Maintenance Solutions

SUMMARY OF ANTIMICROBIAL ACTIVITY

MPC 10 SANI – 512 PF

Food Service Sanitizer

Description

MPC 10 SANI-512 PF Disinfectant & Sanitizer is a broad spectrum, neutral pH, hard surface food service sanitizer. 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 water. Biocidal performance is attained when this product is properly diluted at 1 oz. per 4 gallons or 1:512 (200ppm active quat). **MPC 10 SANI-512 PF** can be used to disinfect a wide variety of hard surfaces such as floors, walls, and countertops in hospitals, households, and institutions. For disinfection, dilute 4 ozs. per 5 gallons of water or 1:160 (625ppm active quat).

Regulatory Summary

EPA Registration No.	10324-63-8325
USDA Authorization	None
California Status	
Canadian PCP#	None
Canadian Din #	None

Physical Properties

pH of Concentrate	6.0 – 8.0	**Flash Point (PMCC)**	>200°F
Specific Gravity @ 25°C	0.97 - 0.99	**% Quat (mol. wt.360.5)**	10% min.
Pounds per gallon @ 25°C	8.25	**% Volatile**	90

(7/2014)

Hospital Grade Disinfectant

Disinfectants (hospital or medical environment efficacy)

Testing is performed per the AOAC UDT/GST method (DIS/TSS-1). Sixty carriers are required on 3 separate lots, one of which must be > 60 days old against Pseudomonas aeruginosa, Salmonella choleraesuis and Staphylococcus aureus. Killing of 59 out of 60 carriers is required (total carriers = 540).

- Test Method AOAC Use-Dilution Test
- Quat Concentration: 625 ppm active
- Test Conditions: Distilled water
- 5% blood serum

	Sample	# Carriers	# Positive	Control*	Significance
Pseudomonas aeruginosa **ATCC #15442**	A (60 Days Old)	60	1/60	59/59	Has ability to survive and multiply in fluids, water and moist environments found in hospitals. Hospital acquired infections usually occur to patients having prior instrumentation or manipulative procedures such as urethral catheterization, tracheotomies and intravenous infusions of medications and fluids. The most important human sources are infected wounds, urine and lesions producing exudates. Causes infant diarrhea, ocular infections, burn infections, cystic fibrosis, folliculitis, osteomyelitis and malignant external otitis.
	B	60	0/60	60/60	
	C	60	0/60	60/60	
Salmonella enterica **ATCC #10708**	A (60 Days Old)	60	0/60	60/60	Causes gastroenteritis, septicemia, bacteremia and arthritis. Salmonellae are the most common cause of bacterial diarrhea in the Untied States.
	B	60	1/60	59/60	
	C	60	1/60	59/60	
Staphylococcus aureus **ATCC #6538**	A (60 Days Old)	60	1/60	59/60	Causes skin infections such as cellulites, boils, carbuncles, impetigo and postoperative wound infections. Can cause food poisoning. Both community and hospital infections such as bacteremia, endocarditis, meningitis, pneumonia and osteomyelitis.
	B	60	0/60	60/60	
	C	60	1/60	59/60	

*Control=Neutralization Challenge

Supplemental Organisms

Testing is performed per the AOAC UDT/GST method. Ten carriers are required on 2 separate lots against each supplemental organism. Killing of 10 out of 10 carriers is required (total carriers = 20).

	Sample	# Carriers	# Positive	Control*	Significance
Botrytis cinerea ATCC #12481	A	10	0/10	10/10	
	B	10	0/10	10/10	
Burkholderia cepacia **ATCC #25416**	A	10	0/10	10/10	Formally called *Pseudomonas cepacia* lives in damp or wet places, and causes rot in plants such as onions. This organism rarely causes infection in healthy people, but can be a problem for persons with cystic fibrosis, and certain other individuals who cannot fight infections properly. It can get into the lungs and cause problems.
	B	10	0/10	10/10	
Campylobacter jejuni **ATCC #29428**	A	10	0/10	10/10	Common cause of diarrheal illness mostly carried by birds and transferred in under cooked meat.
	B	10	0/10	10/10	
Corynebacterium ammoniagenes **ATCC #6871**	A	10	0/10	10/10	Formally called *Brevibacterium ammoniagenes*, Cause of diaper rash, converts urine to ammonia
	B	10	0/10	10/10	
Enterococcus faecium Vancomycin Resistant (VRE)	A	10	0/10	10/10	E. faecium is a member of the normal gut flora of most warm-blooded animals, including humans. It can cause a wide range of infections, often most seriously in hospital patients (ICU). Many enterococci are resistant to a number of antibiotics - in fact some could only be treated with vancomycin. Vancomycin-resistant enterococci now represent more than 15% of nosocomial infections.
Clinical Isolate	B	10	0/10	10/10	
Escherichia coli **strain 0157:H7** **ATCC #35150**	A	10	0/10	10/10	A virulent strain of E. coli that can cause severe foodborne disease. Infection often leads to bloody diarrhea and occasional kidney failure. Transmitted to man from contaminated (under cooked) meat and/or raw milk.
	B	10	0/10	10/10	
Klebsiella pneumoniae **ATCC #13883**	A	10	0/10	10/10	Causes infection of the urinary and respiratory tracts. Causative agent of pneumoniae.
	B	10	0/10	10/10	
Listeria monocytogenes	A	10	0/10	10/10	Can cause series foodborne illness listeriosis. Primarily occurs in pregnant women, newborns and persons with

ATCC #984	B	10	0/10	10/10	impaired immunity. Bacteria spread from meat and dairy products. Grows at refrigerated temperatures and can survive with little or no oxygen.
Proteus mirabilis **Clinical Isolate**	A	10	0/10	10/10	*Proteus mirabilis* is a member of the enterobacteriaceae. It is a Gram neg. rod, motile (swarming) and is widely distributed in nature. It is easily detected in feces of most animals but is hardly ever found in high numbers unless the normal intestinal microflora is deranged. Causes infection in the urinary tract, wounds, ears, eyes and respiratory system
	B	10	0/10	10/10	
Salmonella typhi **ATCC #6539**	A	10	0/10	10/10	Typhoid fever is a life-threatening illness caused by this bacterium. *Salmonella typhi* lives only in humans. Persons with typhoid fever carry the bacteria in their bloodstream and intestinal tract.
	B	10	0/10	10/10	
Shigella sonnei **ATCC #9290**	A	10	0/10	10/10	Causes bacillary dysentery characterized by severe cramping abdominal pain and diarrhea with blood and mucous.
	B	10	0/10	10/10	
Methicillin Resistant *Staphylococcus aureus* **ATCC #33591**	A	10	0/10	10/10	Staph. is found in the nose of 20-40% of normal healthy people and also on the skin without causing problems. If it gets in through broken skin can cause boils, wound and other infections. Staph. can multiply on food releasing toxins that cause vomiting and diarrhea. Shows resistance to the antibiotic Methicillin.
	B	10	0/10	10/10	
Yersinia enterocolitica **ATCC #23715**	A	10	0/10	10/10	*Yersinia enterocolitica* is a small rod-shaped, Gram-negative bacterium. *Yersinia enterocolitica* can infect the digestive tracts of humans, cats, dogs, pigs, cattle, and goats. Symptoms of yersiniosis include abdominal pain, fever, diarrhea and/or bloody diarrhea and sometimes vomiting. Symptoms typically occur within one to seven days after ingestion and often last for more than a week.
	B	10	0/10	10/10	
Community Associated Methicillin Resistant Staphylococcus aureus (CA MRSA) Genotype USA 400)	A	10	0/10	10/10	Staph. is found in the nose of 20-40% of normal healthy people and also on the skin without causing problems. If it gets in through broken skin can cause boils, wound and other infections. Staph. can multiply on food releasing toxins that cause vomiting and diarrhea. Shows resistance to the antibiotic Methicillin. Acquired within normal population contact.
	B	10	0/10	10/10	

*Control=Neutralization Challenge

Virucides

Testing is performed per EPA Guidance (DIS/TSS-7). Two separate lots are tested. Inactivation of virus must be demonstrated at all dilutions when no cytotoxicity is observed or at all dilutions above the cytotoxic level when it is observed. The data must demonstrate a 3 log reduction in viral titer for both lots.

- Test Method AOAC Use-Dilution Test
- Quat Concentration: 625 ppm active
- Test Conditions: Distilled water
- 5% blood serum

Avian Influenza A/Turkey/Wisconsin virus

ATCC #VR-798, Pool #1 (6/22/95)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Avian influenza is caused by type A influenza virus. The symptoms can vary from a mild disease with little or no mortality to a highly fatal, rapidly spreading epidemic (highly pathogenic avian influenza) depending on the infecting virus strain, host factors, and environmental stressors. Signs including coughing, sneezing, ruffled feathers, swollen heads, nervous signs like depression, and diarrhea may occur together or singly. In some cases, birds die rapidly without clinical signs of disease.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	4/4	N/A	N/A	
10^{-7}	0/4	0/4	4/4	N/A	N/A	

Avian Influenza A (H5N1) virus

Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Avian influenza is caused by type A influenza virus. The symptoms can vary from a mild disease with little or no mortality to a highly fatal, rapidly spreading epidemic (highly pathogenic avian influenza) depending on the infecting virus strain, host factors, and environmental stressors. Signs including coughing, sneezing, ruffled feathers, swollen heads, nervous signs like depression, and diarrhea may occur together or singly. In some cases, birds die rapidly without clinical signs of disease.
10^{-2}	0/4	0/4	4/4	0/4	0/4	
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	4/4	N/A	N/A	
10^{-7}	0/4	0/4	4/4	N/A	N/A	

Canine Distemper Virus

National Veterinary Service Lab/USDA Reference Virus, Pool #17 (6/6/00)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	A highly infectious, febrile disease of dogs and other carnivores. Infected dogs develop a rise of temperature, anorexia, catarrh, conjunctivitis, and depression. Some dogs demonstrate primary respiratory signs while others intestinal signs. The mortality rate ranges between 30-80%, but surviving dogs often have permanent central nervous system sequelae.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	1/4	N/A	N/A	
10^{-6}	0/4	0/4	0/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

Equine Arteritis Virus

American Type Culture Collection Manassas, VA (ATCC VR-796)
Log reduction ≥

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Horses infected with EAV which develop the disease, EVA, can show any combinations or all of the following signs: fever, swelling of the limbs, anorexia or lack of appetite, depression, swelling of the external genitalia in the male or of the mammary glands in the mare, conjunctivitis, nasal discharge, skin rash (which may be localized around the head or the neck, or generalized) and abortion in regnant mares. Infection in very young foals can cause severe pneumonia and sometimes death.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4		N/A	N/A	
10^{-6}	0/4	0/4	0/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

Hepatitis B Virus

Virus obtained from Hepadnavirus Testing
Log reduction ≥3.21

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	N/A	0/2	0/2	Hepatitis is an inflammation of the liver. It is usually caused by viral infections, toxic agents or drugs but may be an autoimmune response. It is characterized by jaundice, abdominal pain, liver enlargement and sometimes fever. It may be mild, or can be acute leading to fulminant hepatitis. Others forms usually viral or alcoholic are chronic, and can lead to cirrhosis and liver cancer.
10^{-3}	0/4	0/4	N/A	0/2	0/2	
10^{-4}	0/4	0/4	4/4	N/A	N/A	
10^{-5}	N/A	N/A	4/4	N/A	N/A	
10^{-6}	N/A	N/A	3/4	N/A	N/A	
10^{-7}	N/A	N/A	0/4	N/A	N/A	

Hepatitis C Virus

Virus obtained from Hepadnavirus Testing
Log reduction ≥3.21

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	N/A	0/2	0/2	Hepatitis is an inflammation of the liver. It is usually caused by viral infections, toxic agents or drugs but may be an autoimmune response. It is characterized by jaundice, abdominal pain, liver enlargement and sometimes fever. It may be mild, or can be acute leading to fulminant hepatitis. Others forms usually viral or alcoholic are chronic, and can lead to cirrhosis and liver cancer.
10^{-3}	0/4	0/4	N/A	0/2	0/2	
10^{-4}	0/4	0/4	4/4	N/A	N/A	
10^{-5}	N/A	N/A	4/4	N/A	N/A	
10^{-6}	N/A	N/A	3/4	N/A	N/A	
10^{-7}	N/A	N/A	0/4	N/A	N/A	

Herpesvirus Type 1 virus

ATCC # VR-260, Pool #64 (5/15/95)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Causes skin lesions above the waist, encephalitis, stomatitis, eye infections and fever blisters.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	4/4	N/A	N/A	
10^{-7}	0/4	0/4	1/4	N/A	N/A	

Herpesvirus Type 2 virus

ATCC # VR-734, Pool #79 (12/14/99)
Log reduction ≥4.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Causes lesions on penis, urethra, vulvovaginia and skin of buttocks
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	0/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

HIV-1 (AIDS virus)

Human immunodeficiency virus, HTLV-III_B strain of HIV-1
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	N/A	N/A	4/4	N/A	N/A	Causes severe damage to the human body's immune system defenses against disease often leading to death. For example the AIDS virus infects white blood cells and T-helper cells that play key roles in the body's immune system.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	0/4	0/4	
10^{-6}	0/4	0/4	2/4	0/4	0/4	
10^{-7}	N/A	N/A	0/4	N/A	N/A	

Human Coronavirus

ATCC #VR-740
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	N/A	N/A	4/4	N/A	N/A	
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	0/4	0/4	
10^{-6}	0/4	0/4	2/4	0/4	0/4	
10^{-7}	N/A	N/A	0/4	N/A	N/A	

Infectious Bronchitis Virus

Solvay Animal Health, Mendota Heights, MN Beaudette IB42 strain
Log reduction ≥

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Infectious Bronchitis Virus (IBV) is a clinically acute, highly contagious viral disease affecting chickens of all ages. IBV has an incubation period of only 24 to 72 hours. The disease affects the respiratory and urogenital tract of chickens. Young chickens exhibit acute respiratory disease signs and lesions in the trachea. Mortality may be as high as 100%.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4		N/A	N/A	
10^{-6}	0/4	0/4	0/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

Infectious Laryngotracheitis

Strain LT-IVAX Poultry Health & Specialties, Inc.
Log reduction ≥4.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Infectious laryngotracheitis (ILT, LT) is a respiratory disease caused by a herpes virus which affects chicken. Clinical signs appear five to ten days following exposure and may include watery eyes, respiratory distress, coughing blood and egg production drops. The disease spreads rapidly, and morbidity is often 90 to 100 percent, with mortality ranging from 1 to 10 percent.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	3/4	0/4	0/4	
10^{-5}	0/4	0/4	1/4	0/4	0/4	
10^{-6}	0/4	0/4	0/4	0/4	0/4	
10^{-7}	0/4	0/4	0/4	0/4	0/4	

Infectious Bovine Rhinotracheitis

ATCC # VR-188, Pool # 9 (1/17/00)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Infectious Bovine Rhinotracheitis is caused by Bovine Herpes Virus 1, which is also responsible for the disease syndrome known as infectious pustular vulvovaginitis and balanoposthitis (IPV-IPB). It appears that the latter (IPV) was the primary form of the disease until the animals were concentrated into high population units such as beef feedlots and large dairy herds. The virus is associated with • Upper respiratory tract infections (IBR) and bovine respiratory disease, • Conjunctivitis • Reproductive disorders including IPV, abortion and neonatal death.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	2/4	N/A	N/A	
10^{-6}	0/4	0/4	1/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

Influenza A (H1N1) virus

Atcc #VR-1469,
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	A viral infection of the respiratory tract that causes fever, headache, muscle aches, and weakness. There are three types of influenza virus. All are spread from person to person by inhaling infected droplets from the air. Type A is usually responsible for the large outbreaks and is a constantly changing virus. New strains of Type A virus develop regularly and result in a new epidemic every few years. Types B and C are fairly stable viruses. Type B causes smaller outbreaks, and Type C usually causes mild illness similar to the common cold.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	4/4	N/A	N/A	
10^{-7}	0/4	0/4	4/4	N/A	N/A	

Influenza A2/Japan

Atcc #VR-100, Pool #92 (7/3/95)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	A viral infection of the respiratory tract that causes fever, headache, muscle aches, and weakness. There are three types of influenza virus. All are spread from person to person by inhaling infected droplets from the air. Type A is usually responsible for the large outbreaks and is a constantly changing virus. New strains of Type A virus develop regularly and result in a new epidemic every few years. Types B and C are fairly stable viruses. Type B causes smaller outbreaks, and Type C usually causes mild illness similar to the common cold.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	4/4	N/A	N/A	
10^{-7}	0/4	0/4	4/4	N/A	N/A	

Newcastle Disease Virus

American Cyanamid, Pool #12 (7/17/95)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Newcastle Disease Virus is by far one of the most important pathogens of all birds. The symptoms of Newcastle Disease include respiratory distress, diarrhea, cessation of egg, continued economic loss from reduced rate of gain, poor feed conversion, increased mortality and carcass condemnation at processing.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	4/4	N/A	N/A	
10^{-7}	0/4	0/4	4/4	N/A	N/A	

Porcine Respiratory & Reproductive Virus (PRRSV)

National Veterinary Service Lab/USDA Reference Virus, Pool #7b (6/19/97)
Log reduction ≥4.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Porcine reproductive and respiratory syndrome affects pigs of all ages, causes severe economic loss in many swine herds, and continues to be a major problem for pork producers. Clinical signs may include anorexia, fever, and lethargy in sows or gilts for one to seven days. Reproductive failure is characterized by late-term abortions, increased numbers of stillborn fetuses, and/or premature weak pigs.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	0/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

Porcine Rotavirus

ATCC #VR-893, Pool #3 (1/31/00)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	Porcine Rotaviruses are important causative agents of diarrhea in swine herds worldwide. The virus infects neonates between the first and the second week of age, affecting the productivity of the herd, which is reflected in the economic losses associated with growth retardation, the cost involved in veterinary treatment and in some cases, the death of the animal.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	0/4	N/A	N/A	
10^{-6}	0/4	0/4	0/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

Pseudorabies Virus

ATCC # VR-135, Pool #22 (1/17/00)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	4/4 T	4/4 T	4/4	0/4 T	0/4 T	A herpes virus that is extremely contagious from animal to animal. It is contagious to several species of animals, including cattle, horses, dogs, cats, sheep and goats. It produces rapid death (usually in 24 - 72 hours), most commonly from convulsions and seizures, in most all species except swine, which are the normal target species of the virus. Once a swine is infected with the virus, it will remain infected for the life of the animal, although it may not show clinical signs.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	1/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

T= Cytotoxicity

Transmissible Gastroenteritis (TGE)

ATCC #VR-742, Pool #3 (8/27/96)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	4/4 T	4/4 T	4/4	4/4 T	4/4 T	Transmissible Gastroenteritis (TGEV) is a highly contagious swine disease that produces diarrhea, anorexia, vomiting and agalactia. High mortality, decreasing mortality with age. Occurs most commonly in the winter.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	1/4	N/A	N/A	
10^{-7}	0/4	0/4	0/4	N/A	N/A	

T= Cytotoxicity

Vaccinia Virus

Hoffmann LaRoche Pool # 56 (4/11/95)
Log reduction ≥3.0

Virus Dilution	Sample #		Control	Cytotoxicity Control		Significance
	A	B		A	B	
10^{-2}	0/4	0/4	4/4	0/4	0/4	The Vaccinia virus was used as an immunizing agent against human smallpox during the global eradication program that sought to vaccinate the population. Causes red hemorrhagic lesions (pocks) on cattle; usually confined to the udder and teats.
10^{-3}	0/4	0/4	4/4	0/4	0/4	
10^{-4}	0/4	0/4	4/4	0/4	0/4	
10^{-5}	0/4	0/4	4/4	N/A	N/A	
10^{-6}	0/4	0/4	4/4	N/A	N/A	
10^{-7}	0/4	0/4	1/4	N/A	N/A	

Food Contact Sanitizer

Test method

Testing is performed per the AOAC method (AOAC Germicidal and Detergent Sanitizers) on 3 separate lots, one of which must be > 60 days old, against both Escherichia coli and Staphylococcus aureus. Acceptable results must demonstrate a 99.999% (5 log) reduction in the number of test microorganisms within 30 seconds.

- Contact times: 30 and 60 seconds
- Organic soil: None
- Test concentration: 200 ppm quaternary ammonium salt
- Test dilution: 1 ounce per 4 gallons or 1:512
- Diluent: 500 ppm AOAC hard water

	Sample	Log Reduction		Significance
		30 Seconds	60 Seconds	
Staphylococcus aureus **ATCC #6538**	A (60 days old)	7.0	7.0	Causes skin infections such as cellulites, boils, carbuncles, impetigo and postoperative wound infections. Can cause food poisoning. Both community and hospital infections such as bacteremia, endocarditis, meningitis, pneumonia and osteomyelitis.
	B	7.0	7.0	
	C	7.0	7.0	
Escherichia coli **ATCC #11229**	A (60 days old)	>7.0	>7.0	Causes severe foodborne disease. Infection often leads to bloody diarrhea and occasional kidney failure. Transmitted to man from contaminated (under cooked) meat and/or raw milk.
	B	>7.0	>7.0	
	C	>7.0	>7.0	

Supplemental Organisms

Testing is performed per the AOAC method (AOAC Germicidal and Detergent Sanitizers) on 2 separate lots against each supplemental organism. Acceptable results must demonstrate a 99.999% reduction in the number of test microorganisms within 30 seconds.

	Sample	Log Reduction		Significance
		30 Seconds	60 Seconds	
Aeromonas hydrophila **ATCC #23213**	A	>7.0	>7.0	
	B	>7.0	>7.0	
Campylobacter jejuni **ATCC #29428**	A	>7.0	>7.0	Common cause of diarrheal illness mostly carried by birds and transferred in under cooked meat.
	B	>7.0	>7.0	
Clostridium perfringens **ATCC #13124**	A	>7.0	>7.0	
	B	>7.0	>7.0	
Enterobacter sakazakii **ATCC #29544**	A	>7.0	>7.0	
	B	>7.0	>7.0	
Escherichia coli O157:H7 **ATCC #43888**	A	>5.0	>5.5	A virulent strain of E. coli that can cause severe foodborne disease. Infection often leads to bloody diarrhea and occasional kidney failure. Transmitted to man from contaminated (under cooked) meat and/or raw milk
	B	>5.0	>5.5	
Escherichia coli 0111:H8 **ATCC #BAA-184**	A	>5.0	>5.5	
	B	>5.0	>5.5	
Listeria monocytogenes **ATCC #984**	A	>6.5	>7.0	Can cause series foodborne illness listeriosis. Primarily occurs in pregnant women, newborns and persons with impaired immunity. Bacteria spread from meat and dairy products. Grows at refrigerated temperatures and can survive with little or no oxygen.
	B	>7.0	>7.0	
Salmonella typhi **ATCC #6539**				
Shigella dysenteriae **ATCC #9361**	A	>7.5	>7.5	Symptoms include diarrhea which may be mild or severe, along with fever and nausea. The diarrhea may be watery or bloody. Vomiting and abdominal cramping may also occur. In general, S. dysenteriae, S. flexneri, and S. boydii account for most isolates in developing countries. Conversely, S. sonnei is most common and S. dysenteriae is least common in developed countries.
	B	>7.5	>7.5	
Yersinia enterocolitica **ATCC #23715**	A	>7.5	>7.5	*Yersinia enterocolitica* is a small rod-shaped, Gram-negative bacterium. *Yersinia enterocolitica* can infect the digestive tracts of humans, cats, dogs, pigs, cattle, and goats. Symptoms of yersiniosis include abdominal pain, fever, diarrhea and/or bloody diarrhea and sometimes vomiting. Symptoms typically occur within one to seven days after ingestion and often last for more than a week.
	B	>7.5	>7.5	

EPA Hard Surface Mildew Fungistatic Test

Aspergillus niger

ATCC # 6275, spore suspension lot # D-108

Tile #	Sample A			Sample B		
	1:400	1:213	1:160	1:400	1:213	1:160
1	+	+	0	+	+	0
2	+	+	0	+	+	0
3	+	0	0	+	0	0
4	+	+	0	+	+	0
5	+	+	0	+	0	0
6	+	+	0	+	+	0
7	+	+	0	+	+	0
8	+	+	0	+	+	0
9	+	+	0	+	+	0
10	+	+	0	+	+	0

0= no visual growth and no growth at 15X.
+= *A. ni*ger growth with black spores.

Conclusion: When tested in deionized water against *Aspergillus niger* containing 5% organic soil, the minimum effective concentration of Sani-512 was 625 ppm.

Fungicidal Activity (pathogenic fungi)

Testing is performed per the AOAC fungicidal method (DIS/TSS-6). Two separate lots are tested against Trichophyton mentagrophytes in a suspension test. Killing of all fungal spores in 10 minutes is required.

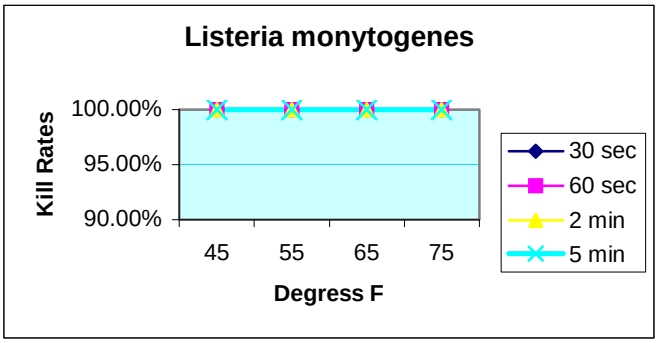
Trichophyton mentagrophytes (T. menta)

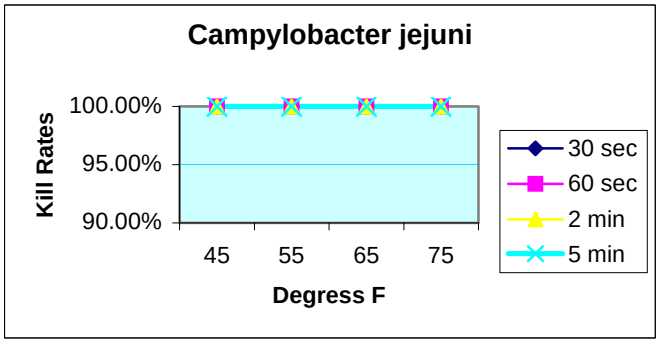
Sample #	Primary Transfer			Secondary Transfer		
	5 min.	10 min.	15 min.	5 min.	10 min.	15 min.
A	0	0	0	0	0	0
B	0	0	0	0	0	0

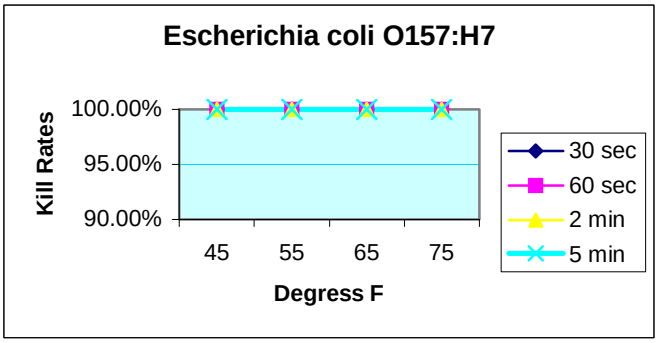
0= No Growth

Time Kill Assay of Sani-512

The objective of this test is to show the efficacy of Sani-512 against Escherichia coli O157:H7, Campylobacter jejuni and Listeria monocytogenes over time and varying temperatures. Sani-512 was tested at one ounce per 4 gallons (200 ppm quat active) dilution in the presence of 500 ppm hard water.







Summary: There was no significant difference in kill rates in the above organisms over time and temperatures tested.