Johnson

END BAC

liquid

disinfectant

the VITAL germicidal base

kills staph, strep, many other germs on inanimate environmental surfaces.

Disinfects influenza A$_2$/ Hong Kong and parainfluenza I viruses on inanimate environmental surfaces.

sanitizing for daily wet mopping

positive odor control

An END-BAC SYSTEM
product for hospital disinfection

End-Bac has been evaluated under actual in-use conditions in hospitals as an effective product for environmental decontamination

BY Johnson WAX

End-Bac liquid disinfectant--specifically formulated of cross contamination from environmental surfaces.

Johnson End-Bac liquid disinfectant is a formulation of quarternary ammonium germicides, developed by Johnson Wax especially to meet environmental disinfection requirements in hospitals. It is effective and practical for use in many types of applications — **where there are germicidal, sanitizing or** odor control requirements on environmental surfaces:

Damp mopping of floors

As a "Vital Rinse" between cleanings . . . for regular wet mopping of areas that don't require detergent cleaning. Disinfects — kills pathogens in cracks and crevices. Just two ounces of End-Bac in each gallon of rinse water does so much more to reduce the risk of cross contamination **from environmental surfaces than damp mopping with water alone ... yet costs no more in labor.**

Mop rinsing

As a treatment for mops in "double bucket" cleaning of floors. Minimizes the accumulation of soil and organisms in the cleaning solution because the soil is rinsed from the mop into the End-Bac solution so it will not contaminate and weaken the cleaning solution. Formulated specifically as a companion product to Johnson Blue Chip cleaner. A full description of this modern "double bucket" method of cleaning is on page 4 of this folder.

Disinfecting furnishings, equipment

Use Johnson End-Bac in a 1-to-64 dilution on a clean rag or sponge for damp dusting. The wet cloth prevents soil and pathogens from becoming airborne, adds the extra dimension of decontamination and positive odor control to any pick-up, clean-up, dusting operation. End-Bac is useful for disinfecting furniture and equipment throughout the hospital but particularly in patients' rooms where it can be used for the overbed table, dresser top and drawers, edge of door, door knobs, bed springs, bed rails, telephone, arm rest on chairs, bathroom area — any hard surface.

In your rinse water

Any time your procedures call for rinsing a floor or surface, add 2 oz. of End-Bac to each gallon of rinse water. **It adds nothing to labor costs when you are planning to rinse anyway. Reduces cross-contamination from environmental surfaces.**

for hospital use . . . to reduce the risk

Odor control

Johnson End-Bac wetting action penetrates into places where odor-causing bacteria grow . . . controls odors by inhibiting bacterial growth. End-Bac reduces odors in rooms, corridors, laboratories to maintain the clean fragrance essential to a good hospital environment. Use 2 ounces of End-Bac per gallon of clear water for effective odor control.

Wet-Mist spraying

For use in terminal disinfection procedures using the Johnson End-Bac Wet-Mist Sprayer and Recovery Unit followed by proper cleaning of surfaces and approved disinfecting procedures. Use four ounces of End-Bac per gallon of water. Operate sprayer one minute for each 200 cubic feet in a given room. Operate recovery unit at least 15 minutes before entering room. See our brochure entitled "The End-Bac Wet-Mist Spray Technique."

Linen sanitizing

Residual bacteriostatic treatment of bed linens and other fabrics in the hospital laundry is provided by one ounce of End-Bac liquid for every two and one half gallons of water in the final rinse. The End-Bac laundry rinse also controls odors in clothes and towels to help maintain a fragrant, hospital environment.

Fungicidal treatment

Destroy mold and mildew fungi on all hard surfaces — walls, floors, cabinets, tile, terrazzo—with End-Bac liquid disinfectant. Clean all surfaces prior to application. Then apply a solution of one part End-Bac to 64 parts water (two ounces of End-Bac per gallon of water). Cover the entire surface with the solution and let dry. Repeat the application every seven days to control mold and mildew growth.

Deodorizing diapers

As a presoak for dirty diapers prior to routine laundering, use one tablespoon per two gallons of water.

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Sanitizing utensils

After they have been cleaned, sanitize hard-surfaced utensils, instruments and equipment in a solution of one ounce of End-Bac per 2½ gallons of water. Any utensils having contact with food, liquids or other substances ingested by humans should be rinsed with potable water after sanitizing and before use.

End-Bac—the "Wi[illegible]
double-bucket [illegible]

[illegible]
being used.

The [illegible] operation can quickly [illegible] disinfectant [illegible] solution in laboratory tests [illegible] inactivation of the cleaning [illegible] mop pail is provided which contains [illegible] End-Bac Disinfectant.

The solution in this second mop pail collects the soil picked up by the mop during the application of the disinfectant cleaning solution to the floor. Thus, accumulation of soil in the cleaning solution is minimized, with the result that germicidal activity of the cleaning solution is prolonged over a wider use area. Frequent replenishment of the End-Bac solution may be necessary.

Procedure

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1. Fill clean pail with solution of Blue Chip germicidal cleaner at 2 oz. of Blue Chip concentrate to each gallon of water. Fill second clean pail with solution of End-Bac Liquid Disinfectant at 2 oz. of End-Bac concentrate to each gallon of hot (140°F. to 160°F.) water. Place mop wringers on each pail.
2. Dip freshly laundered mop into the End-Bac solution which acts as mop conditioner and mop rinse solution. Thoroughly press out End-Bac solution from mop and place mop in Blue Chip solution. Wring mop gently and mop floor. Apply to an area of about 50 square feet. As a guideline to determine proper wetness of mop, use a floor drying time of 4 to 5 minutes visible wetness after Blue Chip application.
3. After mopping the pr[illegible]ed area, return mop to End-B[illegible]ution and thoroughly rinse mop to remove soil picked up from floor. Wring out mop and return mop to Blue Chip solution. Press mop gently until cleaning solution stops dripping and mop has desired wetness. Continue mopping procedure. Return mop to End-Bac solution to rinse out soil. Maintain this sequence of activity until floor is completely mopped. When floors are to be coated with floor finish, all residue of cleaner and soil must be thoroughly rinsed off. Prevent traffic in area until floor is completely dry.
4. When End-Bac solution becomes visibly soiled, discard solution and make up fresh mop rinsing solution. Discard Blue Chip solution when visibly soiled. For further specific information on double-bucket mopping and other decontamination procedures, review Chapter V in manual titled "Environmental Decontamination."

End-Bac liquid disinfectant—effective activity over a wide spectrum

Germicidal Activity of End-Bac Liquid Disinfectant

(Tested by A.O.A.C. Use-Dilution Procedure)

Table I

Test culture	Dilution tested	# of inoculated carriers tested	# of inoculated carriers disinfected
Staphylococcus aureus ATCC 6538	1-to-64	240	239
Salmonella choleraesuis ATCC 10708	1-to-64	90	90
Pseudomonas aeruginosa ATCC 15442	1-to-64	90	90
Streptococcus pyogenes	1-to-64	90	90

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Comment

Fungicidal Activity of End-Bac Liquid Disinfectant

Test Method*

Twenty-four stainless steel ring carriers are contaminated with the spores of *Aspergillus niger* ATCC 6275 and dried [illegible] hours at 37°C. After drying, twenty of the contaminated surfaces (rings) are exposed to in-use concentrations of End-Bac Liquid Disinfectant (1-to-64 dilution) for a 10 minute period. At the end of the exposure period, the surfaces are placed in nutrient broth (neopeptone, dextrose and [illegible]) and incubated for 5 days at 25°C. Control surfaces (contaminated, but not exposed to disinfectant solution) are also added to nutrient broth tubes at this time. After incubation, [illegible] to allow for growth to appear in the turbidity control tubes. Subculture tubes are examined for the presence of fungal growth. Typically, [illegible] 10 out of 10 replicate test tubes indicate satisfactory fungicidal activity.

Results

Table II

Product	Subculture readings	Viability controls	
End-Bac Sample A	0 0 0 0 0 0 0 0 0 0	+	+
End-Bac Sample B	0 0 0 0 0 0 0 0 0 0	+	+

Conclusion

The recommended use dilution of End-Bac Liquid Disinfectant (1-to-64) is fungicidal against most pathogenic fungi such as *Aspergillus niger*.

*[illegible]

Table III

Antimicrobial Spectrum of End-Bac Liquid Disinfectant

The germicides in End-Bac Liquid Disinfectant are effective against both gram positive and gram negative bacteria. When used according to directions (2 oz. End-Bac per gallon of water), End-Bac solutions contain 1,000 ppm active quaternary germicides which effectively destroy the following hospital contaminants and pathogens:

Gram Positive Bacteria	Gram Negative Bacteria	Fungi	Viruses
Staphylococcus aureus	*Salmonella choleraesuis*	*Aspergillus niger*	Influenza A/Hong Kong
Streptococcus pyogenes	*Salmonella schottmuelleri*	*Candida albicans*	Parainfluenza type 1
Streptococcus faecalis	*Pseudomonas aeruginosa*		
	Enterobacter aerogenes		
	Escherichia coli		
	Escherichia freundii		
	Klebsiella pneumoniae		
	Proteus mirabilis		
	Proteus vulgaris		
	Shigella dysenteriae		
	Shigella schmitzii		

Table IV

Mold and Mildew Growth Inhibition

Test Method*

Ten clean, sterile ceramic tiles, one inch square, are put into a 1-to-64 dilution of End-Bac Liquid Disinfectant for 10 minutes. After soaking, the excess product is drained off and the test surfaces placed in sterile petri dishes and [illegible] at 37° C. for 10 minutes. After drying, the tile surface is lightly sprayed with the fungus spore suspension (250,000 *Aspergillus niger* spores/ml). Further drying is necessary until the areas of spore suspension dry on the tiles. The inoculated tiles, [illegible] but untreated tiles are placed in separate petri dishes containing sterile nutrient agar and incubated for seven days at 25°C. After incubation, all tiles are observed for mold growth. Control tiles must show mold growth over at least 75% of the surface area, while no growth should occur on test tiles.

Results

Product	Dilution	Test Tiles	Control tiles
End-Bac	1-to-64	0 0 0 0 0 0 0 0 0 0	+ + + + + + + + + +

Conclusion

End-Bac Liquid Disinfectant at a 1-to-64 dilution prevents the growth of mold and mildew fungi for periods up to seven days on hard surfaces retaining residual product.

*[illegible]

Virucidal Activity of End-Bac Liquid Disinfectant

Object

To determine whether an in-use concentration of End-Bac Disinfectant (1-to-64) will destroy Influenza A_2/ Hong Kong, and Parainfluenza I.

Test Method

One ml. of test virus suspension was mixed with nine ml. of a 1-to-58 dilution of End-Bac disinfectant. Final dilution of product was 1-to-64, the in-use concentration. The virus-germicide mixture was incubated at 20°C. for 10 minutes, then filtered by centrifugation.

Filtrates were further diluted in minimum essential medium (MEM) with 2% calf serum. Tubes of rhesus monkey kidney tissue cultures were inoculated with 1 ml. quantities from each dilution of filtered virus-germicide mixture.

After 5 to 7 days at 37°C. incubation, presence of viable particles was determined by the hemadsorption test method.

Results

Influenza A_2/Hong Kong

Dilution*	Control Replicates				Test Replicates			
	# 1	2	3	4	# 1	2	3	4
10^{-1}	+	+	+	+	S	S	S	S
10^{-2}	+	+	+	+	–	–	–	–
10^{-3}	+	+	+	+	–	–	–	–
10^{-4}	+	+	+	–	–	–	–	–
10^{-5}	+	–	–	–	–	–	–	–

Parainfluenza I

Dilution*	Control Replicates				Test Replicates			
	# 1	2	3		1	2	3	
10^{-1}	+	+	+	+	S	S	S	S
10^{-2}	+	+	+	+	–	–	–	–
10^{-3}	+	+	+	+	–	–	–	–
10^{-4}	+	+	+	+	–	–	–	–
10^{-5}	+	+	–	–	–	–	–	–

Note: + = presence of virus as determined by hemadsorption
– = absence of virus
S = slight cytopathic effect, not typical of virus control, but virus detected by hemadsorption
* = dilution of virus-germicide mixture

Conclusions

a) An in-use solution (1-to-64) of End-Bac is effective against Influenza A_2/Hong Kong virus as shown by reducing the viable concentration of virus from 10^5 viruses/ml. to the 10^1 sensitivity level (4 log reduction).

b) An in-use solution (1-to-64) of End-Bac decreased the concentration of Parainfluenza I virus from 10^5 viruses/ml. to the 10^1 sensitivity level (4 log reduction).

c) Both results indicate End-Bac to be virucidal to the viruses described.

Table V

Table VI

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Johnson End-Bac liquid disinfectant

Chemical and physical characteristics

Appearance	— clear, pale yellow liquid	
Odor	— pleasant, free from disagreeable after odor	
Stability	— stable at normal temperatures. Does not discolor on exposure to light or heat.	
Dilution properties	— readily dilutable in soft and hard water. Solutions remain clear during use.	
Ash	— less than .1%	
Active quaternary	— 6.4% min.	
Active ingredients	— n-Alkyl (60% C_{14}, 30% C_{16}, 5% C_{12}, 5% C_{18}) dimethyl benzyl ammonium chlorides	3.2%
	— n-Alkyl (50% C_{12}, 30% C_{14}, 17% C_{16}, 3% C_{18}) dimethyl ethylbenzyl ammonium chlorides	3.2%
Inert ingredients		93.6%
		100.0%

Directions

1. Prepare a germicidal rinse solution by simply adding two ounces of End-Bac liquid disinfectant to every gallon of your regular rinse water.
2. Maintain floors between detergent cleanings by routinely damp-mopping with an End-Bac solution. Cover entire floor area with uniform application of the solution. When cleaning of the floor is required, use Johnson Blue Chip disinfectant cleaner or Johnson Expose phenolic cleaner.
3. Sanitize walls, woodwork, doors and all other environmental hard surfaces by simply wiping down with a cloth saturated with an End-Bac rinse solution.
4. Control odors by inhibiting growth of bacteria with an End-Bac sanitizing rinse or wipe down. Apply liberally to achieve penetration of crevices, joints and seams that harbor odor-causing bacteria.

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