

# VENTORLUX LLC

# EFFICACY TEST REPORT

## SCOPE OF WORK

Non-standardized Test Method: Microbial Reduction Rate Test

**PRODUCT – Air Purifier**

**MODEL – Soulis Series 1 & 3**

## REPORT NUMBER

104411690COL-001

ISSUE DATE	REVISION DATE
------------	---------------

9-29-2020	10-16-2020
-----------	------------

**PAGES 11**

## DOCUMENT CONTROL NUMBER

GFT-OP-10h (6-July-2017)

© 2020 INTERTEK



## MICROBIOLOGICAL PERFORMANCE TEST REPORT

### SECTION 1 EFFICACY STUDY SUMMARY

<b>Client</b>		<b>VentorLux LLC 1210 43rd St. Phenix City, AL 36867 USA</b>
<b>Project No.</b>		G104411690
<b>Sample</b>	Product	Air Purifier
	Model	Soulis Series 1 & 3
<b>Procedural</b>	Engineer	Amanda Mastronicolas
	Reviewer	Nicholas Unger
	Dates Tested	09/22/20 – 09/29/20
	Report Date	09/29/20
<b>Standard</b>	Non-standardized Test Method: Microbial Reduction Rate Test	
<b>Testing Facility</b>	Intertek Microbiological Laboratory 1717 Arlingate Ln. Columbus, OH 43228 United States	

### SECTION 2 TEST PROCEDURE

The test chamber measured 10'x10'x10' (1000 cubic ft) room and a microbial suspension was aspirated into the chamber. Air samples were taken from the test chamber once the unit was turned on and sampling was taken every 15 minutes over a period of 2 hours and then plated. The process was then repeated without the test unit in the chamber to provide the natural decay results. All plates were incubated overnight and viral growth on the test plate was compared to that of the natural decay control.

Air sampling took place using an SKC BioStage Single-stage impactor for 30 seconds at 12L/min (.424 cubic feet/min). Results below represent the percent reduction at 120 minutes.

## MICROBIOLOGICAL PERFORMANCE TEST REPORT

### SECTION 3 ORGANISMS

Organism Name	Organism Type	ATCC Number	Source
Phi X174 bacteriophage	small, non-enveloped virus	13706-B1	Carolina Bioscience
Escherichia coli	Bacteria	11229	ATCC
Penicillium citrinum	Fungus	9849	ATCC

### SECTION 3 EQUIPMENT

Equipment Type	Equipment No.	Calibration Due Date
Micropipette	CE 2587	6/12/2021
Incubator	CE 2381	7/7/2021
Incubator	CE2427	7/7/2021
Balance	CE 1882	7/7/2021
Autoclave	CE 2376	Verify Before Use
Centrifuge	CE 2382	For Reference Only
Chamber	CE 1149	For Reference Only
Collision Nebulizer	CE 1139	For Reference Only
Refrigerator	CE 1157	For Reference Only
Pump	CE 1137	For Reference Only
Stopwatch	SW015	07/07/2021
Ambient Temperature/RH	CE 1179	For Reference Only

### SECTION 4 MEDIA AND REAGENTS

Type	Manufacturer	Lot No	Expiration Date
Nutrient Agar	DIFCO	9346039	10/31/2024
Potato Dextrose Agar	DIFCO	9311217	10/31/2024
PBS	Fisher	192736	08/01/2022

## MICROBIOLOGICAL PERFORMANCE TEST REPORT

### SECTION 5 SAMPLE ACQUISITION

<b>Acquisition method</b>	Shipped to Intertek
<b>Description</b>	Air Purifier
<b>Model Number</b>	Soulis Series 1 & 3
<b>Arrival date</b>	08-04-2020
<b>Condition</b>	New
<b>Sample Identification No.</b>	COL2008041614-001 and COL2008041614-002
<b>Development Level</b>	Production

### SECTION 6 SUMMARY OF RESULTS

<b>Fan Speed</b>	<b>Optional Features</b>
Max	N/A (Series 1)
Max	N/A (series 3)



## MICROBIOLOGICAL PERFORMANCE TEST REPORT

Series 1			
Organism Type	Virus	Fungus	Bacteria
Temperature Min/Max	20°C (68°F)	19°C (66°F)	20°C (68°F)
Humidity Min/Max	53% RH	37%RH	38%RH
Organism Name	<i>Phi-X174</i>	<i>P. citrinum</i>	<i>E. coli</i>
Percent Reduction	99.9%	99.9%	99.9%

Series 3			
Organism Type	Virus	Fungus	Bacteria
Temperature Min/Max	°21C (69°F)	19°C (66°F)	21°C (68°F)
Humidity Min/Max	41% RH	39%RH	61%RH
Organism Name	<i>Phi-X174</i>	<i>P. citrinum</i>	<i>E. coli</i>
Percent Reduction	99.9%	99.9%	99.9%

Date / Project Number	Engineer / Reviewer	Pages	Description of Change
10/16/2020/ G104411690	A. Mastronicolas <i>AM</i>  N. Unger <i>NTU</i>	All	Added line graphs of the data Updated page count from 8 to 11

Test Performed by:

*Signature on File*

Amanda Mastronicolas  
Microbiology Tech I  
Columbus Office

Report Approved by:

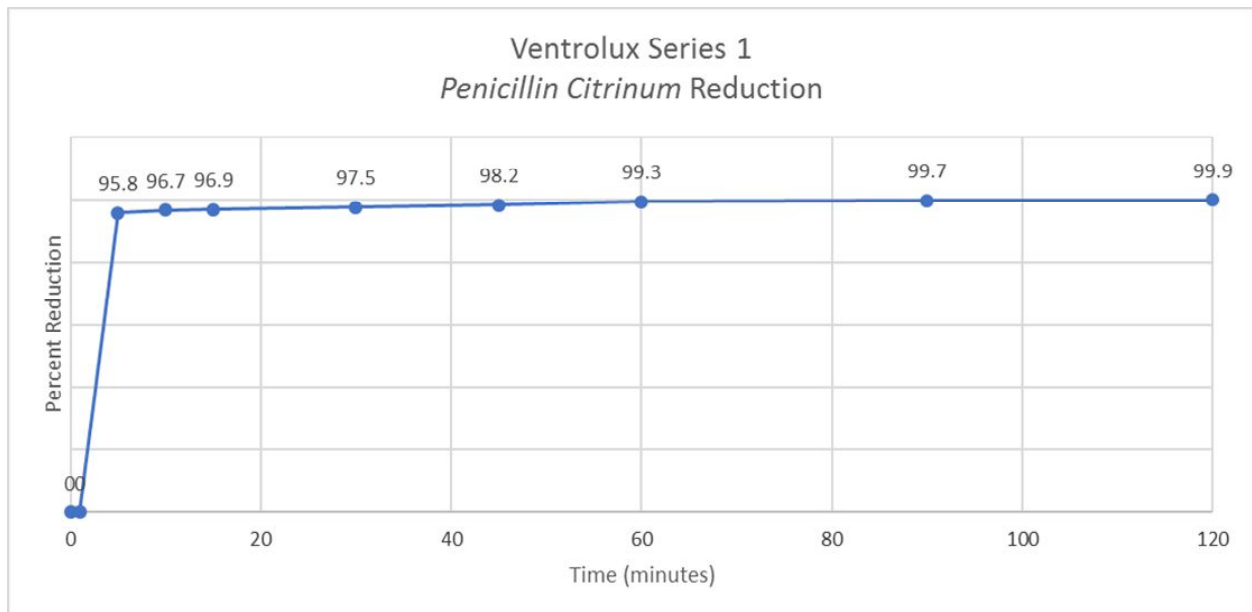
*Signature on File*

Nicholas Unger  
Staff Engineer  
Columbus Office

## MICROBIOLOGICAL PERFORMANCE TEST REPORT

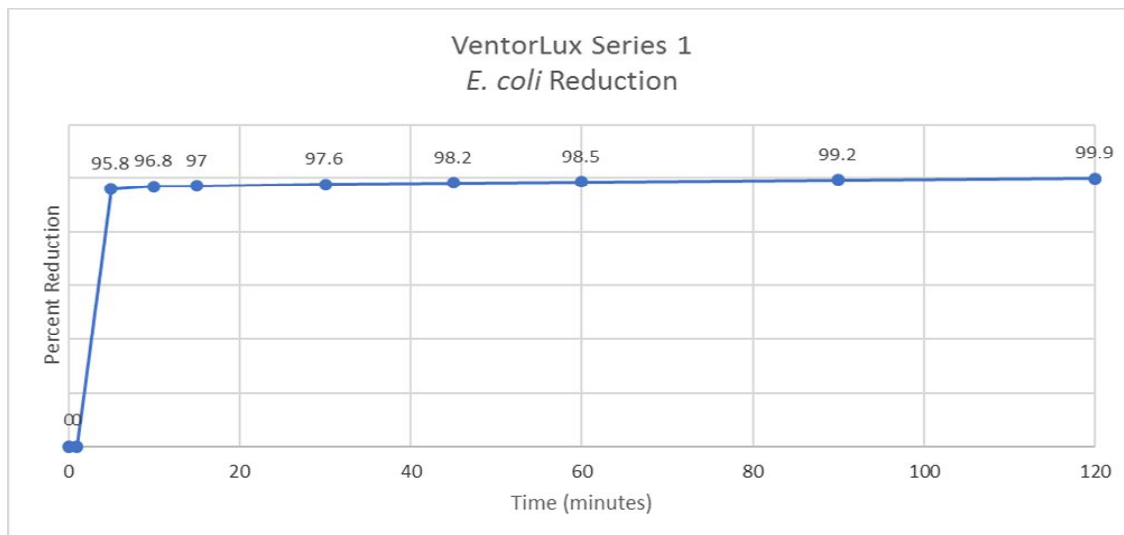
### Annex A Test Results:

Test Parameter (Series 1)		Test Result	Natural Decay Result	Units
Organism	Species	<i>P. citrinum</i>		---
	ATCC No.	9849		---
	Challenge Concentration	5.0 x 10 <sup>7</sup>		CFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)	CFU
	1	TNTC	TNTC (2628)	CFU
	5	111	TNTC (2628)	CFU
	10	86	TNTC (2628)	CFU
	15	79	TNTC (2628)	CFU
	30	66	TNTC (2628)	CFU
	45	48	TNTC (2628)	CFU
	60	19	TNTC (2628)	CFU
	90	7	TNTC (2628)	CFU
	120	3	TNTC (2628)	CFU
Results	--	99.9%		Reduction



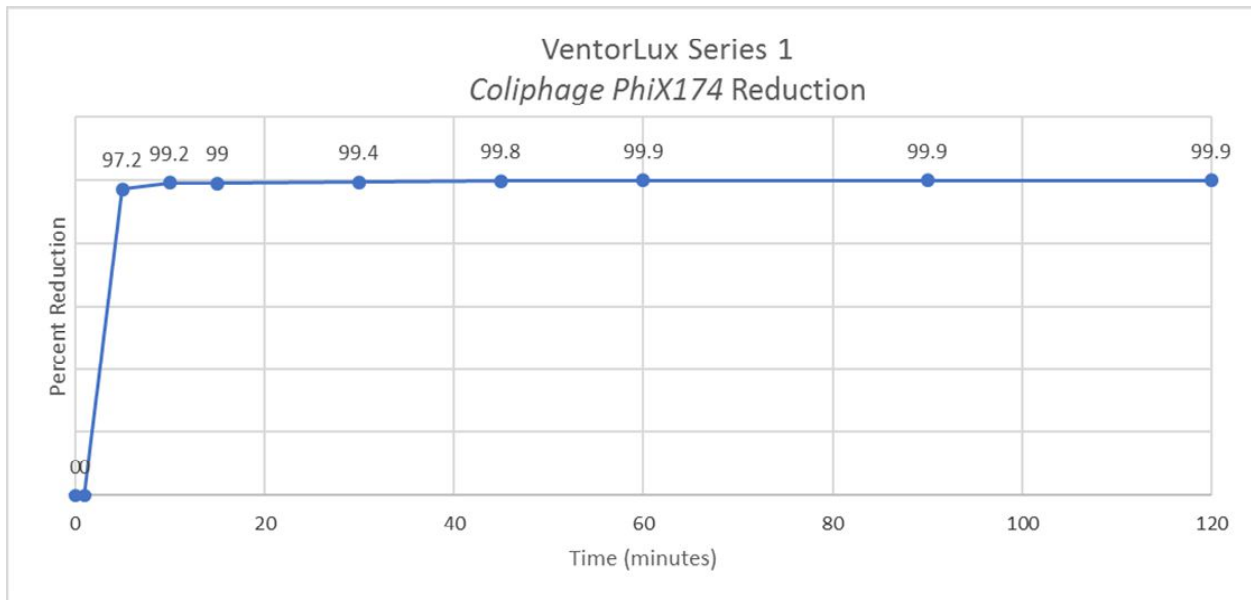
## MICROBIOLOGICAL PERFORMANCE TEST REPORT

Test Parameter (Series 1)		Test Result	Natural Decay Result	Units
Organism	Species	<i>E.coli</i>		---
	ATCC No.	11229		---
	Challenge Concentration	8.8 x 10 <sup>8</sup>		CFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)	CFU
	1	TNTC (2628)	TNTC (2628)	CFU
	5	110	TNTC (2628)	CFU
	10	83	TNTC (2628)	CFU
	15	78	TNTC (2628)	CFU
	30	62	TNTC (2628)	CFU
	45	47	TNTC (2628)	CFU
	60	39	TNTC (2628)	CFU
	90	20	TNTC (2628)	CFU
	120	0	TNTC (2628)	CFU
Results	--	99.9%		Reduction



**MICROBIOLOGICAL PERFORMANCE TEST REPORT**

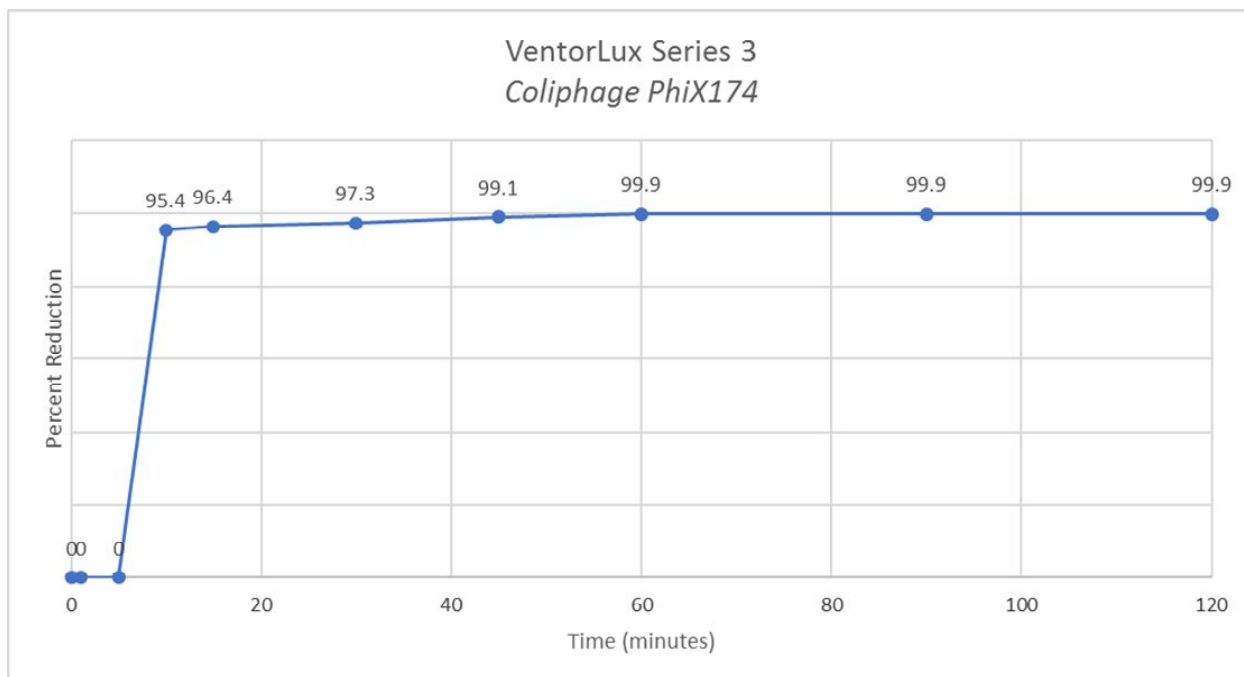
Test Parameter (Series 1)		Test Result	Natural Decay Result	Units
Organism	Species	<i>Coliphage φX174</i>		---
	ATCC No.	13706-B1		---
	Challenge Concentration	5.0 x 10 <sup>9</sup>		PFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)	PFU
	1	TNTC (2628)	TNTC (2628)	PFU
	5	75	TNTC (2628)	PFU
	10	20	TNTC (2628)	PFU
	15	26	TNTC (2628)	PFU
	30	15	TNTC (2628)	PFU
	45	5	TNTC (2628)	PFU
	60	0	TNTC (2628)	PFU
	90	0	TNTC (2628)	PFU
	120	0	TNTC (2628)	PFU
Results	--	99.9%		Reduction





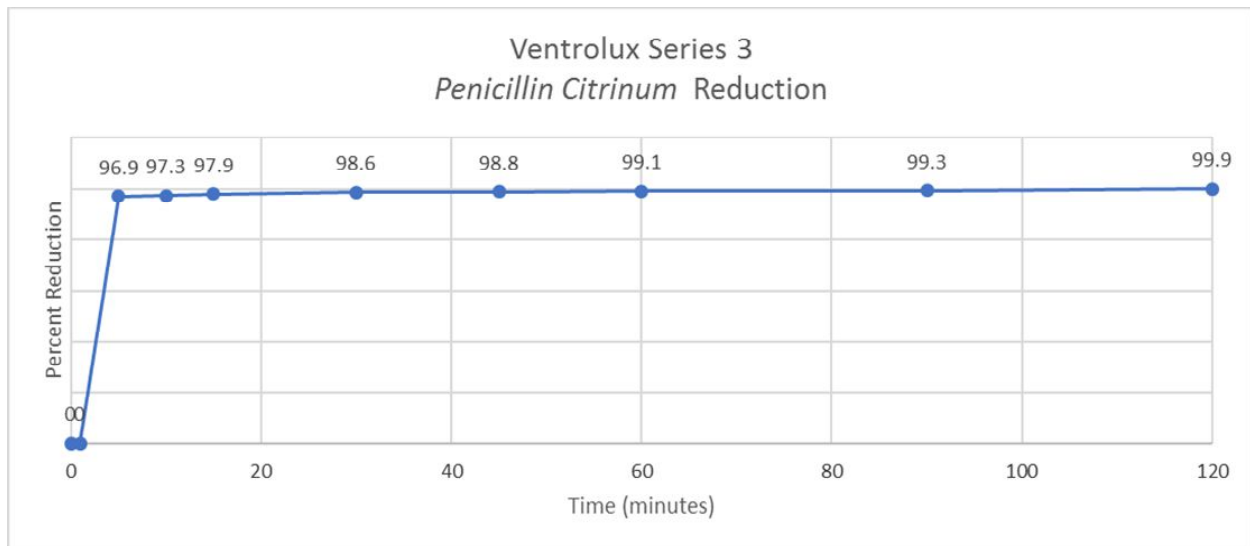
**MICROBIOLOGICAL PERFORMANCE TEST REPORT**

Test Parameter (Series 3)		Test Result		Natural Decay Result	Units
Organism	Species	<i>Coliphage φX174</i>			---
	ATCC No.	13706-B1			---
	Challenge Concentration	5.0 x 10 <sup>9</sup>			PFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)		PFU
	1	TNTC (2628)	TNTC (2628)		PFU
	5	TNTC (2628)	TNTC (2628)		PFU
	10	120	TNTC (2628)		PFU
	15	95	TNTC (2628)		PFU
	30	72	TNTC (2628)		PFU
	45	23	TNTC (2628)		PFU
	60	3	TNTC (2628)		PFU
	90	0	TNTC (2628)		PFU
	120	1	TNTC(2628)		PFU
Results	--	99.9%			Reduction



### MICROBIOLOGICAL PERFORMANCE TEST REPORT

Test Parameter (Series 3)		Test Result	Natural Decay Result	Units
Organism	Species	<i>P.citrinum</i>		---
	ATCC No.	9849		---
	Challenge Concentration	5.0 x 10 <sup>7</sup>		CFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)	CFU
	1	TNTC	TNTC (2628)	CFU
	5	80	TNTC (2628)	CFU
	10	72	TNTC (2628)	CFU
	15	55	TNTC (2628)	CFU
	30	37	TNTC (2628)	CFU
	45	32	TNTC (2628)	CFU
	60	23	TNTC (2628)	CFU
	90	18	TNTC (2628)	CFU
	120	4	TNTC (2628)	CFU
Results	--	99.9%		Reduction



**MICROBIOLOGICAL PERFORMANCE TEST REPORT**

Test Parameter (Series 3)		Test Result	Natural Decay Result	Units
Organism	Species	<i>E.coli</i>		---
	ATCC No.	11229		---
	Challenge Concentration	8.8 x 10 <sup>8</sup>		CFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)	CFU
	1	TNTC (2628)	TNTC (2628)	CFU
	5	TNTC (2628)	TNTC (2628)	CFU
	10	102	TNTC (2628)	CFU
	15	78	TNTC (2628)	CFU
	30	30	TNTC (2628)	CFU
	45	10	TNTC (2628)	CFU
	60	3	TNTC (2628)	CFU
	90	0	TNTC (2628)	CFU
	120	0	TNTC(2628)	CFU
Results	--	99.9%		Reduction

