



EFFICACY DATA for HUSKY 891 ARENA DISINFECTANT (EPA Reg. No. 1839-166-8155)

VIRUCIDAL DATA:

Test Methods:

* U.S. E.P.A. Pesticide Assessment Guidelines, Subdivision G: Product Performance, Section 91-2 (f), and Section 91-30, (d), (e), November 1982.

† 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: 10 minute contact time, 5% organic soil load, sterile glass petri dishes, 400 ppm hard water, 21-24°C exposure temperature, 1 oz/gal dilution

Results:

Test Organism	Sample		Titer Reduction	
	A	B	A	B
*Avian Influenza A Virus (H3N2) (Avian Reassortant) (ATCC VR-2072)	A	B	>4.25 log ₁₀	>4.25 log ₁₀
*Avian Influenza Virus, Type A (Turkey/WIS/66) (H9N2)	A	B	>4.0 log ₁₀	>4.0 log ₁₀
‡Bovine Viral Diarrhea Virus (BVDV)	A	B	5.9 log ₁₀	5.9 log ₁₀
*Canine Distemper, strain Lederle (ATCC VR-128)	A	B	>6.25 log ₁₀	>6.25 log ₁₀
*Feline Picornavirus, strain FRV (ATCC VR-649)	A	B	>4.25 log ₁₀	>4.25 log ₁₀
†Hepatitis B Virus (HBV) (Duck Hepatitis B Virus-DHBV)	A	B	4.5 log ₁₀	4.7 log ₁₀
‡Hepatitis C Virus (HCV) (Bovine Viral Diarrhea Virus-BVDV)	A	B	5.9 log ₁₀	5.9 log ₁₀
*Herpes Simplex Type 1 (ATCC VR-260)	A	B	>5.0 log ₁₀	>5.0 log ₁₀
*Herpes Simplex Type 2 (ATCC VR-734)	A	B	>6.0 log ₁₀	>6.0 log ₁₀
*Human Coronavirus (ATCC VR-740, strain 229E)	A	B	>3.0 log ₁₀	>3.0 log ₁₀
*Human Immunodeficiency Virus, HTLV-III _{RF} , strain of HIV-1 (associated with AIDS)	A	B	>3.5 log ₁₀	>3.5 log ₁₀
*Human Immunodeficiency Virus type 2 (HIV-2), strain CBL-20	A	B	>3.25 log ₁₀	>3.25 log ₁₀
*Infectious Bovine Rhinotracheitis, strain LA (ATCC VR-188)	A	B	>5.0 log ₁₀	>5.0 log ₁₀
*Influenza A ₂ , strain Hong Kong (ATCC VR-544)	A	B	>4.25 log ₁₀	>4.25 log ₁₀
*Pseudorabies, strain Aujeszky (ATCC VR-135)	A	B	>5.25 log ₁₀	>5.25 log ₁₀
*Rotavirus, strain SA-11 (ATCC VR-899)	A	B	4.5 log ₁₀	4.5 log ₁₀
*SARS Associated Coronavirus (ZeptoMetrix)	A	B	3.03 log ₁₀	3.03 log ₁₀
*Vaccinia, strain WR (ATCC VR-119)	A	B	>5.5 log ₁₀	>5.5 log ₁₀

Conclusion: Under the conditions of this investigation, this product was **virucidal** for Avian Influenza A Virus (H3N2), Avian Influenza Virus, Type A (H9N2), Bovine Viral Diarrhea Virus (BVDV), Canine Distemper, Feline Picornavirus, Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Herpes Simplex Type 1, Herpes Simplex Type 2, Human Coronavirus, Human Immunodeficiency Virus (HIV-1), Human Immunodeficiency Virus Type 2 (HIV-2), Infectious Bovine Rhinotracheitis, Influenza A₂, Pseudorabies, Rotavirus, 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.



EFFICACY DATA for HUSKY 891 ARENA DISINFECTANT (EPA Reg. No. 1839-166-8155)

MILDEW FUNGISTATIC DATA:

Test Method: Hard Surface Mildew Fungistatic Test

Test Organism: *Aspergillus niger* (ATCC 6275)

Test Conditions: 400 ppm hard water, ceramic tile carriers, 1 oz/gal dilution

Results:

Sample	No. of Exposed Tiles	No. of Tiles Showing Growth
A	10	0
B	10	0
Control	10	10

Conclusion:

Under the conditions of this investigation, this product was **fungistatic** for *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 Activity of Disinfectants

Test Conditions: 5% organic soil load, 20°C exposure temperature, 200 ppm hard water, 1 oz/gal dilution

Results:

Exposure Time (min.) vs. Growth

Test Organism	Sample	Exposure Time (min.) vs. Growth		
		5	10	15
<i>Trichophyton mentagrophytes</i> (ATCC 9533)	A	+	0	0
	B	+	0	0
<i>Candida albicans</i> (ATCC 10231)	A	0	0	0
	B	0	0	0

Conclusions:

Under the conditions of this investigation, this product was **fungicidal** for *Trichophyton mentagrophytes* and *Candida albicans* according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a fungicide.



EFFICACY DATA for HUSKY 891 ARENA DISINFECTANT (EPA Reg. No. 1839-166-8155)

DISINFECTION DATA:

Test Method: AOAC Use Dilution

Test Conditions: 5% organic soil load, 10 minute contact time, stainless steel carrier substrates, 400 ppm hard water, 20°C exposure temperature, 1 oz/gal dilution

Results:

Test Organism	Sample	No. of Carriers	
		Exposed	Positive
<i>Staphylococcus aureus</i> (ATCC 6538)	A	60	1
	B	60	1
	C	60	1
<i>Salmonella enterica</i> (ATCC 10708)	A	60	0
	B	60	0
	C	60	1
<i>Pseudomonas aeruginosa</i> (ATCC 15442)	A	60	0
	B	60	0
	C	60	1
<i>Bordetella bronchiseptica</i> (ATCC 31437)	A	10	0
	B	10	0
<i>Clostridium difficile</i> (vegetative form) (ATCC 9689)	A	10	0
	B	10	0
Community Associated Methicillin Resistant <i>Staphylococcus aureus</i> (CA-MRSA) (NRS 123, Genotype USA400)	A	10	0
	B	10	0
	C	10	0
Community Associated Methicillin Resistant <i>Staphylococcus aureus</i> (CA-MRSA) (NRS 384, Genotype USA300)	A	10	0
	B	10	0
	C	10	0
<i>Corynebacterium ammoniagenes</i> (ATCC 6871)	A	10	0
	B	10	0
<i>Enterobacter aerogenes</i> (ATCC 13048)	A	10	0
	B	10	0
<i>Enterobacter cloacae</i> (ATCC 23355)	A	10	0
	B	10	0
<i>Enterobacter cloacae</i> (clinical isolate)	A	10	0
	B	10	0
<i>Enterococcus faecalis</i> (ATCC 19433)	A	10	0
	B	10	0
<i>Enterococcus faecalis</i> (clinical isolate)	A	10	0
	B	10	0
<i>Escherichia coli</i> (ATCC 11229)	A	10	0
	B	10	0
<i>Escherichia coli</i> (clinical isolate)	A	10	0
	B	10	0
<i>Fusobacterium necrophorum</i> (ATCC 27852)	A	10	0
	B	10	0



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DISINFECTION DATA (continued):

No. of Carriers

Test Organism	Sample	Exposed	Positive
<i>Klebsiella pneumoniae</i> subsp. <i>pneumoniae</i> (ATCC 13883)	A	10	0
	B	10	0
<i>Lactobacillus casei</i> subsp. <i>rhamnosus</i> (ATCC 7469)	A	10	0
	B	10	0
<i>Listeria monocytogenes</i> (ATCC 35152)	A	10	0
	B	10	0
Methicillin Resistant <i>Staphylococcus aureus</i> (MRSA) (ATCC 33592)	A	10	0
	B	10	0
<i>Pasteurella multocida</i> (ATCC 7707)	A	10	0
	B	10	0
<i>Proteus mirabilis</i> (ATCC 9921)	A	10	0
	B	10	0
<i>Proteus mirabilis</i> (ATCC 25933)	A	10	0
	B	10	0
<i>Proteus vulgaris</i> (ATCC 13315)	A	10	0
	B	10	0
<i>Salmonella enterica</i> subsp. <i>enterica</i> serotype <i>paratyphi</i> (ATCC 8759)	A	10	0
	B	10	0
<i>Salmonella enterica</i> subsp. <i>enterica</i> serotype <i>pullorum</i> (ATCC 9120)	A	10	0
	B	10	0
<i>Salmonella enterica</i> subsp. <i>enterica</i> serotype <i>typhi</i> (ATCC 6539)	A	10	0
	B	10	0
<i>Salmonella enterica</i> subsp. <i>enterica</i> serotype <i>typhimurium</i> (ATCC 14028)	A	10	0
	B	10	0
<i>Serratia marcescens</i> (ATCC 8100)	A	10	0
	B	10	0
<i>Shigella dysenteriae</i> (ATCC 12180)	A	10	0
	B	10	0
<i>Shigella flexneri</i> Type 2b (ATCC 12022)	A	10	0
	B	10	0
<i>Shigella sonnei</i> (ATCC 25931)	A	10	0
	B	10	0
<i>Staphylococcus aureus</i> subsp. <i>aureus</i> (ATCC 33592)	A	10	0
	B	10	0
<i>Staphylococcus aureus</i> (clinical isolate)	A	10	0
	B	10	0
<i>Staphylococcus epidermidis</i> (ATCC 29641)	A	10	0
	B	10	0
<i>Staphylococcus epidermidis</i> (clinical isolate)	A	10	0
	B	10	0
<i>Streptococcus pyogenes</i> Group A (ATCC 19615)	A B	10 10	0 0



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DISINFECTION DATA (continued):

Test Organism	No. of Carriers		Positive
	Sample	Exposed	
<i>Streptococcus pyogenes</i> (clinical-flesh eating strain, BIRD M3)	A	10	0
	B	10	0
Vancomycin Resistant <i>Enterococcus faecalis</i> (VRE) (ATCC 51575)	A	10	0
	B	10	0
Vancomycin Intermediate Resistant <i>Staphylococcus aureus</i> (VISA) (HIP-5836)	A	10	0
	B	10	0
<i>Xanthomonas maltophilia</i> (clinical isolate)	A	10	0
	B	10	0
<i>Xanthomonas axonopodis</i> (pathovar <i>citri</i>) when diluted @ 2.36 oz./gal. (1:54 dilution)	A	10	0
	B	10	0

Conclusion: Under the conditions of these investigations, this product demonstrated **disinfectant** activity against *Staphylococcus aureus*, *Salmonella enterica*, *Pseudomonas aeruginosa*, *Bordetella bronchiseptica*, *Clostridium difficile* (vegetative form), Community Associated Methicillin Resistant *Staphylococcus aureus* (CA-MRSA) (NRS 123, Genotype USA400), Community Associated Methicillin Resistant *Staphylococcus aureus* (CA-MRSA) (NRS384, Genotype USA300), *Corynebacterium ammoniagenes*, *Enterobacter aerogenes*, *Enterobacter cloacae*, *Enterococcus faecalis*, *Escherichia coli*, *Fusobacterium necrophorum*, *Klebsiella pneumoniae* subsp. *pneumoniae*, *Lactobacillus casei* subsp. *rhamnosus*, *Listeria monocytogenes*, Methicillin Resistant *Staphylococcus aureus* (MRSA), *Pasteurella multocida*, *Proteus mirabilis* (ATCC 9921), *Proteus mirabilis* (ATCC 25933), *Proteus vulgaris*, *Salmonella enterica* subsp. *enterica* serotype *paratyphi B*, *Salmonella enterica* subsp. *enterica* serotype *pullorum*, *Salmonella enterica* subsp. *enterica* serotype *typhi*, *Salmonella enterica* subsp. *enterica* serotype *typhimurium*, *Serratia marcescens*, *Shigella dysenteriae*, *Shigella flexneri* Type 2b, *Shigella sonnei*, *Staphylococcus aureus* subsp. *aureus*, *Staphylococcus epidermidis*, *Streptococcus pyogenes* Group A, *Streptococcus pyogenes* (clinical-flesh eating strain, BIRD M3), Vancomycin Resistant *Enterococcus faecalis* (VRE), and Vancomycin Intermediate Resistant *Staphylococcus aureus* (VISA), according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a bactericide.

This product also demonstrated disinfectant activity against the following antibiotic resistant clinical isolates: *Enterobacter cloacae*, *Enterococcus faecalis*, *Escherichia coli*, *Staphylococcus aureus*, *Staphylococcus epidermidis*, and *Xanthomonas maltophilia*.

When diluted @ 2.36 oz./gal. (1:54 dilution), this product demonstrated disinfectant activity against *Xanthomonas axonopodis* (pathovar *citri*) (Citrus Canker Disease).



EFFICACY DATA for HUSKY 891 ARENA DISINFECTANT (EPA Reg. No. 1839-166-8155)

BACTERICIDAL STABILITY DATA OF USE-SOLUTION:

Test Method: Use Dilution

Test Conditions: 5% serum, 10 minute contact time, stainless steel carrier substrates, 400 ppm hard water, 20°C exposure temperature, 1 oz/gal dilution

Storage Conditions: sealed containers at room temperature

Results:

Test Time	Sample	Test Organism	No. of Carriers		
			Exposed	Positive	
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 1 oz/gal use dilution of this product 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.

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