MediDefense™

mPerial DISINFECTANT/SANITIZER

mPerial kills germs and is specifically formulated for use on hard, non-porous and porous surfaces. Its concentrated formulation, when diluted as directed, provides an economical yet wide range of functionality: Bactericidal, Fungicidal, Virucidal, Deodorizer, Disinfectant, and Mildewstat. mPerial is proven effective in the reduction of the risk of cross contamination of Norovirus (Norwalk Virus), Methicillin Resistant Staphylococcus Aureus (MRSA), HIV-1, and Vancomycin Intermediate Resistant Staphylococcus Aureus (VISA) Mold , mildew and many other bacteria and viruses. mPerial is also used to remove grim and chemical residue from a surface in preparation for mPale.

mPerial is EPA Registered (EPA Reg. No.1839-79-83129) and FDA approved for use as a biocide in hospitals, nursing homes, commercial buildings, food handling and processing areas, light industry, mold remediation and veterinary practices.

It is specially formulated for compatibility with our mPale Antimicrobial.

Concentrated Formula available in 1 gallon containers, 5 gallon pales, 55 gallon drums, or 275 gallon tote (stackable) containers

Ready To Use (RTU) Formula available in 32 ounce spray bottles

BACTERIA:
Micrococcus sp, Staphylococcus epidermidisi1, Enterbactoraggomeranos1, Acinetobacter calcoaceticus1, Staphylococcus aureus (pigmented)1, Staphylococcus aureus (non-pigmented)1, Klebsiella pneumoniac, Pseudomonas acruginosa, Pseudomonas acruginosa1, Haemophilus influenza, Escherichia coli, Escherichia coli1, Proteus mirabilis, Proteus mirabilis1, Citrobacter diverus1, Salmonella typhosa, Salmonella choleraesuis, Corynebacterium bovis, Mycobacterium smegmatis, Mycobacterium tuberculosis, Brucella cania, Brucella abortus, Brucella suis, Streptococcus mutans, Bacillius subtilis, Bacillius cereus, Clostridium perfingeus, Haemophilus suis, Lactobacillus caci, Leuconostoc lactis, Listeria monocytogenes, Propionibacterium acnes, Proteus vulgaris, Pseudomonas cepacia, Pseudomonas fluorescens, Xanthomonas campestris

FUNGI:
Aspergillus niger, Aspergillus fumigates, Aspergillus versicolor, Aspergillius flavus, Aspergillius terreus, Penicillium chrysogenum, Penicillium albicans, Penicillium citrium, Penicillium eleganus, Penicillium funiculosum, Penicillium humicola, Penicillium notatum, Penicillium variable, Mucor sp, Tricophyton mentagrophytes, Tricophyton interdigitable, Trichoderma flavus, Chaetomium glosbusum, Rhizopus nigricans, Cladosporium herbarum, Aerobasidium pullulans, Fusarium nigrum, Fusarium solani, Gliocladium roseum, Oopora lactis, Stachybotrys atra

ALGEA:
Oscillatoria borneti, Anabaena cylindrica, Selenastrum gracile, Pleurococcus sp, Schenedesmus quadricauda, Gonium sp, Volvox sp, Chlorella vulgarus

YEAST:
Saccharomyces cerevisiac, Candida albicans

(1 Indicates Clinical Isolates)

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Concentrated Formula

Available in 1 gallon containers (4 to a case), 5 gallon pales, 55 gallon drums, or 275 gallon tote (stackable) containers

EFFICACY DATA for (EPA Reg. No. 1839-79-83129)

SANITIZATION DATA:

Test Method: AOAC Germicidal and Detergent Sanitizing Action of Disinfectants
Test Conditions: 200 ppm active quaternary 2 oz./3.5 gal dilution

Results:

Test Organism	Sample	Simulated Hard water (ppm)	TOTAL BACTRIAL COUNTS / % KILL vs. EXPOSURE TIME 30 seconds TBC*	30 seconds %KILL**	60 seconds TBC*	60 seconds %KILL**
Staphylococcus aureus (ATCC 6538)	A	250	1120	99.999	65	99.999
	B	250	1065	99.999	70	99.999
	C	250	1275	99.999	185	99.999
Escherichia coli (ATCC 11229)	A	300	990	99.999	65	99.999
	B	300	1215	99.999	80	99.999
	C	300	1460	99.999	190	99.999

* TBC = Total Bacterial Count, cfu/ml
** % KILL Calculated based on initial inoculum control count of 75-125 x 10^6 cfu/ml.

Conclusion:
Under the conditions of these investigations, mPerial Detergent/Disinfectant demonstrated sanitizing activity against Staphylococcus aureus and Escherichia coli according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a sanitizer.

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VIRUCIDAL DATA:

Test Methods:

*U.S. E.P.A. Pesticide Assessment Guidelines, Subdivision G: Product Performance, 1982, Section 91-30, pp. 72-76.

†Virucide Assay (EPA, Federal Register 10, No. 123, 6/25/75, p. 26836)

▪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.

Test Conditions: 2 oz./gal dilution, 10 minute contact time, tested in the presence of serum glass petri dish substrates

Results: Test Organism	Sample	Titer Reduction
†Adenovirus Type 2	A	3.0 $\log_{10}$
	B	>3.0 $\log_{10}$
‡Bovine Viral Diarrhea Virus (BVDV)	A	6.1 $\log_{10}$
	B	3.8 $\log_{10}$
*Feline Calicivirus (FCV)	A	5.79 $\log_{10}$
	B	>6.06 $\log_{10}$
▪Hepatitis B Virus (HBV) (Duck Hepatitis B Virus-DHBV)	A	4.5 $\log_{10}$
	B	4.5 $\log_{10}$
‡Hepatitis C Virus (HCV) (Bovine Viral Diarrhea Virus-BVDV)	A	6.1 $\log_{10}$
	B	3.8 $\log_{10}$
†Herpes Simplex Type 1 (Sabin)	A	>4.0 $\log_{10}$
	B	>3.7 $\log_{10}$
*Human Coronavirus (ATCC VR-740, strain 229E)	A	>3.0 $\log_{10}$
	B	>3.0 $\log_{10}$
*Human Immunodeficiency Virus, HTLV-III_{RF}, strain of HIV-1 (associated with AIDS)	A	>3.0 $\log_{10}$
	B	>3.0 $\log_{10}$
†Influenza A_2 (Japan 305/57)	A	>6.5 $\log_{10}$
	B	>6.0 $\log_{10}$
*Norovirus (Norwalk Virus) (FCV)	A	5.79 $\log_{10}$
	B	>6.06 $\log_{10}$
†Vaccinia (Wyeth)	A	>3.5 $\log_{10}$
	B	>3.5 $\log_{10}$

Conclusion:

Under the conditions of this investigation, mPerial Detergent/Disinfectant was virucidal for Adeno-virus Type 2, Bovine Viral Diarrhea Virus (BVDV), Feline Calicivirus (FCV), Hepatitis B Virus (HBV), Hepatitis C Virus (HCV), Herpes Simplex Type 1 (Sabin), Human Coronavirus, Human Immunodeficiency Virus (HIV-1), Influenza A2 (Japan 305/57), Norovirus (Norwalk Virus) and Vaccinia (Wyeth) according to criteria established by the U.S. Environmental Protection Agency for registration and labeling of a disinfectant product as a virucide.

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DISINFECTION DATA:

Test Method: AOAC Use Dilution

Test Conditions: 5% organic soil load, 10 minute contact time, stainless steel carrier substrates, 20°C exposure temperature, 2 oz./gal dilution

20°C exposure temperature

Results:

				PHENOL RESISTANCE			
					Exposure Time (min.) vs. Growth		
Test Organisim	Sample	Exposed	Positive	Dilution	5	10	15
Staphylococcus aureus (ATCC 6538)	A	60	0	1:60	+	0	0
	B	60	0	1:70	+	+	+
	C	60	0				
Salmonella choleraesuis (ATCC 10708)	A	60	0	1:90	+	0	0
	B	60	0	1:100	+	+	+
	C	60	0				
Pseudomonas aeruginosa (ATCC 15442)	A	60	0	1:80	+	0	0
	B	60	0	1:90	+	+	+
	C	60	0				
Brevibacterium ammoniagenes (ATCC 6871)	A	10	0	1:110	+	0	0
	B	10	0	1:120	+	+	+
Enterobacter aerogenes (ATCC 13048)	A	10	0	1:80	+	0	0
	B	10	0	1:90	+	+	+
Escherichia coli (ATCC 11229)	A	10	0	1:90	+	0	0
	B	10	0	1:100	+	+	+
Klebsiella pneumoniae (ATCC 4352)	A	10	0	1:60	+	0	0
	B	10	0	1:70	+	+	+
Salmonella schottmuelleri (ATCC 8759)	A	10	0	1:90	+	0	0
	B	10	0	1:100	+	+	+
Shigella dysenteriae (ATCC 12180)	A	10	0	1:90	+	0	0
	B	10	0	1:100	+	+	+
Staphylococcus aureus (Methicillin resistant) (MRSA) (ATCC 33593)	A	10	0	Not determined; published information not available.			
	B	10	0				
Staphylococcus aureus (Vancomycin intermediate resistant) (VISA)	A	10	0	Not determined; published information not available.			
	B	10	0				
Streptococcus faecalis (ATCC 10541)	A	10	0	1:70	+	0	0
	B	10	0	1:80	+	+	+
Streptococcus pyogenes (Clinical - Flesh Eating Strain, BIRD M3)	A	10	0	Not determined; published information not available.			
	B	10	0				
Streptococcus salivarius (ATCC 9222)	A	10	0	1:120	+	0	0
	B	10	0	1:130	+	+	+

Conclusion:

Under the conditions of these investigations, mPerial Detergent/Disinfectant demonstrated disinfectant activity against Staphylococcus aureus, Salmonella choleraesuis, Pseudomonas aeruginosa, Brevibacterium ammoniagenes, Enterobacter aerogenes, Escherichia coli, Klebsiella pneumoniae, Salmonella schottmuelleri, Shigella dysenteriae, Methicillin resistant Staphylococcus aureus (MRSA), Vancomycin intermediate resistant Staphylococcus aureus (VISA), Streptococcus faecalis, Streptococcus pyogenes (Clinical – Flesh Eating Strain, BIRD M3) and Streptococcus salivarius according to criteria established by the U. S. Environmental Protection Agency for registration and labeling of a disinfectant product as a bactericide.

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MILDEW FUNGISTATIC DATA:

Test Method: Hard Surface Mildew Fungistatic Test (Unofficial Protocol, 10/27/76)
Test Organism: Aspergillus niger (ATCC 6275)
Test Conditions: tile substrates
Results:

Sample	Dilution	No. of Exposed Tiles	No. of Tiles Showing Growth
NP 4.5	2 oz./gal	10	0
Control	-	10	10

Conclusion:
Under the conditions of this investigation, mPerial Detergent/Disinfectant 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 Fungicidal Test
Test Organism: Trichophyton mentagrophytes (ATCC 9533)
Test Conditions: 2 oz./gal dilution 5% organic soil load
Results:

	Exposure Time (min.) vs. Growth			PHENOL RESISTANCE			
					Exposure Time (min.) vs. Growth		
Sample	5	10	15	Dilution	5	10	15
A	+	0	0	1:60	+	0	0
				1:70	+	+	+
B	+	0	0	1:60	+	0	0
				1:70	+	+	0

+ = Growth 0 = No Growth

Conclusion:
Under the conditions of this investigation, mPerial Detergent/Disinfectant 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.

EXPERIENCE THE FREEDOM OF KNOWING YOUR ENVIRONMENT IS
CLEAN, PROTECTED & PRESERVED