



## SUMMARY OF ANTIMICROBIAL ACTIVITY

# Virus Scrub Plus

ONE-STEP DISINFECTANT, CLEANER

### Description

**Virus Scrub Plus** Disinfectant & Detergent is a broad spectrum, hard surface disinfectant. When used as directed, this product will deliver effective biocidal action against bacteria, fungi, and viruses. This formulation is a blend of a premium active ingredients and inerts: surfactants, chelates, and water. Biocidal performance is attained when this product is properly diluted at 1/2 oz. per gallon or 1:256 (1 oz. per gallon or 1:128 for Norovirus). **Virus Scrub Plus** can be used to disinfect a wide variety of hard surfaces such as floors, walls, toilets, sinks, and countertops in hospitals, households, and institutions.

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### Regulatory Summary

### Physical Properties

<b>EPA Registration No.</b>	6836-349-83937
<b>USDA Authorization</b>	None
<b>California Status</b>	
<b>Canadian PCP#</b>	None
<b>Canadian Din #</b>	None

<b>pH of Concentrate</b>	12.0 – 13.5
<b>Specific Gravity @ 25°C</b>	0.98 – 1.05 g/mL
<b>Pounds per gallon @ 25°C</b>	8.42 – 8.51

<b>Flash Point (PMCC)</b>	>200 ·F
<b>% Quat (mol. wt.342.0)</b>	22.24
<b>% Volatile</b>	93.5-94.5

## Summary of Antimicrobial Test Results

**Viru Scrub Plus** is a "One-Step" Hospital Disinfectant, Virucide, Fungicide, Mildewstat, Sanitizer and Cleaner. Listed in the following pages is a summary of Antimicrobial Claims and a review of test results.

Claim:	Contact time:	Organic Soil:	Water Conditions:
Disinfectant	Varies	5%	250ppm as CaCO <sub>3</sub>
<b>Test Method:</b> AOAC Germicidal Spray Test			
Organism	Contact Time (Min)	Dilution	
Acinetobacter baumannii	3	868 ppm (1/2oz. per Gal)	
Bordetella bronchiseptica	3	868 ppm	
Bordetella pertussis	3	868 ppm	
Campylobacter jejuni	3	868 ppm	
Enterobacter aerogenes	3	1736 PPM (1 oz per Gal)	
Enterococcus faecalis	3	868 ppm	
Enterococcus faecalis - Vancomycin resistant [VRE]	3	868 ppm	
Escherichia coli	3	868 ppm	
Escherichia coli [O157:H7]	3	868 ppm	
Escherichia coli ESBL – Extended spectrum beta-lactamase containing E. coli	10	868 ppm	
Klebsiella pneumoniae	3	868 ppm	
Klebsiella pneumoniae, Carbapenem-resistant	3	868 ppm	
Legionella pneumophila	10	868 ppm	
Listeria monocytogenes	3	868 ppm	
Proteus vulgaris	3	868 ppm	
Pseudomonas aeruginosa	3	868 ppm	
Salmonella enterica	3	868 ppm	
Serratia marcescens	3	1736 PPM (1 oz per Gal)	
Shigella dysenteriae	3	868 ppm	
Shigella flexneri serotype 1B	3	868 ppm	
Shigella sonneii	3	868 ppm	
Staphylococcus aureus	3	868 ppm	
Staphylococcus aureus - Vancomycin Intermediate Resistant – [VISA]	3	868 ppm	
Staphylococcus Aureus Community Associated Methicillin resistant [CA-MRSA][NRS384][USA 300]	3	868 ppm	
Staphylococcus Aureus Community Associated Methicillin resistant [CA-MRSA][NRS123][USA 400]	10	868 ppm	
Staphylococcus aureus Methicillin Resistant [MRSA]	3	868 ppm	
Staphylococcus aureus Multidrug resistant	10	868 ppm	
Streptococcus pyogenes	3	868 ppm	
Vibrio cholerae	3	868 ppm	
Yersinia enterocolitica	3	868 ppm	

**Conclusion: Viru Scrub Plus** is effective against the above listed bacteria as specified in the test performance standards. **Viru Scrub Plus** meets EPA requirements for hard surface disinfectant claims in hospital and medical environments when diluted 1:256 in 250 ppm synthetic hard water & of 5% organic soil.

<b>Claim:</b> Virucide	<b>Contact time:</b> Varies	<b>Organic Soil:</b> 5%	<b>Water Conditions:</b> 250ppm as CaCO <sub>3</sub>
<b>Test Method:</b> Virucidal Efficacy of a Disinfectant for Use on an Inanimate Environmental Surface			
<b>Organism</b>	<b>Contact Time (min)</b>	<b>Dilution</b>	
Adenovirus Type 5	10	3432 (2 oz per Gal)	
Adenovirus Type 7	10	3432 (2 oz per Gal)	
Hepatitis B Virus [HBV]	3	868 ppm	
Hepatitis C Virus [HCV]	3	868 ppm	
Herpes Simplex Virus Type 1	3	868 ppm	
Herpes Simplex Virus Type 2	3	868 ppm	
HIV-1 [AIDS Virus]	1	868 ppm	
Human Coronavirus	3	868 ppm	
Influenza Type A/H3N2 [influenza]	1	868 ppm	
Norwalk Virus - Norovirus	5	1737 ppm (1 oz. per Gal)	
Respiratory Syncytial Virus [RSV]	3	868 ppm	
Rotavirus	3	868 ppm	
SARS Associated Coronavirus [SARS]	10	868 ppm	
SARS-Related Coronavirus 2 Cause of COVID-19	1	868ppm	
Vaccinia [Pox Virus]	3	868 ppm	

**Conclusion: Viru Scrub Plus** effectively inactivated the above listed viruses as specified in the test performance standards. **Viru Scrub Plus** meets EPA requirements for hard surface virucidal claims in hospital and medical environments when diluted in 250 ppm synthetic hard water & 5% organic soil.

<b>Claim:</b> Virucide	<b>Contact time:</b> Varies	<b>Organic Soil:</b> 5%	<b>Water Conditions:</b> 250ppm as CaCO <sub>3</sub>
<b>Test Method:</b> Virucidal Efficacy of a Disinfectant for Use on an Inanimate Environmental Surface			
<b>Organism</b>	<b>Contact Time (min)</b>	<b>Dilution</b>	
Canine Distemper Virus	3	868 ppm (1/2 oz. per Gal)	
Feline Calicivirus	5	1736 ppm (1 oz. per Gal)	
Newcastle Disease Virus	3	868 ppm	

**Conclusion: Viru Scrub Plus** effectively inactivated the above listed animal viruses as specified in the test performance standards.

<b>Claim:</b> Fungi	<b>Contact time:</b> 3 minutes	<b>Organic Soil:</b> 5%	<b>Water Conditions:</b> 250ppm as CaCO <sub>3</sub>
<b>Test Method:</b> Germicidal Spray Test			
<b>Organism</b>		<b>Dilution</b>	
Candida albicans		868 ppm	
Trichophyton interdigitale		868 ppm	

**Conclusion: Viru Scrub Plus** is effective against the listed fungi as specified in the test performance standards. **Viru Scrub Plus** is an effective fungicide for nonporous inanimate hard surfaces when diluted to 1:256 in 250 ppm synthetic hard water & 5% organic soil.

<b>Claim:</b> Sanitizer: non-Food Contact	<b>Contact time:</b> 15 Seconds	<b>Organic Soil:</b> 5%	<b>Water Conditions:</b> 250ppm as CaCO <sub>3</sub>
<b>Test Method:</b> Sanitizer Non-Food Contact Surfaces – EPA; For Inanimate, Non- Food Contact Surfaces			
<b>Organism</b>		<b>Dilution</b>	
Enterobacter aerogenes		868 ppm	
Klebsiella pneumoniae		868 ppm	
Listeria monocytogenes		868 ppm	
Staphylococcus aureus		868 ppm	
Staphylococcus aureus [MRSA]		868 ppm	

**Conclusion: Viru Scrub Plus** effectively reduced the above listed bacteria to a safe level as specified in the test performance standards with at least 99.9% reduction in 15 seconds. **Viru Scrub Plus** is an effective Non-Food Contact Sanitizer against the above listed bacteria on non-porous inanimate hard surfaces when diluted to 1:256 in 250 ppm synthetic hard water in the presence of 5% organic soil.

### Summary of Antimicrobial Efficacy – Etiology

Pathogenic Microorganism	Description
Acinetobacter baumannii [Acinetobacter]	Gram negative (spherical shape) bacteria. Occurs in soil, water and sewage. A nosocomial infection can cause septicemia, meningitis and urinary tract infections.
Adenovirus Type 5	Hydrophilic (Non-enveloped) DNA virus, (one of several) causative agent for colds and other respiratory ailments.
Adenovirus Type 7	Hydrophilic (Non-enveloped) DNA virus, (one of several) causative agent for colds and other respiratory ailments.
Bordetella bronchiseptica [Kennel cough]	A small, aerobic, gram-negative bacillus which is part of normal respiratory flora of domestic mammals—e.g., dogs, cats—but not humans.
Bordetella pertussis [whooping cough]	A small, aerobic, gram-negative bacillus, which classically causes whooping cough
Campylobacter jejuni [Campylobacter]	Gram negative bacteria associated with acute gastroenteritis. Spread by anal/oral route of infection, resulting in diarrhea outbreaks.

Candida albicans	a common budding yeast; a microscopic fungal organism normally present in the mucous membranes of the mouth, intestinal tract, and vagina of healthy people. Under certain circumstances, it may cause superficial infections of the skin, mouth, or vagina. Infection of the esophagus and severe invasive systemic infections may occur in persons with human immunodeficiency virus.
Canine Distemper Virus	An RNA virus causing fever, lack of appetite, and depression leading to more serious symptoms such as coughing, vomiting, diarrhea, and death in canines.
Enterobacter aerogenes	Gram negative bacteria spread by anal/oral route of infection. Associated with bacteremia respiratory, wound and urinary tract infections.
Enterococcus faecalis - Vancomycin resistant [VRE]	any of various bacterial strains of the genus <i>Enterococcus</i> (as <i>E. faecium</i> and <i>E. faecalis</i> ) that are resistant to the antibiotic vancomycin, occur as part of the normal flora especially of the gastrointestinal tract, and may cause serious infections (as of the urinary tract, blood, or surgical wounds) typically in immunocompromised individuals in a hospital setting
Enterococcus faecalis [Enterococcus]	Gram positive (Enterococci) bacteria causing hemolysis, urinary tract infections and endocarditis.
ESBL Escherichia coli	Extended spectrum beta-lactamase producing <i>E. coli</i>
Escherichia coli [E. coli]	Gram negative bacteria spread by anal/oral route of infection, resulting in diarrhea outbreaks. Associated with urinary tract infections and bacteremia.
Escherichia coli O157:H7	Gram negative bacteria spread by anal/oral route of infection, resulting in diarrhea outbreaks. Associated with urinary tract infections and bacteremia.
Feline Calicivirus	Feline Calicivirus is the approved surrogate for the Norwalk Virus. Norwalk virus is the prototype of a family of unclassified small round structured viruses (SRSVs) which may be related to the caliciviruses.
Hepatitis B Virus [HBV]	Lipophilic (enveloped) DNA virus of the Hepadnaviridae family. Causative agent of Hepatitis B (serum hepatitis).
Hepatitis C Virus [HCV]	Major cause of acute hepatitis and chronic liver disease, including cirrhosis and liver cancer. It is an enveloped RNA virus in the Hepadnaviridae family.
Herpes Simplex Virus Type 1	Lipophilic (enveloped) DNA virus, may result in oral mucocutaneous lesions. Associated with most orofacial herpes and HSV encephalitis.
Herpes Simplex Virus Type 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 virus. Human Immunodeficiency Virus. Known to be the etiologic agent of Acquired Immunodeficiency Syndrome (AIDS).
Human Coronavirus	Monogenic group of RNA containing viruses that are associated with respiratory infections.
Influenza Type A / H3N2 [Influenza]	Influenza A viruses are negative-sense, single-stranded, segmented RNA viruses

Klebsiella pneumoniae	Gram negative bacteria associated with severe pneumonia, bacteremia and urinary tract infections.
Klebsiella pneumoniae, Carbapenem-resistant	Gram-negative, nonmotile, encapsulated, lactose-fermenting, facultative anaerobic, rod-shaped bacterium. Resistant to Carbapenem antibiotics
Legionella pneumophila	A motile rod-shaped, gram-negative, aerobic facultative intracellular bacterium that causes legionellosis (respiratory infections).
Listeria monocytogenes	<i>Listeria monocytogenes</i> is a Gram-positive rod-shaped bacterium. It is the agent of <b>listeriosis</b> , a serious infection caused by eating food contaminated with the bacteria
Newcastle Disease Virus	NDV is a contagious and fatal viral disease affecting most species of birds. A death rate of almost 100 percent can occur in unvaccinated poultry flocks. NDV can infect and cause death even in vaccinated poultry.
Norwalk Virus – Norovirus -	A genus of viruses of the family <i>Caliciviridae</i> . Recent scientific findings reveal that the genus causes around 50% of all gastroenteritis (stomach pain, diarrhea, and vomiting) around the world
Proteus vulgaris	a species of bacteria that is a frequent cause of urinary tract infections. The bacteria are found in feces, water, and soil.
Pseudomonas aeruginosa [Pseudomonas]	Gram negative bacteria identified as a major cause of hospital acquired (nosocomial) infections. Causes wound infections (especially burn), meningitis, pneumonia and eye infections. Required for Hospital Disinfectants.
Respiratory Syncytial Virus [RSV]	Virus that can cause severe lower respiratory infections in children under 2 and mild upper respiratory infections in older children and adults. Inflammation of bronchioles.
Rotavirus	a genus of viruses of the family Reoviridae, having a wheel-like appearance, that cause acute infantile gastroenteritis and cause diarrhea in young children and many animal species.
Salmonella enterica [Salmonella]	<i>Salmonella enterica</i> is a gram-negative, facultative anaerobic, rod-shaped, flagellated bacterium that is of interest due to its ability to cause infectious disease in humans and animals
SARS Associated Coronavirus [SARS] [cause of Severe Acute Respiratory Syndrome]	A viral respiratory illness caused by a coronavirus, called SARS-associated coronavirus (SARS-CoV). It is a positive and single stranded RNA virus belonging to a family of enveloped coronaviruses
Serratia marcescens	Gram negative bacteria associated with urinary tract infections, meningitis and septicemia.
Shigella dysenteriae [Shigella]	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.
Shigella flexneri serotype 1B	A facultative anaerobe belonging to the family <i>Enterobacteriaceae</i> , is a Gram-negative rod that is the causative agent of diarrhea and dysentery in humans. Potentially life-threatening, <i>S. flexneri's</i> effects include bacteremia, hemolytic uremic syndrome (HUS) and toxic megacolon (4). The principle disease of diarrhea and dysentery caused by this pathogen is known as shigellosis

Shigella sonneii	Gram positive bacteria that causes gastroenteritis.
Staphylococcus aureus - Community Associated Methicillin-Resistant [CA-MRSA] (NRS123) (USA400)	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. Specific Methicillin resistant strain.
Staphylococcus aureus - Community Associated Methicillin-Resistant [CA-MRSA] (NRS384) (USA300)	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. Specific Methicillin resistant strain.
Staphylococcus aureus - Methicillin-Resistant [MRSA]	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. Methicillin resistant strain.
Staphylococcus aureus - Multi-Drug Resistant	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. Multidrug resistant strain.
Staphylococcus aureus - Vancomycin Intermediate Resistant – [VISA]	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.
Staphylococcus aureus [Staph]	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.
Streptococcus pyogenes [Strep] [a cause of scarlet fever]	Gram positive (Enterococci) bacteria causing hemolysis, urinary tract infections and endocarditis. Causative agent of pharyngotonsillitis (sore throats).
Trichophyton interdigitale	Athlete's foot fungus. Found in shower and dressing rooms.
Vaccinia [Pox Virus]	Lipophilic (enveloped) DNA poxvirus; causes poxvirus infections.
Vibrio cholerae	Gram negative, rod shape bacteria; causative agent for cholerae – causes severe diarrhea -- often fatal.
Yersinia enterocolitica	an infectious disease caused by a bacterium of the genus <i>Yersinia</i> . belongs to a family of rod-shaped bacteria. Infection is most often acquired by eating contaminated food, especially raw or undercooked pork products.

