SINCE 1896

REPORT
INTERTEK ETL-SEMKO DIVISION
1717 Arlingate Lane COLUMBUS, OHIO 43228

PROJECT NO.:3120836 DATE: April 27, 2007

REPORT NO. 3120836-COL-001

RENDERED TO:
Ionlite
24307 Magic Mountain Parkway
Valencia, CA 91355

STANDARD REFERENCED AND TEST METHOD:

ITS Non-Standardized Test: Microbial Reduction Rate.

AUTHORIZATION:

The test was authorized by Bill Kinsey; A representative from Ionlite.

SPECIMEN DESCRIPTION:

The test performed was the Microbial Reduction Rate conducted at the Intertek microbiology lab in Columbus, Ohio. The Ionlite Air Purifier was tested for its ability to reduce the number of microorganisms in a test chamber. The sample was received on April 4, 2007 and is currently a production model in good condition. The test chamber was contaminated with *Escherichia coli, Pseudomonas fluorescens, and Bacillus subtilis.*

TEST DESCRIPTION

Nutrient agar was prepared for the bacteria cultures.

All agars were sterilized using an autoclave to a temperature of 121°C.

The cultures were prepared using pre-grown cultures acquired from ATCC (American Type Culture Collection with respective numbers describing each microorganism).

Using an inoculating loop, the cultures were transferred daily in nutrient broth for not more than two weeks. Bacterial and viral cultures were incubated at 37 ± 2°C for 24 hours.

The stock cultures were maintained on nutrient agar. Cultures were stored at 5 ± 1°C and transfer once a month.

This operation was completed for each microorganism.

Samples were set in the center of the testing room. Activation was performed by entering the room to manually turn on the unit due to the fact that the unit did not hold the settings.

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The microorganisms were measured to the specified amount to achieve the threshold of 1 x 10^8. The microorganism was then added to sterile buffered demineralized water (SBDW), pH of 7.2 +/- 0.2. This combination was then put into the collision nebulizer.

The collision nebulizer was then put into the test chamber where it was attached to an Erlenmeyer vacuum flask and a nitrogen tank. The nozzle of the flask pointed outward toward the room.

The room (411.4 cubic feet) was now sealed and a negative control was taken. This ensures that there were no other microorganisms in the test chamber prior to testing.

The nitrogen for the aspirator was set and started for aspiration into the test chamber.

A positive control sample of the air was now to be taken. This provided reaffirming data that the correct amount of the microorganism was put into the test chamber.

Samples were taken every 5-10 minutes from the air sampler that was attached to the chamber wall. The agar plates were put into the air sampler and the microorganism was vacuumed onto the plate.

The bacteria and viral samples were then put into the incubator at 37 $\pm$ 2°C and allowed to grow for 48 hours.

This process was repeated as above, this time the Ionlite Air Purifier was turned on at time zero or when you take the first sample. These results were then compared to the natural decay of the microorganism to arrive at percent reduction.

CALIBRATED EQUIPMENT:
CE 1141- Micropipette (Fisherbrand)
CE 1155-Incubator (Precision)

RESULTS:

The negative controls showed no signs of growth.

The positive controls showed complete growth over the agars surface. The original number of each microorganism aspirated into the chamber was 1 x 10^8 cfu/ml.

E. coli showed;
A 81.7% reduction after 30 minutes
A 97.6% reduction after 60 minutes
A 99.4% reduction after 90 minutes

P .fluorescens showed;
A 60.1% reduction after 30 minutes
A 78.8% reduction after 60 minutes
A 83.3% reduction after 120 minutes

B.subtilis showed;
A 87.7% reduction after 30 minutes
A 94.2% reduction after 60 minutes
A 97.7% reduction after 120 minutes

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Please see following pages for raw data breakdown.

CONCLUSION: This report documents the performance of the Ionlite Air Purifier. The microbiological test sample evaluations were conducted at the Intertek laboratory located in Columbus, OH between April 17, 2007 and April 27, 2007. The Ionlite Air Purifier successfully reduces *E. coli, P. fluorescens and B. subtilis* 95.4% after 2 hours.

Escherichia coli

Time (minutes)	Natural Decay (colonies) CFU	Ionlite Air Purifier (colonies) CFU
0	TNTC	TNTC
5	TNTC	TNTC
10	TNTC	410
15	TNTC	264
20	TNTC	205
25	TNTC	189
30	TNTC	183
35	TNTC	175
40	TNTC	166
45	TNTC	156
50	430	27
55	421	15
60	415	10
70	412	10
80	412	6
90	372	6
100	362	2
110	357	2
120	348	2
Total End % Reduction	N/A	99.4%

TNTC: TOO NUMBEROUS TO COUNT > 1000 COLONIES

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Pseudomonas fluorescens

Time (minutes)	Natural Decay (colonies) CFU	Ionlite Air Purifier (colonies) CFU
0	334	357
5	224	244
10	222	228
15	192	76
20	188	70
25	183	66
30	163	65
35	154	64
40	151	61
45	147	38
50	78	37
55	74	30
60	66	14
70	49	2
80	46	2
90	35	2
100	35	2
110	22	2
120	12	2
Total End % Reduction	N/A	83.3%

TNTC: TOO NUMBEROUS TO COUNT > 1000 COLONIES

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Bacillus subtilis

Time (minutes)	Natural Decay (colonies) CFU	Ionlite Air Purifier (colonies) CFU
0	TNTC	523
5	TNTC	501
10	TNTC	404
15	TNTC	245
20	TNTC	209
25	TNTC	126
30	TNTC	123
35	TNTC	88
40	TNTC	86
45	TNTC	64
50	TNTC	63
55	TNTC	63
60	TNTC	58
70	TNTC	57
80	TNTC	54
90	TNTC	40
100	TNTC	34
110	TNTC	28
120	TNTC	23
Total End % Reduction	N/A	97.7%

TNTC: TOO NUMBEROUS TO COUNT > 1000 COLONIES

Test Performed By:

Shannon Meier
Microbiologist

Report Approved By:

John Senediak
Laboratory Manager