

VIRUCIDAL DATA

Test Method: *U.S. EPA Pesticide Assessment Guidelines, Subdivision G: Product Performance, 1982, Section 91-30, pp. 72-76.

† Virucide Assay (EPA, Federal Register 10, No. 123, 6/25/75, p. 26836)

■ Protocols for Testing the Efficacy of Disinfectants against Hepatitis B Virus (HBV) (EPA, Federal Register, Vol. 65, No. 166, 8/25/2000, p. 51828).

‡ Protocol for Testing Disinfectants against Hepatitis C Virus using Bovine Viral Diarrhea Virus as approved by the U.S. EPA on August 15, 2002.

Test Conditions: 2 oz/gal dilution, 10 minute contact time - glass petri dish substrates - tested in the presence of organic soil load.

Results:

<u>Test Organism</u>	<u>Sample</u>	<u>Titer Reduction</u>
† Adenovirus Type 2	A	3.0 log ₁₀
	B	>3.0 log ₁₀
* Avian Influenza A Virus (H3N2) (Avian Reassortant) (ATCC VR-2072)	A	≥3.5 log ₁₀
	B	≥3.5 log ₁₀
* Avian Influenza Virus, Type A (Turkey/WIS/66) (H9N2)	A	≥4.5 log ₁₀
	B	≥4.5 log ₁₀
‡ Bovine Viral Diarrhea Virus (BVDV)	A	6.1 log ₁₀
	B	3.8 log ₁₀
* Feline Calicivirus (FCV)	A	5.79 log ₁₀
	B	>6.06 log ₁₀
■ Hepatitis B Virus (HBV) (Duck Hepatitis B Virus-DHBV)	A	4.5 log ₁₀
	B	4.5 log ₁₀
‡ Hepatitis C Virus (HCV) (Bovine Viral Diarrhea Virus-BVDV)	A	6.1 log ₁₀
	B	3.8 log ₁₀
† Herpes Simplex Type I (Sabin)	A	≥4.0 log ₁₀
	B	≥3.7 log ₁₀
* Human Coronavirus (ATCC VR-740, strain 229E)	A	≥3.0 log ₁₀
	B	≥3.0 log ₁₀
* Human Immunodeficiency Virus, HTLV-III _{RF} , strain of HIV-1 (associated with AIDS)	A	≥3.0 log ₁₀
	B	≥3.0 log ₁₀
† Influenza A2 (Japan 305/57)	A	>6.5 log ₁₀
	B	>6.0 log ₁₀
* Norovirus (Norwalk Virus) (FCV)	A	5.79 log ₁₀
	B	>6.06 log ₁₀
† Pandemic 2009 H1N1 Influenza A Virus	A	(Refer to NOTE below.)
	B	(Refer to NOTE below.)
* Porcine Respiratory & Reproductive Syndrome Virus (PRRSV) (Strain NVSL)	A	≥4.75 log ₁₀
	B	≥4.75 log ₁₀
* SARS Associated Coronavirus (ZeptoMetrix)	A	4.03 log ₁₀
	B	4.03 log ₁₀

†Vaccinia (Wyeth)	A&B	>3.5 log ¹⁰ >3.5 log ¹⁰
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Conclusion: Under the conditions of this investigation, AIRX 44 HDQ Disinfectant Cleaner and Odor Counteractant demonstrated **virucidal** activity for Adenovirus Type 2, Avian Influenza A Virus (H3N2), Avian Influenza Virus Type A (H9N2), Bovine Viral Diarrhea Virus (BVDV), Feline Calicivirus (FCV), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Herpes Simplex Type 1, Human Coronavirus, Human Immunodeficiency Virus (HIV), Influenza A2, Norovirus (Norwalk Virus), Pandemic 2009 H1N1 Influenza A Virus, Porcine Respiratory & Reproductive Syndrome Virus (PRRSV), SARS Associated Coronavirus and Vaccinia according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a virucide.

NOTE: Per the EPA guidance document dated October 21, 2009, disinfectant products that bear label claims against human, avian, or swine influenza A virus, and have submitted and received approval of efficacy data to support these label claims, may include a label claim against the Pandemic 2009 H1N1 Influenza A Virus.

MILDEW FUNGISTATIC DATA:

Test Method: Hard Surface Mildew Fungistatic Test (Unofficial Protocol, 10/27/706)

Test Organisms: *Aspergillus niger* (ATCC 6275)

Test Conditions: tile substrates

Results:

<u>Sample</u>	<u>Dilution</u>	<u>No. of Exposed Tiles</u>	<u>No. of Tiles Showing Growth</u>
AIRX 44 HDQ	2 oz/gal	10	0
Control	-	10	10

Conclusion: Under the conditions of this investigation, AIRX 44 HDQ Disinfectant Cleaner and Odor Counteractant demonstrated **fungistatic** activity against *Aspergillus niger* according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a fungistat.

FUNGICIDAL DATA:

Test Method: AOAC Fungicidal Test

Test Organisms: *Trichophyton mentagrophytes* (ATCC 9533)

Test Conditions: 2 oz/gal dilution
5% organic soil load
20°C exposure temperature

Results:

<u>Sample</u>	<u>Exposure Time (min.) vs. Growth</u>		
	<u>5</u>	<u>10</u>	<u>15</u>
A	+	0	0
B	+	0	0

Conclusion: Under the conditions of this investigation, AIRX 44 HDQ Disinfectant Cleaner and Odor Counteractant demonstrated **fungicidal** activity for *Trichophyton mentagrophytes* according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a fungicide.

DISINFECTION DATA:

Test Method: AOAC Use Dilution

Test Conditions: 2 oz/gal dilution 5% organic soil load, 10 minute contact time, stainless steel carrier substrates, 20°C exposure temperature.

Results:

<u>Test Organisms</u>	<u>Sample</u>	<u>No. of Carriers</u>	
		<u>Exposed</u>	<u>Positive</u>
<i>Staphylococcus aureus</i> (ATCC 6538)	A	60	0
	B	60	0
	C	60	0
<i>Salmonella enterica</i> (ATCC 10708)	A	60	0
	B	60	0
	C	60	0
<i>Pseudomonas aeruginosa</i> (ATCC 15442)	A	60	0
	B	60	0
	C	60	0
<i>Acinetobacter baumannii</i> (ATCC 19606)	A	10	0
	B	10	0
<i>Brevibacterium ammoniagenes</i> (ATCC 6871)	A	10	0
	B	10	0
<i>Enterobacter aerogenes</i> (ATCC 13048)	A	10	0
	B	10	0
<i>Escherichia coli</i> (ATCC 11229)	A	10	0
	B	10	0
<i>Klebsiella pneumoniae</i> (ATCC 4352)	A	10	0
	B	10	0
<i>Klebsiella pneumoniae</i> New Delhi Metallo-Beta Lactamase (NDM-1) Carbapenem Resistant	A	10	0
	B	10	0
<i>Methicillin resistant Staphylococcus aureus</i> (MRSA) (ATCC 33593)	A	10	0
	B	10	0
<i>Salmonella schottmuelleri</i> (ATCC 8759)	A	10	0
	B	10	0
<i>Shigella dysenteriae</i> (ATCC 12180)	A	10	0
	B	10	0
<i>Streptococcus faecalis</i> (ATCC 10541)	A	10	0
	B	10	0
<i>Streptococcus pyogenes</i> (Clinical-Flesh Eating strain, BIRD M3)	A	10	0
	B	10	0
<i>Streptococcus salivarius</i> (ATCC 9222)	A	10	0
	B	10	0
<i>Vancomycin intermediate resistant Staphylococcus aureus</i> (VISA) (HIP 5836)	A	10	0
	B	10	0

Vancomycin resistant <i>Enterococcus faecalis</i> (VRE) (ATCC 51299)	A	10	0
	B	10	0

Conclusion: Under the conditions of these investigations, AIRX 44 HDQ Disinfectant Cleaner and Odor Counteractant demonstrated **disinfectant** activity against *Staphylococcus aureus*, *Salmonella enterica*, *Pseudomonas aeruginosa*, *Acinetobacter baumannii*, *Brevibacterium ammoniagenes*, *Enterobacter aerogenes*, *Escherichia coli*, *Klebsiella pneumoniae*, *Klebsiella pneumoniae New Delhi Metallo-Beta Lactamase (NDM-1) Carbapenem Resistant*, *Methicillin resistant Staphylococcus aureus (MRSA)*, *Salmonella schottmuelleri*, *Shigella dysenteriae*, *Streptococcus faecalis*, *Streptococcus pyogenes* (Clinical-Flesh Eating strain, BIRD M3), *Streptococcus salivarius*, Vancomycin intermediate resistant *Staphylococcus aureus* (VISA) and Vancomycin resistant *Enterococcus faecalis* (VRE) according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a bactericide.

BACTERICIDAL STABILITY DATA OF USE-SOLUTION:

Test Method: Use Dilution

Test Conditions: 2 oz/gal dilution 5% organic soil load, 10 minute contact time, stainless steel carrier substrates, deionized water, 20°C exposure temperature.

Storage Conditions: sealed containers at room temperature

Results:

<u>Test Time</u>	<u>Sample</u>	<u>Test Organisms</u>	<u>No. of Carriers</u>	
			<u>Exposed</u>	<u>Positive</u>
Zero Time	A	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
	B	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
Week 1	A	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
	B	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
Week 2	A	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
	B	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
Week 3	A	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
	B	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
Week 4	A	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0
	B	<i>Staphylococcus aureus</i> (ATCC 6538)	10	0
		<i>Salmonella enterica</i> (ATCC 10708)	10	0
		<i>Pseudomonas aeruginosa</i> (ATCC 15442)	10	0

Conclusion: The results of this investigation show that a 2 oz/gal use dilution of AIRX 44 HDQ Disinfectant Cleaner and Odor Counteractant will demonstrate disinfectant efficacy against *Staphylococcus aureus*, *Salmonella enterica*, and *Pseudomonas aeruginosa* for up to 4 weeks in accordance with criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a bactericide.