
Test results of Aquaox Disinfectant 275 conform for all test surfaces on all test criteria.

b) IMMERSION CORROSION TEST (Reference: ASTM F483)

This method determines the corrosiveness of chemicals on aircraft metals with time under conditions of total immersion through determining the weight change of the test metals after they are immersed with the test chemicals. This method screens test chemicals to ensure compliance with specified weight change criteria. Test chemicals are evaluated on the following panels, 1) Clad 2024-T3 Aluminum (QQ-A-250/5), 2) Bare 2024-T3 Aluminum (QQ-A-250/4) alodined per MIL-C-5541, 3) Bare 2024-T3 Aluminum (QQ-A-250/4) anodized per MIL-A-8625 Type I, and 4) Bare 7178-T6 Aluminum (QQ-A-250/14) anodized per MIL-A-8625 Type I.

Small sections of the above materials are exposed to the test chemical and dried. The weight of the test panel is measured before and after the exposure and drying times. The test chemical shall neither show evidence of corrosion of the test panels nor cause a weight change of the test panels greater than ± 10mg in a 24-hour immersion period per each 1" x 2" test panel.

Aquaox Test Results:

Test Chemical	Test Panel	Weight Loss in mg (per 1" x 2" panel)	Test Result
Aquaox Disinfectant 525	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: Test results of the Aquaox Disinfectant 525 conform on all test panels for all test criteria.

c) RUBBER TEST (Reference: ASTM D471)

This test method evaluates the comparative ability of rubber and rubber-like compositions to withstand the effect of test liquids. It is designed for testing: (1) specimens of vulcanized rubber cut from standard sheets, (2) specimens cut from fabric coated with vulcanized rubber, or (3) finished articles of commerce. Rubber specimens are immersed in the test chemical for 24 hours and are evaluated on the following property changes. Changes in properties shall not exceed the following criteria.

Aquaox Test Results:

Test Chemical	Property	Maximum Change Allowed	Test Result
Aquaox Disinfectant 525	Tensile Strength	25 % Loss	< 5 %
	Elongation	25 % Loss	< 5 %
	Volume	± 15 % Loss	< 5 %

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

d) SEALANT TEST

This test method evaluates a sealed surface to withstand the effect of the test liquids. An Aluminum surface primed with paint (that is normally used in Boeing aircrafts) is smeared with the BMS 5-95 Sealant, a sealant commonly used in aircraft materials. The aircraft surface is sealed with 4" x 1" x 0.25" (length x width x thickness) sealant strips, and is immersed in the test liquid for 70 ± 2 hours for 120 ± 5 °F. No lifting or loss of adhesion shall be observed on the test surface after immersion.

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: Test result of Aquaox Disinfectant 525 conforms on all test surfaces for all test criteria.

e) PAINTED SURFACE TEST (Reference: ASTM F502)

This test method covers the determination of the effects of cleaning solutions and chemical maintenance materials on painted aircraft surfaces. Plate and sheet specimens of aluminum alloy are examined under the test liquids. This test method is applicable to any painted film that is exposed to cleaning materials. Test liquid is heated to 149 ± 4 °F and applied to a painted surface having an initial surface temperature of 72 ± 2 °F. Following exposure, streaking, discoloration, and blistering will be determined visually on the test surface. Softening will also be determined with a series of specially prepared pencils wherein determination of the softest pencil to rupture the paint film on the test surface is made. Test liquid shall not produce any color change and shall not decrease the paint film hardness for more than 2 pencil hardnesses.

Aquaox Test Results:

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

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

f) TEDLAR SURFACE TEST

This method is used to ensure that test liquids do not leave any scratching, color change or staining on the test tedlar surfaces after exposure to the test liquids. Visual observation is used to determine any scratching or permanent stains which require polishing to remove. Test surfaces are exposed to the test liquid for a specific amount of time in room temperature and then rinsed. Exposed surfaces shall not show any scratching, any greater-than-minimal color change or any 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 method is used to ensure that test liquids do not leave any cracking, brittleness, color change or staining on the test vinyl surfaces after exposure to the test liquids. Test surfaces are exposed to the test liquid for a specific amount of time in room temperature and then rinsed. Exposed surfaces then are visually examined and shall not show any of this above mentioned signs.

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 method is used to ensure that test liquids do not cause any color change or staining on the test fabric and carpet surfaces after exposure to the test liquids. Test surfaces are exposed to the test liquid for a specific amount of time in room temperature and then rinsed. Exposed surfaces are then visually evaluated to check for any color change or staining after exposure to the test liquid.

The test fabric and carpet surfaces are also evaluated on its flammability after being immersed into the test liquid and dried. Test surfaces are completely coated with the test liquid, let soaked for a specific amount of time and then allowed to dry. The dried surfaces are then hung, applied with a flame and allowed for a vertical burn for 12 seconds. Self-Extinguishing time, Burn Length and Drip Extinguish Time will then be determined on the test surfaces. Each of these parameters shall not exceed the maximum value as stated in the table below.

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 practice is used to evaluate the compatibility of the test liquids with the test surfaces, i.e. lather and naugahyde surfaces. Test surfaces are exposed to the test liquid for a specific amount of time in room temperature and then rinsed. Visual observation is used for determining any signs of crackling or brittleness, as well as any color change or staining of exposed surfaces. Exposed surfaces shall not show any of the above mentioned signs after exposure to the test liquid.

Aquaox Test Results:

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

Conclusion: Test results of Aquaox Disinfectant 525 conform 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 caused by test liquids on the test materials under bending stress. The materials to be tested include Lexan 9600 and BMS8-400 BAC 70913 plastics, which are commonly used in aircraft structures. Each test surface is bent under a strain of 0.008 and the stressed materials are then exposed to the test liquid for 10 minutes. Exposed surfaces are then visually examined on any signs of cracking or crazing after exposure to test liquids.

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: Test results of Aquaox Disinfectant 525 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 shall be approved by the Fire Protection Engineering before they can be evaluated to be used.

Aquaox Test Result / Conclusion: No flash point is observed to 212°F for the test liquid.

IV. Summary of all Test Results

Test results of Aquaox Disinfectant 525 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. This test was later repeated with the Aquaox Disinfectant 275, with a passing test result.

V. 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 011415
- Aquaox Certificate of Analysis, Aquaox Disinfectant 275, dated 032715

Electrostatic Spray Safety Assessment

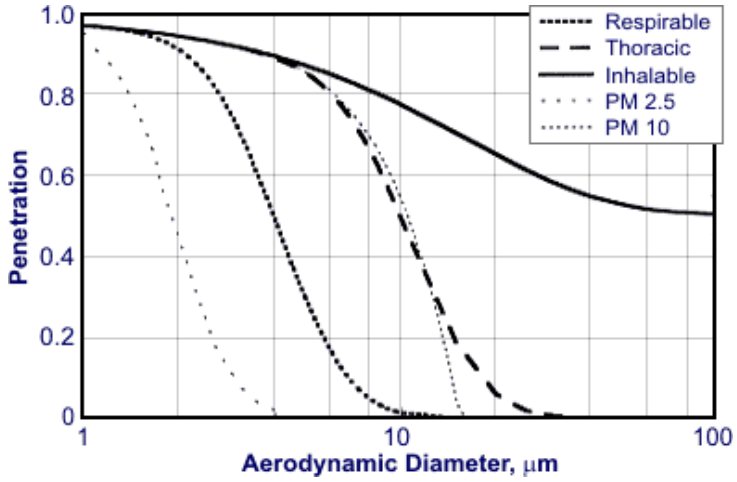
I. Particle Size

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[1].

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 [2].

Particle size in inhalation toxicity is usually defined by their mass median aerodynamic diameter (MNAD) and aerodynamic equivalent diameter (AED) in micrometers (μm). 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 >25μm 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 ≤25μm 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 ≤10μm 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 μm and atmospheric dust has a particle size of 0.001 - 40 μm whereas viruses have a particle size of 0.002 – 0.03 μm. The US EPA generally controls substances with a particle size of less than 10μm. The SEHSC recommends using 30μm MMAD (Mass Median Aerodynamic Diameter) with no more than 1% of particles having an AED of ≤10μm as the cutoff when considering a consumer aerosol application to ensure all aerosol particles to be trapped in the nasopharyngeal region[3]. In general, inhaled particles with larger particle size of >25μm 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 µm 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.

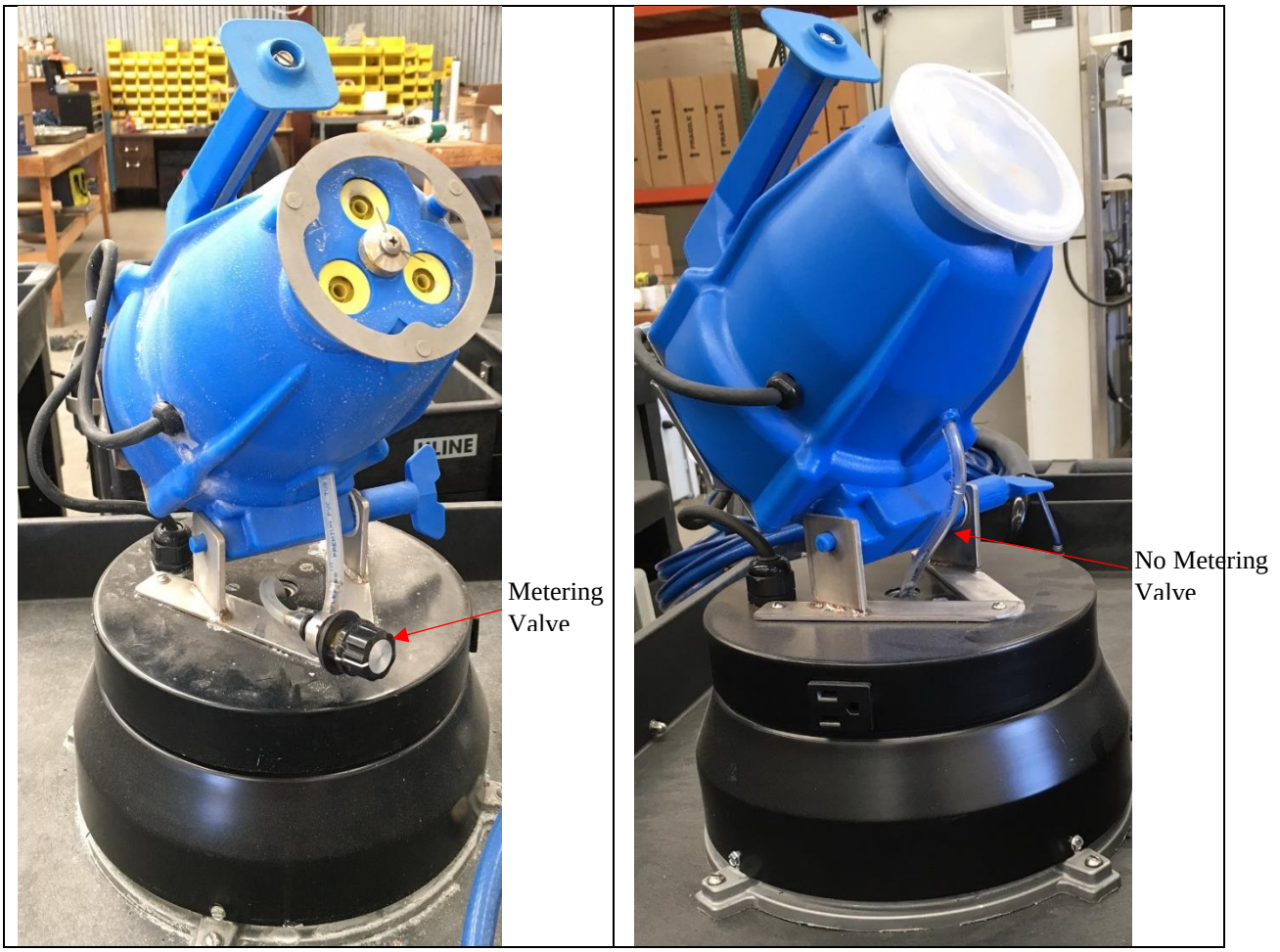
Table 1: Valve Position Settings, Approximate Flow Rates and Droplet Size

Position	Flow Rate	Droplet Size (µm 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 µm VMD. Since increasing flow rate associates with increasing particle size, the particle size will definitely be larger than 30 µm VMD as a result of the removal of the metering valve.

Original Spray Head with Metering Valve	Modified Spray Head with No 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 µm VMD due to the modification of the device. As explained in the previous page, inhaled substances with a particle size of larger than 30 µm 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 µm 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)

Droplet Size (µm VMD)	Time to fall 10 meters	Droplet Density (no/cm^3)
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^3 where mg/m^3 is defined as mg Chlorine per m^3 of air), and a time-weighted average for up to 8 hours not to exceed 0.5 ppm (1.5 mg/m^3). 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 sulfumic 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 di-chloramines, 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:

1st Trial:
Air Sample Collection Date: October 5, 2015 (AX275)
October 6, 2015 (AX525)
Specifications of Test Solutions:

	Aquaox Disinfectant 275	**Aquaox Disinfectant 525**
FAC (ppm)	300	546
pH	6.79	6.58
ORP	832	873
Conductivity	2323	3250

2nd Trial:
Air Sample Collection Date: October 8, 2015 (AX275)
October 9, 2015 (AX525)

	Aquaox Disinfectant 275	**Aquaox Disinfectant 525**
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% sulfumic 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:

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

Specifications of Standard Solution:

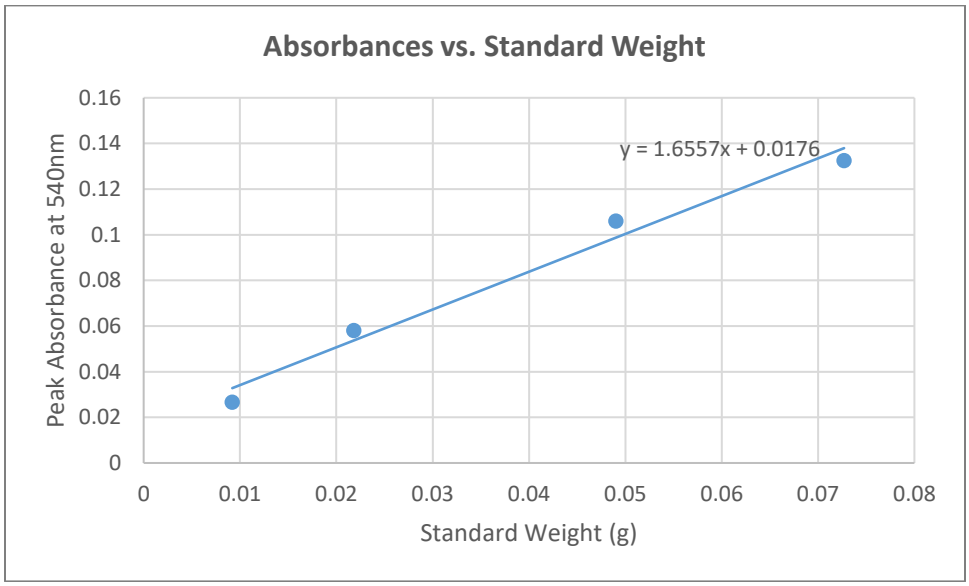
FAC (ppm)	295
pH	6.90 / 25.7C

Aquaox Disinfectant 275:

Absorbances of Standard and Collected Sample:

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

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 x 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:	**0.444mg/m^3**
* HOCl Concentration of Air Sample, ppm:	**0.207ppm**

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

Physical Form of Substance Sampled	Unit of Air Concentration	Formula for Direct Comparison With OSHA PEL Table
Gas	ppm	$C_v = \frac{m \cdot 10^3}{V} \cdot \frac{24.46}{MW}$
Gas	mg/m3	$C = \frac{m \cdot 10^3}{V}$
Aerosol	mg/m^3	$C = \frac{m \cdot 10^3}{V}$

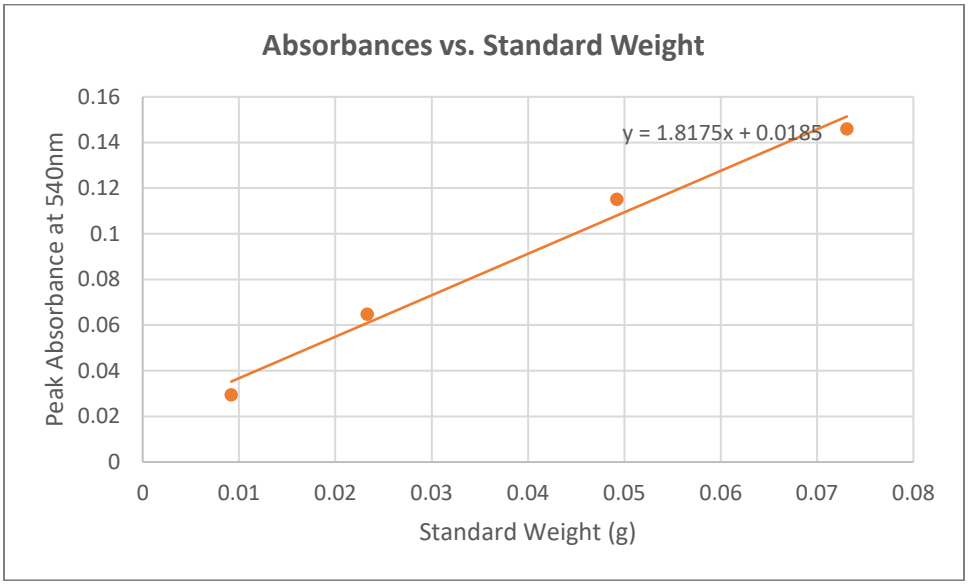
where: m = actual mass of substance, in mg, found on the sampling device
V = air volume, L, taken at the sampling site, ambient temperature and pressure
24.46 = the volume (L) of 1 mole of gas at 25 °C and 760 mm Hg
C_v = air concentration, ppm by volume, at 25 °C and 760 mm Hg
C = air concentration,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

Aquaox Disinfectant 525

Absorbances of Standard and Collected Sample:

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

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 x 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:	**0.562mg/m^3**
* HOCl Concentration of Air Sample, ppm:	**0.262ppm**

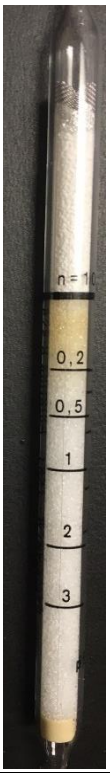
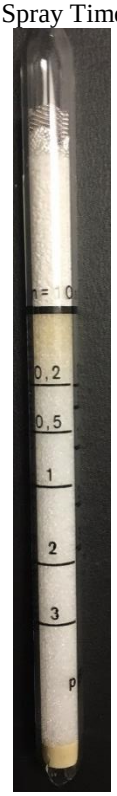
Interpretation:
After a 5-minute spray time and a 10-minute dwell time using the AX275 solution, the HOCl concentration in the air sample collected in a 15-minute collection time is 0.444mg/m^3 (0.444mg HOCl per m^3 of air volume or 0.207ppm). For the AX525 solution, the HOCl concentration i is 0.562mg/m^3 (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:

Aquaox Disinfectant 275		**Aquaox Disinfectant 525**	
Immediate after Spray Time	10 Minutes after Spray Time	Immediate after Spray Time	10 Minutes after Spray Time
			

	Aquaox Disinfectant 275	**Aquaox Disinfectant 525**
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:

	Aquaox Disinfectant 275	**Aquaox Disinfectant 525**
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),

1. Wikipedia
2. Airborne dangers, EHS Today, May 1, 1999
3. Guidance for Aerosol Applications of Silicone-Based Materials

AQUAOX Disinfectant 275 & 525

EPA Registration

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

May 6, 2019

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

Subject: Notification per PRN 98-10 – Additional container sizes, optional language and hard, non-porous surfaces of cpap medical equipment
Product Name: Aquaox Disinfectant 275
EPA Registration Number: 93392-1
Application Date: December 19, 2018
Decision Number: 548467

Dear Mr. Kutcel:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Antimicrobials Division (AD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped "Notification" and will be placed in our records.

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) list 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 Compliance.

If you have any questions, you may contact Wanda Henson at (703) 308-6345 or via email at henson.wanda@epa.gov

Sincerely,

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

Highlighted

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

CAUTION

See Back Label for Precautionary Statements

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

NOTIFICATION

93392-1

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

05/06/2019

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, a n 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 precautionary statements, 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.

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.

Pathogen	Strain	Contact Time
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
+ Easy to Handle
+ For Use on Bathroom Surfaces
+ For Use in Athletic Facilities
+ For Use on Athletic Equipment
+ 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

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 ¼ 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 ¼ 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."

PRECAUTIONARY STATEMENTS

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

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes. When handling the product, wear safety glasses or goggles. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID **Call a poison control center or doctor for treatment advice. Have the product container or label with you when calling a poison control center, doctor or going for treatment. You may also contact the National Pesticide Information Center (NPIC) 1-800-858-7378 for emergency medical treatment information.**	
If in eyes	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

February 25, 2019

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

Subject: Notification per PRN 98-10 – Add large container handling instructions
Product Name: AQUAOX DISINFECTANT 525
EPA Registration Number: 2
Application Date: October 15, 2018
Decision Number: 545317

Dear Kutcel:

The Agency is in receipt of your Application for Pesticide Notification under Pesticide Registration Notice (PRN) 98-10 for the above referenced product. The Antimicrobials Division (AD) has conducted a review of this request for its applicability under PRN 98-10 and finds that the action requested falls within the scope of PRN 98-10.

The label submitted with the application has been stamped "Notification" and will be placed in our records.

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) list 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 Compliance.

If you have any questions, you may contact Mohammad Alavi at (703) 347-0522 or via email at Alavi.mohammad@epa.gov.

Sincerely,

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

NOTIFICATION

93392-2

The applicant has certified that no changes, other than those reported to the Agency have been made to the labeling. The Agency acknowledges this notification by letter dated:

02/25/2019

HIGHLIGHTED

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

CAUTION

See Back Label for Precautionary Statements

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: 1 gallon, 5gallon, 30 gallon, 55 gallon, 275 gallon, 330 gallon, 660 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, an efficient and efficacious species of chlorine. Hypochlorous Acid kills bacteria, fungi, molds, viruses and spores.

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.

Aquaox Disinfectant 525 is intended to be used soon after being produced.

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 precautionary statements, 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.

DIRECTIONS FOR USE

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

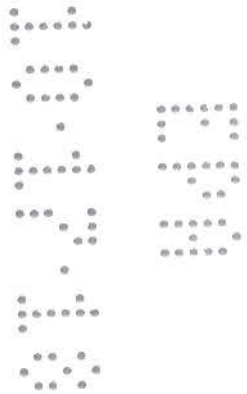
Hard, Non-Porous Surface Disinfection

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.

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 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 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.

Pathogen	Strain	Contact Time
Pseudomonas aeruginosa	ATCC 15442	10 minutes
Staphylococcus aureus	ATCC 6538	10 minutes
Staphylococcus aureus (HA-MRSA)	ATCC 33591	10 minutes
Swine Influenza Virus (H1N1)	ATCC VR-333	10 minutes
Escherichia coli (NDM)	ATCC BAA-2469	10 minutes
Vancomydin Resistant Enterococcus feacalis (VRE)	ATCC 700221	10 minutes
Human Immunodeficiency Virus Type 1 (HIV-1)	Mn; ZeptoMetrix #0810027CF	10 minutes
Mycobacterium bovis (BCG)	ATCC #35734	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 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
+ Fight(s) - and/or - Kill(s) - and/or - Effective against *Salmonella enterica*
+ Fight(s) - and/or - Kill(s) - and/or - Effective against *Staphylococcus aureus* and *MRSA*
+ 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 sites listed on Tables 1 – 4
+ Kills bacteria
+ Kills many common bacteria
+ Kills odor-causing bacteria
+ Kills - or - Effective against bacteria
+ Multi-purpose disinfectant
+ 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.
+ Pseudomonocidal
+ Ready-to-use hospital disinfectant
+ Staphylocidal
+ The answer to your disinfecting needs
+ The quick - and/or - 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 Prime importance
+ Kills - or - Effective against H1N1 Swine Influenza virus

GENERAL CLAIMS

+ Convenient
+ For General Use
+ For use on Nursery Surfaces
+ Suitable for HOSPITAL USE
+ Easy to Handle
+ For use on Bathroom Surfaces
+ For use in Athletic Facilities
+ For use on Athletic Equipment
+ 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

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

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 Operatory rooms
+ Dental - or - Dentist's Offices

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 - Stall Areas
+ 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)

+ 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.

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: Nonrefillable 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 ¼ 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 ¼ 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."

PRECAUTIONARY STATEMENTS

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

Hazards to Humans and Domestic Animals

CAUTION

Causes moderate eye irritation. Avoid contact with eyes. When handling the product, wear safety glasses or goggles. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco or using the toilet.

FIRST AID

Call a poison control center or doctor for treatment advice. Have the product container or label with you when calling a poison control center, doctor or going for treatment. You may also contact the National Pesticide Information Center (NPIC) 1-800-858-7378 for emergency medical treatment information.

If in eyes	• Hold eye open and rinse slowly and gently with water for 15 – 20 minutes. • Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.

AQUAOX Disinfectant & Cleaner

Safety Data Sheets

Safety Data Sheet
AQUAOX DISINFECTANT 275

SECTION I – IDENTIFICATION

Product Name: Aquaox Disinfectant 275 | Product Number: AX275
Product Description: Hypochlorous Acid Solution Generated Electro-Chemically from Diluted Brine
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

HMIS Rating:

- Health = 0
- Flammabitity = 0
- Physical = 0
- Reactivity = 0

NFPA/HMIS Definitions
0 = Minimal Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

Personal Protection Index: B (Eye Protection and Gloves)

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:

- Avoid Contact with Eyes and Skin
- Wash Hands after Handling Product
- 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
Sodium Hypochlorite	7681-52-9
Sodium Chloride	7647-14-5

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

SECTION IV – FIRST-AID MEASURES

Skin Contact: In case of contact, flush with plenty of water. Cold water may be used. Wash clothing before reuse. Seek medical attention if skin irritation occurs.
Eye Contact: Check for and remove any contact lenses. Flush eyes with running water for at least 15 minutes with eyelids open. Cold water may be used. Seek medical attention if eye irritation occurs.
Inhalation: If inhaled, remove to fresh air. Seek medical attention if not breathing or breathing is difficult.
Ingestion: If swallowed, rinse mouth with water and drink plenty of fluids. Seek medical attention if discomfort occurs.

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, but good manufacturing practice recommends the use of chemical safety glasses or goggles for all applications involving chemical handling.

SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Slight Chlorine Odor
pH:	6.2 – 7.0
Specific Gravity (H_2O = 1 at 20°C):	1.00 – 1.06
Density:	8.34 lbs/gal
Viscosity:	Comparable to Water
Boiling Point:	Comparable to Water
Evaporation Rate:	Comparable to Water
Solubility:	Complete in Water
Flammability:	Non-Flammable
Explosive Limits:	Non-Explosive

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.

Preparation Date of Latest Revision: January 8, 2018

Safety Data Sheet
AQUAOX DISINFECTANT 525

SECTION I – IDENTIFICATION

Product Name: Aquaox Disinfectant 525 | Product Number: AX525
Product Description: Hypochlorous Acid Solution Generated Electro-Chemically from Diluted Brine
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

HMIS Rating:

- Health = 0
- Flammabitity = 0
- Physical = 0
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NFPA/HMIS Definitions
0 = Minimal Hazard
1 = Slight Hazard
2 = Moderate Hazard
3 = Serious Hazard
4 = Severe Hazard

Personal Protection Index: B (Eye Protection and Gloves)

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:

- Avoid Contact with Eyes and Skin
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Hypochlorous Acid	7790-92-3
Sodium Hypochlorite	7681-52-9
Sodium Chloride	7647-14-5

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

SECTION IV – FIRST-AID MEASURES

Skin Contact: In case of contact, flush with plenty of water. Cold water may be used. Wash clothing before reuse. Seek medical attention if skin irritation occurs.
Eye Contact: Check for and remove any contact lenses. Flush eyes with running water for at least 15 minutes with eyelids open. Cold water may be used. Seek medical attention if eye irritation occurs.
Inhalation: If inhaled, remove to fresh air. Seek medical attention if not breathing or breathing is difficult.
Ingestion: If swallowed, rinse mouth with water and drink plenty of fluids. Seek medical attention if discomfort occurs.

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, but good manufacturing practice recommends the use of chemical safety glasses or goggles for all applications involving chemical handling.

SECTION IX – PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Color:	Clear
Odor:	Slight Chlorine Odor
pH:	6.2 - 7.0
Specific Gravity (H_2O = 1 at 20°C):	1.00 – 1.06
Density:	8.34 lbs/gal
Viscosity:	Comparable to Water
Boiling Point:	Comparable to Water
Evaporation Rate:	Comparable to Water
Solubility:	Complete in Water
Flammability:	Non-Flammable
Explosive Limits:	Non-Explosive

SECTION X – STABILITY AND REACTIVITY

Reactivity:	Not Reactive under recommended handling and storage conditions.
Chemical Stability:	Stable under recommended handling and storage conditions.
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Conditions to Avoid:	Direct light exposure, freezing and extreme heat.
Materials to Avoid	Strong oxidizing agents, strong acids and organic materials.
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Hazardous Polymerization	Will not occur.

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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.

Preparation Date of Latest Revision: January 8, 2018