UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, DC 20460

OFFICE OF PREVENTION, PESTICIDES
AND TOXIC SUBSTANCES
Antimicrobials Division

March 17, 2003

MEMORANDUM:

Subject: Efficacy Review EPA Reg. No.73478-1 *Bleach-Wipe*
DP Barcode 286473
Case No. 069069

From: Nancy Whyte, Microbiologist NGW
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Applicant: Infection Control Ventures
1900 N. Austin Ave., Suite 39E
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Formulation Label:	**% by wt.**
Active Ingredient(s)	
Sodium hypochlorite	5.25%

Background:

The product, Bleach-Wipe™ (EPA Reg. No. 73478-1), is a new registration. The applicant submitted an amended application for this bleach disinfectant wipe. The product is a disinfectant (tuberculocidal, bactericidal) for use on hard, non-porous surfaces, including use in patient care, institutional, and commercial environments. All studies were conducted at

MicroBioTest, Inc.,105B Carpenter Drive, Sterling, Virginia 20164.

This data package contained correspondence from the applicant and testing laboratory, two studies (MRID Nos. 457830-01 and 457830-02), Statements of No Data Confidentiality Claims for both studies, and the proposed label.

II. Use Directions:

The product is designed to be used for disinfecting hard, non-porous surfaces on medical, dental and laboratory counters, exam tables, carts, point-of-care equipment, telephones, and sink tops. Directions on the proposed label provided the following information regarding preparation and use of the ready-to-use product: "Using personal protective equipments (gloves), open wipe packet. Remove pre-moistened 8"x10" towelette. Apply towelette and wipe surface. Allow surface to air dry. Discard used towelette in a designated waste container".

III. Agency Standards for Proposed Change:

Disinfectants for Use on Hard Surfaces in Hospital or Medical Environments

The effectiveness of disinfectants for use on hard surfaces in hospital or medical environments must be substantiated by data derived using the AOAC Use-Dilution Method (for water soluble powders and liquid products) or the AOAC Germicidal Spray Products Test (for spray products). Sixty carriers must be tested with each of 3 product samples, representing 3 different batches, one of which is at least 60 days old, against *Salmonella choleraesuis* (ATCC 10708), *Staphylococcus aureus* (ATCC 6538), and *Pseudomonas aeruginosa* (ATCC 15442). To support products labeled as "disinfectants", killing on 59 out of 60 carriers is required to provide effectiveness at the 95% confidence level. The above Agency standards are presented in DIS/TSS-1.

Disinfectants for Use as Tuberculocides (Using the AOAC Tuberculocidal Activity Test Method or the AOAC Germicidal Spray Products Test Method)

Disinfectants may bear additional label claims of effectiveness as tuberculocides when supported by appropriate tuberculocidal effectiveness data. Certain chemical classes (i.e., glutaraldehyde and quaternary ammonium compounds) are required to undergo validation testing in addition to basic testing. Products that are formulated with other chemical groups do not require validation testing. Products may be tested using one of four recommended methods: the AOAC Tuberculocidal Test Method, Tuberculocidal Activity of Disinfectants Test Method with significant modification of the standard test conditions of contact time and/or temperature, Quantitative Tuberculocidal Activity Test Method, and AOAC Germicidal Spray Products Test Method.

When using the existing or modified AOAC Tuberculocidal Activity Test Methods, or the AOAC Germicidal Spray Products Test Method, 10 carriers for each of 2 samples, representing 2 different batches of product, must be tested against *Mycobacterium bovis* BCG (a member of the *Mycobacterium tuberculosis* species complex). When using the existing or modified AOAC Tuberculocidal Activity Test Method, or the AOAC Germicidal Spray Products Test Method, killing on all carriers/slides as demonstrated in Modified Proskauer-Beck Broth, and no growth in any of the inoculated tubes of two additional media (i.e., Middlebrook 7H9 Broth Difco B, Kirchners Medium, and/or TB Broth Base) is required. Agency standards are presented in EPA DIS/TSS-6, Subdivision G Guidelines, and "EPA Data Call-in Notice for Tuberculocidal Claims," dated June 13, 1986.

Disinfectants for Use on Hard Surfaces Using Presaturated or Impregnated Towelettes

Towelette products represent a unique combination of antimicrobial chemical and applicator, pre-packaged as a unit in fixed proportions. As such, the complete product, as offered for sale, should be tested according to the directions for use to ensure the product's effectiveness in disinfecting hard surfaces. The standard test methods available for hard surface disinfectants (i.e., AOAC Use-Dilution Method, AOAC Germicidal Spray Products Test), if followed exactly, would not closely simulate the way a towelette product is used. Agency guidelines recommend that a simulated-use test be conducted by modifying the AOAC Germicidal Spray Products Test. Agency guidelines further recommend that instead of spraying the inoculated surface of the glass slide, the product should be tested by wiping the surface of the glass slide with the saturated towelette, and then subculturing the slides after a specified holding time. Liquid expressed from the used towelette should also be subcultured. Sixty carriers must be tested with each of 3 product samples, representing 3 different batches, one of which is at least 60 days old. The towelette should be removed from its container and subsequently handled with sterile gloves. One towelette should be used to wipe 60 inoculated slides. To support products labeled as "disinfectants", killing on 59 out of 60 carriers (for both the slide subculture and the expressed liquid from the towelette) is required to provide effectiveness at the 95% confidence level. The above Agency standards are presented in DIS/TSS-1 and EPA Pesticide Assessment Guidelines, Subdivision G, §91-2(h), Pre-saturated or impregnated towelettes.

IV. Summary of Submitted Study:

1. MRID 457830-01 "Testing Pre-Saturated or Impregnated Towelettes for Tuberculocidal Effectiveness" by Shiva D. Rajaram. Study conducted at MicroBioTest, Inc. Study completion date – June 1, 2002.

This study was conducted against *Mycobacterium bovis* (BCG). One lot (Lot No. 01302001) of the product, Bleach-Wipe™, was tested using the MicroBioTest, Inc. protocol "Testing Pre-Saturated or Impregnated Towelettes for Tuberculocidal Effectiveness," November 21, 2001 (copy provided). This protocol is based on the AOAC Confirmative in vitro Test for Determining Tuberculocidal Activity and EPA Efficacy Data Requirements for Pre-Saturated or Impregnated Towelettes for Hard Surface Disinfection. Ten (10) glass slides were tested against one lot of product. Aliquots of 0.01 mL of inoculum were transferred onto the sterile carriers. The inoculum was spread uniformly over a one square inch area. The carriers were dried for 30-40 minutes. One towelette was used to wipe ten glass slide carriers. After wiping one contaminated carrier by pushing down on the carrier and wiping three times horizontally and three times vertically, the area of the towelette used for wiping was rotated to expose a maximum amount of its surface. Each slide was held for 5 minutes at 20±1°C and then was transferred into tubes of 20 mL of neutralizing broth of Modified Proskauer-Beck Medium (MPBM) containing 0.3% $Na_2S_2O_3$. From each tube, 2.0 mL was subcultured to a tube containing 20 mL of Kirchner's medium and a tube containing 20 mL 7H9 broth. After 10 minutes, the slides were transferred to 20 mL of MPBM. Following the wiping of the tenth carrier, the towelette was held in a sterile Petri dish for 5 minutes at 20±1°C, and a 0.1 mL aliquot of the expressed liquid was cultured into 20 mL of MPBM+. The carriers were incubated at 37±2°C for 60 days and, if after 60 days, there were no signs of visible culture growth, the carriers were incubated for an additional 30 days. All plates were incubated for 15-21 days at 37±2°C. All observations were recorded as growth or no growth and the average CFU was calculated. Controls included viability, carrier counts, neutralizer effectiveness, sterility, and

confirmation of the challenge microorganism.
Note: Protocol deviations/amendments reported in the study were reviewed and typically found to be acceptable. One protocol amendment, however, involved reducing the number of lots to be tested from two to one. This is not acceptable. Two lots must be tested
Note: The GLP compliance statement indicated that not all corrections were made in strict compliance with GLP standards.

2. MRID 457830-02 "Confirmatory Testing Pre-Saturated or Impregnated Towelettes for Hard Surface Disinfection" by Shiva D. Rajaram. Study conducted at MicroBioTest, Inc. Study completion date – February 11, 2002.

This study was conducted against *Staphylococcus aureus* (ATCC 6538), *Pseudomonas aeruginosa* (ATCC 15442), and *Salmonella choleraesuis* (ATCC 10708). One lot (Lot No. 01302001) of the product, Bleach-Wipe™, was tested using the MicroBioTest Inc. protocol "Confirmatory Testing Pre-Saturated or Impregnated Towelettes for Hard Surface Disinfection," November 21, 2001 (copy provided). This protocol is based on the Germicidal Spray Products as Disinfectants Method, as described in the AOAC Official Methods of Analysis, 16th Edition, 1995. The MRID did not indicate whether the product lot was at least 60 days old at the time of testing. Ten (10) glass carriers were tested against one lot of product. Aliquots of 0.01 mL of 48-54 hour cultures were transferred onto sterile carriers. The inoculum was spread uniformly over a one square inch area. The carriers were dried for 30-40 minutes at 37±2°C. One towelette was used to wipe ten glass slide carriers. After wiping one contaminated carrier by pushing down on the carrier and wiping three times horizontally and three times vertically, the area of the towelette used for wiping was rotated to expose a maximum amount of its surface. After 5 minutes at 20±1°C, the carriers were transferred to 20 mL of Letheen Broth containing 0.3% $Na_2S_2O_3$. Following the wiping of the tenth carrier, the towelette was held in a sterile Petri dish for 5 minutes at 20±1°C, and a 0.1 mL aliquot of the expressed liquid was cultured into 20 mL of neutralizing broth. The test/controls were incubated for 48±2 hours at 37±2°C. All observations were recorded as growth or no growth and the average CFU was calculated. Controls included viability, carrier counts, neutralizer effectiveness, sterility, bacteriostasis, and confirmation of the challenge microorganism.
Note: Protocol deviations/amendments reported in the study were reviewed and typically found to be acceptable. One protocol amendment, however, involved reducing the number of lots to be tested from two to one. This is not acceptable. Two lots of the product must be tested.

For results, see next page.

Results:

MRID Number	Organism/Recovery Medium	No. Exhibiting Growth/Total No. Tested		Dried Carrier Count (Average CFU/carrier)
		Lot No. 01302001		
		Carriers	Expressed Liquid	
457830-01	*Mycobacterium bovis* (BCG)		0/1	1.2×10^4
	MPBM+	0/10		
	MPBM	0/10		
	Kirchner's Medium	0/10		
	7H9	0/10		

MRID Number	Organism	No. Exhibiting Growth/Total No. Tested		Dried Carrier Count (Average CFU/carrier)
		Lot No. 01302001		
		Carriers	Expressed Liquid	
457830-02	*Staphylococcus aureus*	0/10	0	1.3×10^6
	Pseudomonas aeruginosa	0/10	0	9.1×10^5
	Salmonella choleraesuis	0/10	0	2.6×10^4

V. Labeling:

1. The efficacy testing data submitted for testing are not acceptable to support label claims for this wipe as a disinfectant and tuberculocidal product. The Agency requirements listed in Section III have not been met. These claims must be removed from the label until adequate testing is completed and accepted by the Agency

2. When sufficient data are available, the proposed label must be improved as follows:

- Directions for use should indicate that the surfaces must be pre-cleaned; the product was not tested in the presence of an organic soil load in the two studies provided in the data package.

- The label should list the maximum surface area that can be disinfected per towelette (consistent with submitted efficacy data).

- The label should list the minimum contact time (consistent with submitted efficacy data).

- The statement "Allow to air dry and discard" is poorly worded and should be made clearer. The statement references two different subjects (i.e., treated surface, used

towelette), but this is not apparent from the sentence construction. The following language would improve the label: "Allow **the treated surface** to air dry and discard **the used towelette in a designated waste container**."

- The label ingredient claims statement should be formatted in such a way that it is clearly visible and contains all the elements as required by the Agency for labelling.

VI. Comments and Recommendations:

1.. The proposed label claims (as supported by MRID Nos. 457830-01 and -02) are not acceptable regarding the use of the product, Bleach-Wipe™, as a hospital disinfectant or tuberculocide, against *Staphylococcus aureus*, *Pseudomonas aeruginosa*, *Salmonella choleraesuis*, and *Mycobacterium bovis* on hard, non-porous surfaces. Efficacy data submitted were insufficient and did not comply with Agency standards presented in DIS/TSS-1, DIS/TSS-6, Subdivision G Guidelines, and the "EPA Data Call-in Notice for Tuberculocidal Claims." Hospital disinfectant efficacy claims require 60 (not 10) carriers to be used and three (not one) lots of product to be tested, with at least one lot of product being at least 60 days old at the time of testing. Tuberculocidal efficacy claims require two (not one) lots of product to be tested.

2. The label must be revised as required in Section V.