Thomas S. Tucker & Associates

42 Fleming Road
Cincinnati, Ohio 45215
(513) 761-4053
Fax (513) 761-2763

April 2, 1997

Mr. John G. Brunner
CEO
VI-JON LABORATORIES, INC.
6300 Etzel Ave.
St. Louis, MO 63133

RE: TEST ORGANISMS AND HUMAN DISEASES

Dear Mr. Brunner:

The following is a list of viruses, bacteria and yeast tested for kill efficacy with GERM-X Hand Sanitizer.

Viruses
1. Human Immunodeficiency (HIV-1): Causes AIDS.

2. Herpes Simplex Virus Type 2: Cold Sores and Fever Blisters of face, lips and ears; genital herpes; severe diaper rash.

3. Influenza Type A: Human and Animal Influenza.

4. Rhino Type 1: Common Cold.

5. Hepatitis A: Foodborne pathogen causing severe intestinal problems, liver problems, jaundice.

Bacteria
1. Escherichia coli: Foodborne illness-moderate to severe.

2. Staphylococcus aureus: Wound infections, Intestinal infections.

3. Pseudomonas aeruginosa: Wound, eye infections, foodborne illness.

4. Salmonella enteritidis: Foodborne illness.

5. Streptococcus faecium: Wound infection, Foodborne illness, Scarlet fever.

6. Listeria monocytogenes: Foodborne illness, Spontaneous abortions in humans and animals.

Yeast
1. Candida albicans: Genital infections, Athletes Feet.

Yours truly,

Thomas S. Tucker

Thomas S. Tucker & Associates

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August 25, 1997

Mr. John G. Brunner
CEO
ViJon Laboratories
St. Louis, MO

RE: MARKETING INFORMATION ON MICROBIAL AND VIRUCIDAL EFFICACY TESTING

GERM-X Hand Sanitizer has been tested against numerous human disease causing bacteria, viruses and yeast.

GERM-X Hand Sanitizer is tested using adaptive FDA, EPA and ASTM test protocols to verify organism reduction in hand sanitation at recommended 15 second contact time.

Representative list of organisms and % reduction in 15 seconds

MICROORGANISM	% REDUCTION IN 15 SECONDS	RELATED HUMAN DISEASES/INFECTIONS
BACTERIA Salmonella typhimurium	99.99%	Foodborne illness Gastritis
Escherichia coli	>99.99%	Foodborne illness, moderate to life threatening
Staphylococcus aureus	>99.99%	Wound infections Intestinal trauma
Pseudomonas aeruginosa	>99.99%	Wound/Eye infection Foodborne illness
Streptococcus faecium	>99.99%	Wound infection Foodborne illness Scarlet fever
Listeria monocytogenes	>99.99%	Foodborne illness Spontaneous abortions
Salmonella enteritidis	>99.99%	Foodborne illness

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VIRUS		
Human Immunodeficiency (HIV-1)	>99.99%	AIDS
Herpes Simplex Type 2	>99.99%	Cold sores Fever Blisters of face, lips, ears Severe diaper rash Genital herpes
Influenza Type A	>99.99%	Human/Animal Influenza
Rhino Type 1A	>99.99%	Common cold
YEAST		
Candida albicans	>99.99%	Genital STD infection Athletes Foot infection Thrush

Yours truly,

Thomas S. Tucker

February 21, 1997
Q Lab Reference No. 36878

Thomas A. Tucker
Thomas Tucker & Associates
42 Fleming Road
Columbus, Ohio 45215

Revised Report
February 24, 1997

TIME KILL STUDY

FOR: Thomas Tucker & Assoc.

PURPOSE

The purpose of this study was to evaluate the antimicrobial efficacy of the test material.

TEST MATERIALS

The following sample was received from Thomas Tucker & Assoc. on January 29, 1997 for use in this study:

Q LAB NO.	CLIENT'S IDENTIFICATION OF SAMPLE
1	Four jars of Germ-X Hand Sanitizer, 8 fl. oz. (237 ml) Code 56011 EXP 12/98

TEST MICROORGANISMS

Standardized suspensions of the following test microorganisms were used to conduct this study:

Escherichia coli ATCC 8739
Pseudomonas aeruginosa ATCC 9027
Listeria monocytogenes Scott A
Enterococcus (Streptococcus) faecium QL571
Staphylococcus aureus ATCC 6538
Salmonella enteritidis ATCC 13076
Candida albicans ATCC 10231

Suspensions of each test microorganism were prepared by washing 24 - 48 hour cultures grown on tryptic soy agar slants, and adjusting each concentration to approximately 10^6 - 10^8 per ml.

TABLE OF RESULTS

Average Counts per ml (log 10) - Q Lab No. 1

Organism	15 seconds	30 seconds	1 minute	Inoculum
Escherichia coli	5.8692	< 1.0000	< 1.0000	8.4472
Staphylococcus aureus	< 1.0000	< 1.0000	< 1.0000	8.2788
Pseudomonas aeruginosa	< 1.0000	< 1.0000	< 1.0000	7.9542
Salmonella enteritidis	3.8261	< 1.0000	< 1.0000	7.8751
Listeria monocytogenes	3.1139	3.5315	1.0000	7.8633
Enterococcus faecium	< 1.0000	< 1.0000	< 1.0000	7.2304
Candida albicans	< 1.0000	< 1.0000	< 1.0000	6.6812

Percent Reductions

Organism	15 seconds	30 seconds	1 minute
Escherichia coli	99.74	> 99.99	> 99.99
Staphylococcus aureus	> 99.99	> 99.99	> 99.99
Pseudomonas aeruginosa	> 99.99	> 99.99	> 99.99
Salmonella enteritidis	99.99	> 99.99	> 99.99
Listeria monocytogenes	> 99.99	> 99.99	> 99.99
Enterococcus faecium	> 99.99	> 99.99	> 99.99
Candida albicans	> 99.99	> 99.99	> 99.99

TEST METHODOLOGY

A twenty gram subsample of the test material was inoculated with a 10^{4-6} concentration of each test microorganism. At selected post inoculation time intervals of 15 seconds, 30 seconds and 1 minute, population of surviving microorganisms were determined.

RESULTS

Results of this study are presented in the attached tables of results. Percent reductions were calculated for each time period (also recorded in the attached tables of results).

Sincerely,

Q LABORATORIES, INC.

Melissa C. Newman, Ph.D.
Microbiology Group Leader

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