



Maintenance Solutions

SUMMARY OF ANTIMICROBIAL ACTIVITY

ONE STEP

(Lemon, Mint, Pine)

Detergent for Cleaning, Disinfecting and Deodorizing

Description

One Step is an effective economical 4 ounce per gallon disinfectant, specifically designed for hospitals, nursing homes, schools, food processing plants, food service establishments and other institutions where housekeeping is of prime importance. It is a phosphate free formulation using a third generation quat and designed to provide effective cleaning, deodorizing and disinfection, controlling the hazard of cross contamination on treated surfaces.

Regulatory Summary

Physical Properties

EPA Registration No.	10324-167-8325
USDA Authorization	None
California Status	Not registered
Canadian PCP#	None
Canadian Din #	None

pH of Concentrate	9.0 – 11.0
Specific Gravity @ 25°C	1.008 – 1.010
Pounds per gallon @ 25°C	8.41

Flash Point (PMCC)	>200°F
% Quat (mol. wt.360.5)	1.60% min.
% Volatile	90+

Summary of Antimicrobial Test Results

Claim: Disinfectant	Contact Time: 10 minutes	Organic Soil: 5%	Water Conditions: 400 ppm as CaCO ₃
Test Method: Official Method of the AOAC, 14 Edition Use Dilution Method			

Organism	ATCC#	Use-Dilution Concentration	Hard Water Condition	Replicates	Results
Pseudomonas aeruginosa	15442	488 ppm (4.0 oz/gal)	N/A	60, 60, 60	1/60, 1/60, 1/60
Staphylococcus aureus	6538	488 ppm	N/A	60, 60, 60	0/60, 0/60, 1/60
Salmonella enterica	10708	488 ppm	N/A	60, 60, 60	1/60, 0/60, 0/60
Cornynebacterium ammoniagenes	6872	600 ppm	N/A	10, 10	0/10, 0/10
Enterococcus Faecalis	29212	488 ppm	N/A	10, 10	0/10, 0/10
Enterococcus faecalis (Vancomycin Resistant) (VRE)	51299	488 ppm	N/A	10, 10	0/10, 0/10
Escherichia coli	11229	488 ppm	N/A	10, 10	0/10, 0/10
Klebsiella pneumoniae	4352	600 ppm	N/A	10, 10	0/10, 0/10
Legionella pneumophila	33153	600 ppm	N/A	10, 10	0/10, 0/10
Proteus mirabilis	9240	488 ppm	N/A	10, 10	0/10, 0/10
Salmonella schottmuelleri	8759	488 ppm	N/A	10, 10	0/10, 0/10
Serratia marcescens	14756	488 ppm	N/A	10, 10	0/10, 0/10
Shigella dysenteriae	11835	488 ppm	N/A	10, 10	0/10, 0/10
Staphylococcus aureus ¹ (MRSA)	33592	488 ppm	N/A	10, 10	0/10, 0/10
Community Associated Staphylococcus aureus (CA-MRSA)		488 ppm	N/A	10, 10	0/10, 0/10
Staphylococcus aureus ² (VISA)	CDC No. HIP-5836	488 ppm	N/A	10, 10	0/10, 0/10
Streptococcus Faecalis		488 ppm	N/A	10, 10	0/10, 0/10
Streptococcus salivarius	7073	488 ppm	N/A	10, 10	0/10, 0/10

Conclusion: All lots of **ONE STEP** effectively killed the above listed bacteria as specified in the test performance standards.

¹ Resistant to Gentamicin and Methicillin

² Reduced Susceptibility to Vancomycin

Summary of Antimicrobial Test Results - (Continued)

Claim: Mildewstat	Contact Time: 10 minutes	Organic Soil: 5%	Water Conditions: N/A
Test Method: Mildewstat (Mold and Mildew Control) - EPA - TSD 6-201 Mildewstat on Hard Surfaces			

Organism	ATCC#	Use-Dilution Concentration	Hard Water Condition	Replicates	Results
Aspergillus niger	6275	488 ppm (4.0 oz/gal)	N/A	10	No growth after 7 days

Conclusion: All lots of **ONE STEP** were effective against Aspergillus niger under the test conditions outlined in the EPA test performance standards described above. **ONE STEP** is an effective mildewstat for non-porous inanimate hard surfaces when diluted to 488 ppm active concentration (4.0 oz. per gallon of water)

Claim: Fungicide	Contact Time: 10 minutes	Organic Soil: N/A	Water Conditions: N/A
Test Method: AOAC Fungicide method- EPA – (DIS/TSS-6)			

Organism	ATCC#	Use-Dilution Concentration	Hard Water Condition	Replicates	Results
Trichophyton mentagrophytes	9533	488 ppm (4.0 oz/gal)	N/A	10, 10	0/10, 0/10

Conclusion: All lots of **ONE STEP** were effective against Aspergillus niger under the test conditions outlined in the EPA test performance standards described above. **ONE STEP** is an effective mildewstat for non-porous inanimate hard surfaces when diluted to 600 ppm active concentration (4.0 oz. per gallon of water).

Summary of Antimicrobial Test Results - (Continued)

Claim: Virucide	Contact Time: Varies	Organic Soil: 5%	Water Conditions: N/A
Test Method:	EPA Guidelines	DIS/TSS-7	

Organism	Source of Virus or ATCC#	Host System; Cytopathic Effect	Use-Dilution Concentration	Contact Time	Replicates	Reduction (Log ₁₀) of Virus Titer
Adenovirus Type 2			488 ppm (4.0 oz./gal)	10 Min.	2	>5.0 Log ₁₀
Herpes Simplex Type 1	HSV-1; ATCC VR-733	VERO cells; lytic cytopathic effect	488 ppm (4.0 oz./gal)	10 Min.	2	>3.25 Log ₁₀
Herpes Simplex Type 2	HSV-2; ATCC VR-734	VERO cells; lytic cytopathic effect	488 ppm (4.0 oz./gal)	10 Min.	2	>4.25 Log ₁₀
Human Immunodeficiency Virus (HIV 1)	HTLV-III _B	MT2 cells; lytic cytopathic effect	488 ppm (4.0 oz./gal)	10 Min.	2	>4.25 Log ₁₀
Influenza A2/Japan			488 ppm (4.0 oz./gal)	10 Min.	2	>5.0 Log ₁₀
Human Coronavirus	ATCC VR-740		488 ppm (4.0 oz./gal)	10 min.	2	>4.25 Log ₁₀
Avian Influenza A (H5N1) virus			488 ppm (4.0 oz./gal)	10 Min.	2	>5.0 Log ₁₀
Canine Distemper virus			488 ppm (4.0 oz./gal)	10 min.	2	>4.25 Log ₁₀
Avian influenza/Turkey/Wisconsin	ATCC VR-798		732 ppm (6 oz./gal)	10 min.	2	>5.7 Log ₁₀
Hepatitis B Virus (HBV)	Hepadnavirus Testing		732 ppm (6 oz./gal)	10 min.	2	>4.79 Log ₁₀
Hepatitis C Virus (HCV)	ATCC CCL-22		732 ppm (6 oz./gal)	10 min.	2	>5.56 Log ₁₀
Vaccinia virus Representative of Pox virus group	ATCC VR-119		732 ppm (6 oz./gal)	10 Min.	2	>4.0 Log ₁₀
Newcastle Disease			732 ppm (6 oz./gal)	10 Min.	2	>4.2 Log ₁₀
Equine Arteritis virus			732 ppm (6 oz./gal)	10 Min.	2	>4.2 Log ₁₀
Infectious Avian Laryngotracheitis			732 ppm (6 oz./gal)	10 Min.	2	>4.2 Log ₁₀
Porcine Respiratory & Reproductive virus (PRRSV)			732 ppm (6 oz./gal)	10 Min.	2	>4.2 Log ₁₀
Infectious Bovine Rhinotracheitis	ATCC VR-188		732 ppm (6 oz./gal)	10 Min	2	>3.7 Log ₁₀
Pseudorabies Virus	ATCC VR-135		732 ppm (6 oz./gal)	10 Min.	2	>3.0 Log ₁₀
Transmissible Gastroenteritis (TGE)	ATCC VR-742		732 ppm (6 oz./gal)	10 min.	2	>3.2 Log ₁₀

Conclusion: All lots of **ONE STEP** effectively inactivated the above listed viruses as specified in the test performance standards.

Summary of Antimicrobial Efficacy - Etiology³

Pathogenic Microorganism	Description
Staphylococcus aureus	Gram positive bacteria identified as a major cause of hospital acquired (nosocomial) infections. Colonizes food and secretes enterotoxins which cause food poisoning after ingestion. Causes wound infections, septicemia, endocarditis, meningitis, osteomyelitis and pneumonia. Required for Hospital Disinfectants.
Salmonella choleraesuis	Gram negative bacteria associated with acute gastroenteritis and septicemia. Required for Hospital Disinfectants.
Aspergillus niger	Black mold, found in shower and dressing rooms. Environmental contaminant may also cause "Aspergillosis."
Enterobacter aerogenes	Gram negative bacteria spread by anal/oral route of infection. Associated with bacteremia, respiratory, wound and urinary tract infections.
Escherichia coli	Gram negative bacteria spread by anal/oral route of infection, resulting in diarrhea outbreaks. Associated with urinary tract infections and bacteremia.
Klebsiella pneumoniae	Gram negative bacteria associated with severe pneumonia, bacteremia and urinary tract infections.
Proteus mirabilis	Gram negative (rod shape) bacteria. Highly motile bacteria. Opportunistic pathogen causes bacteremia, urinary tract infections, especially with the chronically ill.
Salmonella schottmuelleri	Gram negative (rod shape) bacteria associated with acute gastroenteritis and diarrhea.
Serratia marcescens	Gram negative bacteria associated with urinary tract infections, meningitis and septicemia .
Shigella dysenteriae	Gram negative bacteria directly spread by anal/oral route of infection; indirectly (including food, hands, flies) spread by contaminated food and inanimate objects resulting in bacillary dysentery.
Hepatitis B virus (HBV)	A hepadnavirus, a relatively new class of viruses. Partially double stranded DNA virus with three distinct morphologies. A blood borne pathogen causes serious degeneration of the liver.
Herpes Simplex Type 1&2	Lipophilic (enveloped) DNA virus may result in oral mucocutaneous lesions. Associated with most orofacial herpes and HSV encephalitis.
HIV-1 (AIDS Virus)	Lipophilic (enveloped) RNA retrovirus. Human Immunodeficiency Virus. Known to be the etiologic agent of Acquired Immunodeficiency Syndrome (AIDS).
Influenza A VIRUS	Lipophilic (enveloped) RNA virus. Causative agent in viral flu. Causes flu epidemics in nearly 2 of every 3 years.
Vaccinia	Lipophilic (enveloped) DNA poxvirus; causes poxvirus infections.

³ Microbiology, D. Kingsbury and G. Wagner Harwal Publishing 1990