

Efficacy Bulletin

TB-CIDE QUAT[®]

EPA Reg. No. 1839-83-5741

VIRUCIDAL DATA:

Test Methods:

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

Test Conditions: ready-to-use (RTU), organic soil load, room temperature, glass Petri dish substrates

Results:

Test Organism	Sample	Titer Reduction	Contact Time
*Avian Influenza A Virus (H3N2) (ATCC VR-2072)	A&B	≥3.0 log ₁₀	2 minutes
*Avian Influenza Virus, Type A (H9N2)	A&B	≥4.83 log ₁₀	2 minutes
‡Bovine Viral Diarrhea Virus (BVDV)	A&B	≥3.0 log ₁₀	1 minute
*Canine Parvovirus (ATCC VR-2017)	A&B	≥3.0 log ₁₀	10 minutes
•Feline Calicivirus	A&B	6.48 log ₁₀	30 seconds
*Hepatitis A Virus (HAV)	A&B	≥3.0 log ₁₀	10 minutes
†Hepatitis B Virus (HBV) (Duck Hepatitis B Virus - DHBV)	A&B	≥3.3 log ₁₀	1 minute
‡Hepatitis C Virus (HCV) (Bovine Viral Diarrhea Virus - BVDV)	A&B	≥3.0 log ₁₀	1 minute
*Human Immunodeficiency Virus, HTLV-III _{RP} strain of HIV-1 (associated with AIDS)	A&B	≥3.5 log ₁₀	1 minute
*Human Coronavirus (ATCC VR-740, strain 229E)	A&B	≥3.0 log ₁₀	2 minutes
•Norovirus (Norwalk Virus)	A&B	≥6.48 log ₁₀	30 seconds
*Paramyxovirus (Mumps) (ATCC VR-1438)	A&B	≥3.0 log ₁₀	
*Poliovirus Type 1, strain Brunhilde (ATCC VR-1000)	A&B	≥3.25 log ₁₀	10 minutes
*Rabies Virus (attenuated ERA strain, CDC)	A&B	3.0 log ₁₀	30 seconds
*Rhinovirus Type 39 (ATCC VR-340)	A&B	≥3.0 log ₁₀	3 minutes
*Rotavirus	A&B	≥3.0 log ₁₀	3 minutes
*SARS Associated Coronavirus (ZeptoMetrix)	A&B	4.03 log ₁₀	2 minutes
*Pandemic 2009 H1N1 Influenza A Virus	Refer to Note		

Conclusion: Under the conditions of this investigation, TB-Cide Quat was **virucidal** for Avian Influenza A Virus (H3N2), Avian Influenza Virus Type A (H9N2), Bovine Viral Diarrhea Virus (BVDV), Canine Parvovirus, Feline Calicivirus (FVC), Hepatitis A Virus (HAV), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Human Immunodeficiency Virus (HIV-1), Human Coronavirus, Norovirus (Norwalk Virus), Paramyxovirus (Mumps), Poliovirus Type 1, Rabies, Rhinovirus Type 39, Rotavirus, and SARS Associated Coronavirus 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 Pandemic 2009 H1N1 Influenza A Virus.

TUBERCULOCIDAL DATA:

Test Method: AOAC Confirmative In Vitro Test for Determining Tuberculocidal Activity

Test Organism: *Mycobacterium bovis* BCG (Organon Teknika)

Test Conditions: ready-to-use (RTU), organic soil load, 5 minute contact time, glass slide carrier substrates

Results:

Subculture Media	Sample	No. of Exposed Carriers	No. of Carriers Showing Growth
Modified Proskauer-Beck Medium	A	10	0
	B	10	0
Middlebrook 7H9 Broth	A	10	0
	B	10	0
Kirchners Medium	A	10	0
	B	10	0

Conclusion: Under the conditions of this investigation, TB-Cide Quat was **tuberculocidal** for *Mycobacterium bovis* BCG according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a tuberculocide.

MILDEW FUNGISTATIC DATA:

Test Method: EPA Hard Surface Mildew Fungistatic Test

Test Organism: *Aspergillus niger* (ATCC 6275)

Test Conditions: glazed ceramic tile substrates

Results:

Sample	No. of Exposed Tiles	No. of Tiles Showing Growth
TB-Cide Quat	10	0
Control	10	10

Conclusion: Under the conditions of this investigation, TB-Cide Quat 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 Germicidal Spray Products as Disinfectants

Test Conditions: ready-to-use (RTU), organic soil load, room temperature, glass slide carrier substrates

Results:

Organism	Sample	No. of Carriers Exposed	Positive	Contact Time
<i>Trichophyton mentagrophytes</i> (ATCC 9533)	A	60	0	10 minutes
	B	60	0	10 minutes
	C	60	0	10 minutes

Conclusion: Under the conditions of this investigation, TB-Cide Quat was **fungicidal** 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.

BACTERICIDAL DATA:

Test Method: AOAC Germicidal Spray Products as Disinfectants

Test Conditions: ready-to-use (RTU), organic soil load, room temperature, glass slide carrier substrates

Results:

Organism	Sample	No. of Carriers Exposed	Positive	Contact Time
<i>Staphylococcus aureus</i> (ATCC 6538)	A	60	0	3 minutes
	B	60	1	
<i>Salmonella (choleraesuis) enterica</i> (ATCC 10708)	A	60	0	3 minutes
	B	60	0	
<i>Pseudomonas aeruginosa</i> (ATCC 15442)	A	60	0	3 minutes
	B	60	0	
Community Associated Methicillin Resistant <i>Staphylococcus aureus</i> (CA-MRSA) (NRS 123) Genotype USA400	A	10	0	3 minutes
	B	10	0	
Community Associated Methicillin Resistant <i>Staphylococcus aureus</i> (CA-MRSA) (NRS 123) Genotype USA400	A	10	0	3 minutes
	B	10	0	
<i>Corynebacterium ammoniagenes</i> (ATCC 6871)	A	10	0	3 minutes
	B	10	0	
<i>Enterococcus faecium</i> (ATCC 6569)	A	10	0	3 minutes
	B	10	0	
<i>Escherichia coli</i> (ATCC 11229)	A	10	0	3 minutes
	B	10	0	
<i>Escherichia coli</i> O157:H7 (ATCC 43895)	A	10	0	3 minutes
	B	10	0	
<i>Listeria monocytogenes</i> (ATCC 35152)	A	10	0	3 minutes
	B	10	0	
<i>Salmonella (typhi) enterica</i> (ATCC 6539)	A	10	0	3 minutes
	B	10	0	
<i>Streptococcus pyogenes</i> (Necrotizing Fasciitis - Group A) (V.A. Medical Center Isolate 04001)	A	10	0	3 minutes
	B	10	0	
<i>Yersinia enterocolitica</i> (ATCC 23715)	A	10	0	3 minutes
	B	10	0	
Methicillin resistant <i>Staphylococcus aureus</i> (MRSA) (ATCC 33593)	A	10	0	3 minutes
	B	10	0	
Methicillin resistant <i>Staphylococcus epidermidis</i> (MRSE) (ATCC 51625)	A	10	0	3 minutes
	B	10	0	
Vancomycin resistant <i>Enterococcus faecalis</i> (VRE) (ATCC 51575)	A	10	0	3 minutes
	B	10	0	
Vancomycin intermediate resistant <i>Staphylococcus aureus</i> (VISA) (CDC Isolate 99287)	A	10	0	3 minutes
	B	10	0	

Conclusion: Under the conditions of this investigation, TB-Cide Quat was **bactericidal** for *Staphylococcus aureus*, *Salmonella (choleraesuis) enterica*, *Pseudomonas aeruginosa*, Community Associate Methicillin resistant *Staphylococcus aureus* (CA-MRSA) (NRS 123) Genotype 400, Community Associate Methicillin resistant *Staphylococcus aureus* (CA-MRSA) (NRS 384) Genotype 300, *Corynebacterium ammoniagenes*, *Enterococcus faecium*, *Escherichia coli*, *Escherichia coli* O157:H7, *Listeria monocytogenes*, *Salmonella (typhi) enterica*, *Streptococcus pyogenes* (Necrotizing Fasciitis-Group A), *Yersinia enterocolitica*, Methicillin resistant *Staphylococcus aureus* (MRSA), Methicillin resistant *Staphylococcus epidermidis* (MRSE), 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.