

# CAVICIDE1



## Technical Bulletin

CaviCide1 is a multi-purpose disinfectant intended for use in cleaning, decontaminating and disinfecting hard non-porous, inanimate surfaces and non-critical instruments in hospitals, laboratories, and other critical care areas where environmental control of cross contamination between treated surfaces is important.

CaviCide1 EPA Registration number: 46781-12

CaviCide1 has biocidal effectiveness against the following microorganisms with a 1 minute contact time:

*Mycobacterium tuberculosis* var. bovis (BCG)(TB)  
*Staphylococcus aureus*  
*Pseudomonas aeruginosa*  
*Salmonella enterica*  
*Acinetobacter baumannii*  
Multi-Drug Resistant *Acinetobacter baumannii*  
Methicillin Resistant *Staphylococcus aureus* (MRSA)  
Vancomycin Resistant *Enterococcus faecalis* (VRE)  
Vancomycin Intermediate *Staphylococcus aureus* (VISA)  
Methicillin Resistant *Staphylococcus epidermidis* (MRSE)  
*Klebsiella pneumoniae*  
*Bordetella pertussis*  
Extended spectrum  $\beta$ -lactamase *Escherichia coli* (ESBL)  
*Staphylococcus aureus* with Reduced Susceptibility to Vancomycin  
*Trichophyton mentagrophytes*  
*Candida albicans*  
Hepatitis B Virus (HBV)  
Human Immunodeficiency Virus Type 1(HIV-1)  
Herpes Simplex Virus Type 1  
Herpes Simplex Virus Type 2  
Influenza A Virus (H3N2)  
Hepatitis C Virus (HCV)  
Rotavirus  
Norovirus  
Human Coronavirus (*not associated with Severe Acute Respiratory Syndrome or SARS*)  
  
Adenovirus Type 2\*

\* Note: a 3-minute contact time is required as indicated on the product label.

## Tuberculocidal Efficacy Studies

### *Mycobacterium tuberculosis* var. bovis (BCG)(TB)

“AOAC Tuberculocidal Activity of a Germicidal Spray”

Microbiotest. August 31, 2010 Laboratory ID # 198-529

Conclusion: CaviCide1 passed the AOAC Tuberculocidal Activity of a Germicidal Spray test when *Mycobacterium tuberculosis* var. bovis (BCG)(TB), containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

“AOAC Tuberculocidal Activity of a Germicidal Spray Confirmatory”

Microbiotest. August 31, 2010 Laboratory ID # 198-534

Conclusion: CaviCide1 passed the AOAC Tuberculocidal Activity of a Germicidal Spray Confirmatory test when *Mycobacterium tuberculosis* var. bovis (BCG)(TB), containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

## Bactericidal Efficacy Studies

### *Staphylococcus aureus*

### *Pseudomonas aeruginosa*

### *Salmonella enterica*

“AOAC Germicidal Spray Test HealthCare”

Microbiotest. April 27, 2010 Laboratory ID # 198-524

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Healthcare when *Staphylococcus aureus*, *Pseudomonas aeruginosa* and *Salmonella enteric*, each containing a 5% organic load, were exposed to CaviCide1 for one minute at 20°C±1°C.

### *Acinetobacter baumannii*

“AOAC Germicidal Spray Test Supplemental *Acinetobacter baumannii*”

Microbiotest. August 24, 2010 Laboratory ID # 198-549

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Acinetobacter baumannii* containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

### Multi-Drug Resistant (MDR) *Acinetobacter baumannii*

“AOAC Germicidal Spray Test Supplemental Multi-Drug Resistant *Acinetobacter baumannii*”

Microbiotest. November 30, 2010 Laboratory ID # 198-610

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when Multi-Drug Resistant (MDR) *Acinetobacter baumannii* containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

### Methicillin Resistant *Staphylococcus aureus* (MRSA)

“AOAC Germicidal Spray Test Supplemental *Methicillin-Resistant Staphylococcus aureus* (MRSA)”

Microbiotest. August 24, 2010 Laboratory ID # 198-550

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Methicillin-Resistant Staphylococcus aureus* (MRSA) containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

Vancomycin Resistant *Enterococcus faecalis* (VRE)

“AOAC Germicidal Spray Test Supplemental *Vancomycin Resistant Enterococcus faecalis* (VRE)”

Microbiotest. August 24, 2010 Laboratory ID # 198-551

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Vancomycin Resistant Enterococcus faecalis* (VRE) containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

Vancomycin Intermediate *Staphylococcus aureus* (VISA)

“AOAC Germicidal Spray Test Supplemental *Vancomycin Intermediate Staphylococcus aureus* (VISA)”

Microbiotest. August 25, 2010 Laboratory ID # 198-552

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Vancomycin Intermediate Staphylococcus aureus* (VISA) containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

Methicillin Resistant *Staphylococcus epidermidis* (MRSE)

“AOAC Germicidal Spray Test Supplemental Methicillin Resistant *Staphylococcus epidermidis* (MRSE)”

Microbiotest. August 25, 2010 Laboratory ID # 198-553

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Methicillin Resistant Staphylococcus epidermidis* (MRSE) containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

*Klebsiella pneumoniae*

“AOAC Germicidal Spray Test Supplemental *Klebsiella pneumoniae*”

Microbiotest. August 25, 2010 Laboratory ID # 198-561

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Klebsiella pneumoniae* containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

*Bordetella pertussis*

“AOAC Germicidal Spray Test Supplemental *Bordetella pertussis*”

Microbiotest. September 13, 2010 Laboratory ID # 198-562

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Bordetella pertussis* containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

Extended spectrum  $\beta$ -lactamase *Escherichia coli* (ESBL)

“AOAC Germicidal Spray Test Supplemental Extended spectrum  $\beta$ -lactamase *Escherichia coli* (ESBL)”

Microbiotest. August 25, 2010 Laboratory ID # 198-564

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when Extended spectrum  $\beta$ -lactamase *Escherichia coli* (ESBL) containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

*Staphylococcus aureus* with Reduced Susceptibility to Vancomycin

“AOAC Germicidal Spray Test Supplemental *Vancomycin Intermediate Staphylococcus aureus* (VISA)”

Microbiotest. August 25, 2010 Laboratory ID # 198-552

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Staphylococcus aureus* with Reduced Susceptibility to Vancomycin containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

Fungicidal/ Yeast Efficacy Studies

*Trichophyton mentagrophytes*

“AOAC Germicidal Spray Test Fungicidal *Trichophyton mentagrophytes*”

Microbiotest. August 31, 2010 Laboratory ID # 198-554

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Fungicidal when *Trichophyton mentagrophytes* containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

*Candida albicans*

“AOAC Germicidal Spray Test Supplemental *Candida albicans*”

Microbiotest. August 25, 2010 Laboratory ID # 198-563

Conclusion: CaviCide1 passed the AOAC Germicidal Spray Test Supplemental when *Candida albicans* containing a 5% organic load, was exposed to CaviCide1 for one minute at 20°C±1°C.

Virucidal Efficacy Studies

Hepatitis B Virus (HBV)

“Initial Virucidal Efficacy Test Duck Hepatitis B Virus (Surrogate for Human Hepatitis B Virus)”

Microbiotest, October 13, 2010 Laboratory ID # 198-555

Conclusion: CaviCide1 passed the Initial Virucidal Efficacy Test when Duck Hepatitis B Virus (Surrogate for Human Hepatitis B Virus), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

“Confirmatory Virucidal Efficacy Test Duck Hepatitis B Virus (Surrogate for Human Hepatitis B Virus)”

Microbiotest, September 7, 2010 Laboratory ID # 198-556

Conclusion: CaviCide1 passed the Confirmatory Virucidal Efficacy Test when Duck Hepatitis B Virus (Surrogate for Human Hepatitis B Virus), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

Human Immunodeficiency Virus Type 1 (HIV-1)

“Virucidal Efficacy Test Human Immunodeficiency Virus Type 1”

Microbiotest, October 13, 2010 Laboratory ID # 198-557

Conclusion: CaviCide1 passed the Virucidal Efficacy Test when Human Immunodeficiency Virus Type 1, containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Herpes Simplex Virus Type 1

“Virucidal Efficacy Test Herpes Simplex Virus 1”

Microbiotest, August 30, 2010 Laboratory ID # 198-558

Conclusion: CaviCide1 passed the Virucidal Efficacy Test when Herpes Simplex Virus Type 1, containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Herpes Simplex Virus Type 2

“Virucidal Efficacy Test Herpes Simplex Virus 2”

Microbiotest, October 13, 2010 Laboratory ID # 198-559

Conclusion: CaviCide1 passed the Virucidal Efficacy Test when Herpes Simplex Virus Type 2, containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Influenza A Virus (H3N2)

“Virucidal Efficacy Test Human Influenza A Virus (H3N2)”

Microbiotest, August 30, 2010 Laboratory ID # 198-560

Conclusion: CaviCide1 passed the Virucidal Efficacy Test when Human Influenza A Virus (H3N2), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Hepatitis C Virus (HCV)

“Initial Virucidal Efficacy Test Bovine Viral Diarrhea Virus (Surrogate for Human Hepatitis C Virus)”

Microbiotest, August 30, 2010 Laboratory ID # 198-566

Conclusion: CaviCide1 passed the Initial Virucidal Efficacy Test when Duck Hepatitis C Virus (Surrogate for Human Hepatitis C Virus), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

“Confirmatory Virucidal Efficacy Test Bovine Viral Diarrhea Virus (Surrogate for Human Hepatitis C Virus)”

Microbiotest, August 31, 2010 Laboratory ID # 198-567

Conclusion: CaviCide1 passed the Confirmatory Virucidal Efficacy Test when Bovine Viral Diarrhea Virus (Surrogate for Human Hepatitis C Virus), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Rotavirus

“Virucidal Efficacy Test Human Rotavirus”

Microbiotest, August 30, 2010 Laboratory ID # 198-568

Conclusion: CaviCide1 passed the Virucidal Efficacy Test when Human Rotavirus, containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Norovirus

“Initial Virucidal Efficacy Test Feline Calicivirus (Surrogate for Human Norovirus)”

Microbiotest, September 7, 2010 Laboratory ID # 198-571

Conclusion: CaviCide1 passed the Initial Virucidal Efficacy Test when Feline Calicivirus (Surrogate for Human Norovirus), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

“Confirmatory Virucidal Efficacy Test Feline Calicivirus (Surrogate for Human Norovirus)”  
Microbiotest, October 13, 2010 Laboratory ID # 198-572  
Conclusion: CaviCide1 passed the Confirmatory Virucidal Efficacy Test when Feline Calicivirus (Surrogate for Human Norovirus), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Human Coronavirus

“Virucidal Efficacy Test Human Coronavirus (299E strain)”  
Microbiotest, August 30, 2010 Laboratory ID # 198-575  
Conclusion: CaviCide1 passed the Virucidal Efficacy Test when Human Coronavirus (299E strain), containing at least 5% organic soil, was exposed to CaviCide1 for one minute at 20°C±1°C.

#### Adenovirus Type 2

“Virucidal Efficacy Test Adenovirus Type 2”  
Microbiotest, November 8, 2010 Laboratory ID # 198-583  
Conclusion: CaviCide1 passed the Virucidal Efficacy Test when Adenovirus Type 2, containing at least 5% organic soil, was exposed to CaviCide1 for three minutes at 20°C±1°C.

#### Toxicity Studies

Acute Eye Irritation Study  
Acute Dermal Irritation Study  
Acute Inhalation Study  
Acute Dermal Toxicity Study  
Acute Oral Toxicity Study  
Skin Sensitization Study

#### Acute Eye Irritation Study

“Acute Eye Irritation Study in Rabbits”  
Stillmeadow, Inc. October 28, 2010 Laboratory ID # 14313-10  
Conclusion: Three albino rabbits were employed to evaluate the potential acute eye irritation effects of CaviCide1. Based on the average irritation scores, CaviCide1 is rated moderately irritating. All positive effects cleared on Day 10.

#### Acute Dermal Irritation Study

“Acute dermal Irritation Study in Rabbits”  
Stillmeadow, Inc. October 8, 2010 Laboratory ID # 14314-10  
Conclusion: Three albino rabbits were employed to evaluate the primary dermal irritation effects of CaviCide1. Based on the irritation scores, CaviCide1 is rated slightly irritating.

#### Acute Inhalation Study

“Acute Inhalation Study in Rats”  
Stillmeadow, Inc. November 5, 2010 Laboratory ID # 14312-10  
Conclusion: CaviCide1 was evaluated for its acute inhalation toxicity potential in albino rats. As indicated by the data, the acute inhalation LC<sub>50</sub> is greater than 2.16mg/L.

#### Acute Dermal Toxicity

“Acute Dermal Toxicity Study in Rats”

Stillmeadow, Inc. November 3, 2010 Laboratory ID # 14311-10

Conclusion: CaviCide1 was evaluated for its dermal toxicity potential and relative skin irritancy when a single undiluted dose was applied to the intact skin of albino rats. The estimated LD<sub>50</sub>, as indicated by the data, was determined to be greater than 5050 mg/kg.

#### Acute Oral Toxicity

“Acute Oral Toxicity (UDP) in Rats”

Stillmeadow, Inc. November 16, 2010 Laboratory ID # 14310-10

Conclusion: CaviCide1 was evaluated for its acute oral toxicity potential in female albino rats. The study revealed no observable abnormalities. The acute oral LD<sub>50</sub> is estimated to be greater than 5000mg/kg.

#### Skin Sensitization Study

“Skin Sensitization Study in Guinea Pigs”

Stillmeadow, Inc. November 16, 2010 Laboratory ID # 14315-10

Conclusion: CaviCide1 was evaluated for its potential to produce a sensitizing reaction in short-haired albino guinea pigs. CaviCide1 produced no irritation during the test. CaviCide1 did not elicit a sensitizing reaction in guinea pigs.