

Efficacy Bulletin

# HDQ Neutral

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EPA Reg. No. 10324-155-5741



## Hospital Disinfection (at 1 ounce per gallon)

This product is bactericidal according to the AOAC Use Dilution Test method on hard inanimate surfaces modified in the presence of 5% organic serum and 400 ppm hard water at 1 ounce of this product per gallon of water (660 ppm active) Treated surfaces must remain wet for 10 minutes

(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 enterica* and *Staphylococcus aureus*. Killing of 59 out of 60 carriers is required (total carriers = 540).)

Organism	Carrier Population	Sample	# Carriers	# Positive
<i>Pseudomonas aeruginosa</i> ATCC #15442	3.9 X 10 <sup>4</sup> CFU/Carrier	A (60 Days Old)	60	0/60
		B	60	0/60
		C	60	1/60
<i>Salmonella enterica</i> ATCC #10708	1.03 X 10 <sup>6</sup> CFU/Carrier	A (60 Days Old)	60	1/60
		B	60	1/60
		C	60	0/60
<i>Staphylococcus aureus</i> ATCC #6538	7.0 X 10 <sup>4</sup> CFU/Carrier	A (60 Days Old)	60	0/60
		B	60	0/60
		C	60	0/60

## 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).)

Organism	Carrier Population	Sample	# Carriers	# Positive
<i>Acinetobacter baumannii</i> ATCC 15309	5.1 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Acinetobacter Iwoffii</i> ATCC 15309	5.7 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Acinetobacter Iwoffii</i> ATCC 9957	4.0 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Bordetella bronchiseptica</i> ATCC 10580	9.4 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Citrobacter freundii</i> ATCC 8090	3.9 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Enterobacter aerogenes</i> ATCC 13048	2.35 X 10 <sup>7</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Enterobacter agglomerans</i> ATCC 27155	3.9 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10

## Supplemental Organisms (continued)

Organism	Carrier Population	Sample	# Carriers	# Positive
<i>Enterobacter cloacae</i> ATCC 13047	3.3 X 10 <sup>7</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Enterococcus faecalis</i> ATCC 19433	6.2 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Enterococcus faecalis</i> Vancomycin Resistant (VRE) ATCC 51299	1.3 X 10 <sup>7</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Enterococcus hirae</i> ATCC 10541	1.19 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Escherichia coli</i> ATCC 11229	1.3 X 10 <sup>7</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Escherichia coli</i> Spectrum B-Lactamase (ESBL) ATCC BAA-196	4.6 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Escherichia coli</i> O111:H8 ATCC BAA-184	4.3 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Escherichia coli</i> Tetracycline Resistant ATCC 47041	3.1 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Fusobacterium necrophorum</i> ATCC 27852	5.8 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Klebsiella oxytoca</i> ATCC 13182	1.07 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Klebsiella pneumoniae</i> ATCC 13883	1.2 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Listeria monocytogenes</i> ATCC 19117	7.7 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Micrococcus luteus</i> ATCC 14452	1.1 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Micrococcus luteus</i> ATCC 4698	4.8 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Pasturella multocida</i> ATCC 12947	1.32 X 10 <sup>7</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Proteus vulgaris</i> ATCC 13315	1.9 X 10 <sup>4</sup> CFU/Carrier	A	10	0/10
		B	10	0/10

## Supplemental Organisms (continued)

Organism	Carrier Population	Sample	# Carriers	# Positive
<i>Proteus vulgaris</i> ATCC 9920	1.24 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Pseudomonas aeruginosa</i> Tetracycline Resistant ATCC 27853	3.5 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Pseudomonas cepacia</i> ATCC 25416	1.63 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Salmonella enterica</i> ATCC 23564	9.2 X 10 <sup>4</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Salmonella enterica</i> ATCC 4931	1.3 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Salmonella enterica</i> serotype pullorum ATCC 19945	7.1 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Salmonella typhi</i> ATCC 6539	8.3 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Salmonella typhimurium</i> ATCC 23564	1.5 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
	5.6 X 10 <sup>5</sup> CFU/Carrier	B	10	0/10
<i>Serratia marcescens</i> ATCC 14756	6.2 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Serratia marcescens</i> ATCC 9103	6.0 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Shigella flexneri</i> ATCC 12022	2.6 X 10 <sup>4</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Shigella flexneri</i> ATCC 9380	1.99 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Shigella sonnei</i> ATCC 25931	1.04 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus aureus</i> ATCC 14154	9.2 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus aureus</i> ATCC 25923	6.6 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus aureus</i> sub species aureus ATCC 33586	7.2 X 10 <sup>4</sup> CFU/Carrier	A	10	0/10
		B	10	0/10

**Supplemental Organisms** (continued)

<b>Organism</b>	<b>Carrier Population</b>	<b>Sample</b>	<b># Carriers</b>	<b># Positive</b>
<i>Staphylococcus aureus</i> Methicillin Resistant (MRSA) ATCC 33592	5.4 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus aureus</i> Community Associated Methicillin Resistant (CA-MRSA)	6.3 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus aureus</i> Community Associated Methicillin Resistant (CA-MRSA) (NARSA NRS384) Genotype USA300)	1.60 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus aureus</i> Vancomycin Intermediate Resistant (VISA) ATCC 5836	3.2 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus epidermidis</i> ATCC 14990	1.56 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus epidermidis</i> Antibiotic resistant ATCC 51625	8.6 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Staphylococcus haemolyticus</i> ATCC 29970	9.5 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Streptococcus agalactiae</i> ATCC 13813	5.6 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Streptococcus mutans</i> ATCC 25175	1.02 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
	1.3 X 10 <sup>4</sup> CFU/Carrier	B	10	0/10
<i>Streptococcus pneumonia</i> Penicillin Resistant ATCC 51915	9.6 X 10 <sup>4</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Streptococcus pyogenes</i> ATCC 19615	4.7 X 10 <sup>4</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Vibrio cholera</i> ATCC 11623	1.0 X 10 <sup>6</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Yersinia enterocolitica</i> ATCC 23715	1.2 X 10 <sup>7</sup> CFU/Carrier	A	10	0/10
		B	10	0/10

### Virucidal against (at 1 ounce per gallon)

This product was evaluated in the presence of 5% serum and 400 ppm hard water with a 10 minute contact time and found to be effective against the following viruses on hard nonporous environmental surfaces.

(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.) (3 lots and 4-Log reduction for Canada).

Organism	Dried Virus Control;	Sample	Result	Log Reduction
<i>Avian Infectious Bronchitis virus</i>	6.42 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥5.92 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥5.92 Log <sub>10</sub>
	6.5 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥6.0 Log <sub>10</sub>
<i>Avian Influenza A (H3N2) virus</i> (Avian Reassortant) (ATCC VR-2072)	4.75 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
		C	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
<i>Avian Influenza A (H5N1) virus</i>	6.75 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥6.25 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥6.25 Log <sub>10</sub>
<i>Canine Coronavirus</i> ATCC VR-809	4.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	4.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	4.0 Log <sub>10</sub>
	4.75 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
<i>Canine Distemper virus</i> ATCC VR-128	6.25 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥5.75 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥5.75 Log <sub>10</sub>
	6.75 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥6.25 Log <sub>10</sub>
<i>Chlamydia psittaci</i> ATCC VR-125	7.25 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥6.75 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥6.75 Log <sub>10</sub>
	4.75 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
<i>Cytomegalovirus</i> ATCC VR-538	4.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
		C	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
<i>Feline Picornavirus</i> ATCC VR-649	4.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
	5.75 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥5.25 Log <sub>10</sub>
<i>Hepatitis B Virus</i>	5.06 Log <sub>10</sub>	A	≤0.27 Log <sub>10</sub>	≥4.79 Log <sub>10</sub>
	5.20 Log <sub>10</sub>	B	≤0.41 Log <sub>10</sub>	≥4.79 Log <sub>10</sub>
	5.06 Log <sub>10</sub>	Confirmatory B	≤0.27 Log <sub>10</sub>	≥4.79 Log <sub>10</sub>
<i>Hepatitis C Virus</i>	6.21 Log <sub>10</sub>	A	≤0.24 Log <sub>10</sub>	≥5.97 Log <sub>10</sub>
	6.21 Log <sub>10</sub>	B	≤0.42 Log <sub>10</sub>	≥5.79 Log <sub>10</sub>
	6.06 Log <sub>10</sub>	Confirmatory C	≤0.13 Log <sub>10</sub>	≥5.93 Log <sub>10</sub>

**Virucidal against** (continued)

Organism	Dried Virus Control;	Sample	Result	Log Reduction
<i>Herpes Simplex Virus Type 1</i> ATCC VR-773	5.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥5.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥5.0 Log <sub>10</sub>
	6.0 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥5.5 Log <sub>10</sub>
<i>Herpes Simplex Virus Type 2</i> ATCC VR-734	6.0 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥5.5 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥5.5 Log <sub>10</sub>
	5.75 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥5.25 Log <sub>10</sub>
<i>Human Coronavirus</i> ATCC VR-740	4.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
	4.5 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
<i>Human Immunodeficiency Virus</i> type 1 (HIV 1) HTLV-IIIB	5.75 Log <sub>10</sub>	A	≤1.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
		B	≤1.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
		C	≤1.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
<i>Infectious Bovine Rhinotracheitis virus</i> ATCC VR-188	4.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
	4.75 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
<i>Influenza A virus</i> ATCC VR-544	6.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥6.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥6.0 Log <sub>10</sub>
	6.0 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥5.5 Log <sub>10</sub>
<i>Influenza A (H1N1) virus</i> ATCC VR-1469	5.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥5.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥5.0 Log <sub>10</sub>
<i>Pseudorabies virus</i> ATCC VR-135	6.25 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥5.75 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥5.75 Log <sub>10</sub>
	5.5 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥5.0 Log <sub>10</sub>
<i>Respiratory syncytial virus</i> ATCC VR-26	4.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥4.0 Log <sub>10</sub>
	5.0 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥4.5 Log <sub>10</sub>
<i>SARS Associated Coronavirus</i>	6.5 Log <sub>10</sub>	A	≤3.5 Log <sub>10</sub>	≤3.0Log <sub>10</sub>
		B	≤3.5 Log <sub>10</sub>	≤3.0Log <sub>10</sub>
<i>Swine Influenza A (H1N1) Virus</i> ATCC VR-333	5.5 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥5.0 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥5.0 Log <sub>10</sub>
<i>Transmissible Gastroenteritis virus</i>	4.75 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥4.25 Log <sub>10</sub>
	6.25 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥5.75 Log <sub>10</sub>
<i>Vaccinia virus</i> ATCC VR-119	6.75 Log <sub>10</sub>	A	≤0.5 Log <sub>10</sub>	≥6.25 Log <sub>10</sub>
		B	≤0.5 Log <sub>10</sub>	≥6.25 Log <sub>10</sub>
	6.5 Log <sub>10</sub>	C	≤0.5 Log <sub>10</sub>	≥6.0 Log <sub>10</sub>

### Fungicidal against (at 1 ounce per gallon)

This product was evaluated in the presence of 5% serum and 400 ppm hard water with a 10 minute contact time and found to be effective against the following fungi on hard nonporous environmental surfaces.

(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.)

Organism	Carrier Population	Sample	# Carriers	# Positive
<i>Candida albicans</i> ATCC #10231	1.57 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10
<i>Trichophyton mentagrophytes</i> ATCC #9533	1.10 X 10 <sup>5</sup> CFU/Carrier	A	10	0/10
		B	10	0/10

### Mold and Mildew Control (at 1 ounce per gallon)

Use this product to control the growth of mold and mildew and their odors on hard, nonporous surfaces. Thoroughly wet all treated surfaces completely. Let air dry. Repeat application weekly or when growth or odor reappears.

Organism	Tile Number	Untreated After 7 Days	Sample A After 7 Days	Sample B After 7 Days
<i>Aspergillus niger</i> ATCC #16404	1	Growth 90%	No Growth 0%	No Growth 0%
	2	Growth 70%	No Growth 0%	No Growth 0%
	3	Growth 90%	No Growth 0%	No Growth 0%
	4	Growth 80%	No Growth 0%	No Growth 0%
	5	Growth 80%	No Growth 0%	No Growth 0%
	6	Growth 90%	No Growth 0%	No Growth 0%
	7	Growth 80%	No Growth 0%	No Growth 0%
	8	Growth 70%	No Growth 0%	No Growth 0%
	9	Growth 90%	No Growth 0%	No Growth 0%
	10	Growth 70%	No Growth 0%	No Growth 0%