



**MICRO-CHEM PLUS
#0255**

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:

Test Organism	Sample	No. of Carriers	
		Exposed	Positive
Staphylococcus aureus (ATCC 6538)	A	60	0
	B	60	0
	C	60	0
Salmonella enterica (ATCC 10708)	A	60	0
	B	60	0
	C	60	0
Pseudomonas aeruginosa (ATCC 15442)	A	60	0
	B	60	0
	C	60	0
Acinetobacter baumannii (ATCC 19606)	A	10	0
	B	10	0
Brevibacterium ammoniagenes (ATCC 6871)	A	10	0
	B	10	0
Enterobacter aerogenes (ATCC 13048)	A	10	0
	B	10	0
Enterococcus faecium (ATCC 19434)	A	10	0
	B	10	0
Escherichia coli (ATCC 11229)	A	10	0
	B	10	0
Klebsiella pneumoniae (ATCC 4352)	A	10	0
	B	10	0
Klebsiella pneumoniae New Delhi Metallo-Beta Lactamase (NDM-1) Carbapenem Resistant	A	10	0
	B	10	0
Methicillin resistant Staphylococcus aureus (MRSA) (ATCC 33593)	A	10	0
	B	10	0
Salmonella schottmuelleri (ATCC 8759)	A	10	0
	B	10	0
Shigella dysenteriae (ATCC 12180)	A	10	0
	B	10	0
Streptococcus faecalis (ATCC 10541)	A	10	0
	B	10	0
Streptococcus pyogenes (Clinical-Flesh Eating strain, BIRD M3)	A	10	0
	B	10	0

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DISINFECTION DATA (continued):

Results: Test Organism	Sample	No. of Carriers	
		Exposed	Positive
Streptococcus pyogenes (Clinical-Flesh Eating strain, BIRD M3)	A	10	0
Streptococcus salivarius (ATCC 9222)	A	10	0
	B	10	0
Vancomycin intermediate resistant Staphylococcus aureus (VISA) (HIP 5836)	A	10	0
	B	10	0
Vancomycin resistant Enterococcus faecalis (VRE) (ATCC 51299)	A	10	0
	B	10	0

Conclusion: Under the conditions of these investigations, MICRO-CHEM PLUS (#0255) demonstrated disinfectant activity against Staphylococcus aureus, Salmonella enterica, Pseudomonas aeruginosa, Acinetobacter baumannii, Brevibacterium ammoniagenes, Enterobacter aerogenes, Enterococcus faecium, 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.

VIRUCIDAL DATA:

Test Methods:

- * U.S. E.P.A. 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: 10 minute contact time, glass petri dish substrates, tested in the presence of organic soil load

Results:

Test Organism	Dilution	Sample	Titer Reduction
†Adenovirus Type 2	2 oz/gal	A	3.0 log ₁₀
		B	>3.0 log ₁₀
*Avian Influenza A Virus (H3N2) (Avian Reassortant) (ATCC VR-2072)	2 oz/gal	A	>3.5 log ₁₀
		B	>3.5 log ₁₀
*Avian Influenza Virus, Type A (Turkey/WIS/66) (H9N2)	2 oz/gal	A	>4.5 log ₁₀
		B	>4.5 log ₁₀
‡Bovine Viral Diarrhea Virus (BVDV)	2 oz/gal	A	6.1 log ₁₀
		B	3.8 log ₁₀
*Feline Calicivirus (FCV)	2 oz/gal	A	5.79 log ₁₀
		B	>6.06 log ₁₀
.Hepatitis B Virus (HBV) (Duck Hepatitis B Virus-DHBV)	2 oz/gal	A	4.5 log ₁₀
		B.	4.5 log ₁₀
‡Hepatitis C Virus (HCV) (Bovine Viral Diarrhea Virus-BVDV)	2 oz/gal	A	6.1 log ₁₀
		B	3.8 log ₁₀
†Herpes Simplex Type 1 (Sabin)	2 oz/gal	A	>4.0 log ₁₀
		B	>3.7 log ₁₀
*Human Coronavirus (ATCC VR-740, strain 229E)	2 oz/gal	A	>3.0 log ₁₀
		B	>3.0 log ₁₀
*Human Immunodeficiency Virus, HTLV-III _{RF} , strain of HIV-1 (associated with AIDS)	2 oz/gal	A	>3.0 log ₁₀
		B	>3.0 log ₁₀
†Influenza A2 (Japan 305/57)	2 oz/gal	A	>6.5 log ₁₀
		B	>6.0 log ₁₀
*Norovirus (Norwalk Virus) (FCV)	2 oz/gal	A	5.79 log ₁₀
		B	>6.06 log ₁₀

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VIRUCIDAL DATA (continued):

Test Organism	Dilution	Sample	Titer Reduction
†Pandemic 2009 H1N1 Influenza A Virus	2 oz/gal	(Refer to NOTE below.)	
*Porcine Respiratory & Reproductive Syndrome Virus (PRRSV) (Strain NVSL)	2 oz/gal	A	>4.75 log ₁₀
		B	>4.75 log ₁₀
*SARS Associated Coronavirus (ZeptoMetrix)	2 oz/gal	A	4.03 log ₁₀
		B	4.03 log ₁₀
†Vaccinia (Wyeth)	2 oz/gal	A	>3.5 log ₁₀
		B	>3.5 log ₁₀
*Canine Adenovirus	8 oz/gal	A	4.83 log ₁₀
		B	4.83 log ₁₀
*Canine Coronavirus	8 oz/gal	A	3.00 log ₁₀
		B	3.33 log ₁₀
*Canine Parainfluenza Virus (CPI/PI-2)	8 oz/gal	A	3.0 log ₁₀
		B	3.0 log ₁₀
*Canine Parvovirus Type 2 (CPV-2b/Eu)	8 oz/gal	A	>3.27 log ₁₀
		B	>3.27 log ₁₀
*Feline Coronavirus	8 oz/gal	A	4.0 log ₁₀
		B	4.0 log ₁₀
*Feline Panleukopenia Virus	8 oz/gal	A	4.0 log ₁₀
		B	4.0 log ₁₀
*Feline Picornavirus (ATCC VR-653)	8 oz/gal	A	4.0 log ₁₀
		B	4.0 log ₁₀
*Feline Rhinotracheitis Virus	8 oz/gal	A	>4.83 log ₁₀
		B	>4.83 log ₁₀
*Porcine Parvovirus	8 oz/gal	A	4.0 log ₁₀
		B	4.0 log ₁₀

Conclusion: Under the conditions of this investigation, MICRO-CHEM PLUS (#0255) demonstrated virucidal activity at 2 oz/gal against 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 and at 8 oz/gal against Canine Adenovirus, Canine Coronavirus, Canine Parainfluenza Virus, Canine Parvovirus, Feline Coronavirus, Feline Panleukopenia Virus, Feline Picornavirus, Feline Rhinotracheitis Virus and Porcine Parvovirus 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.

FUNGICIDAL DATA:

Test Method: AOAC Fungicidal Test
Test Organism: Trichophyton mentagrophytes (ATCC 9533)
Test Conditions: 2 oz/gal dilution
5% organic soil load
20°C exposure temperature

Results:

Exposure Time (min.) vs. Growth

Sample	5	10	15
A	+	0	0
B	+	0	0

Conclusion: Under the conditions of this investigation, MICRO-CHEM PLUS (#0255) demonstrated fungicidal activity against Trichophyton mentagrophytes according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a fungicide.

MILDEW FUNGISTATIC DATA:

Test Method: Test Method: Hard Surface Mildew Fungistatic Test (Unofficial Protocol, 10/27/706)
Test Organism: Aspergillus niger (ATCC 6275)
Test Conditions: tile substrates

Results:

Sample	Dilution	No. of Exposed Tiles	No. of Tiles Showing Growth
MICRO-CHEM PLUS	2 oz/gal	10	0
Control	-	10	10

Conclusion: Under the conditions of this investigation, MICRO-CHEM PLUS (#0255) 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.

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

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

Conclusion: The results of this investigation show that a 2 oz/gal use dilution of MICRO-CHEM PLUS (#0255) 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.