

GRAPHENE LABORATORIES INC. EFFICACY TEST REPORT

SCOPE OF WORK

Non-standardized Test Method: Microbial Reduction Rate Test

PRODUCT – Air Purifier

MODEL – Breathe+ Pro

REPORT NUMBER
104673149COL-001

ISSUE DATE
June 7, 2021

REVISION DATE
September 1, 2021

PAGES 6

DOCUMENT CONTROL NUMBER
GFT-OP-10h (6-July-2017)
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SECTION 1 EFFICACY STUDY SUMMARY

Client		G6 Materials Corp. DBA Graphene Laboratories Inc. 760 Koehler Ave. Suite 2 Ronkonkoma, NY 11779	
Project No.		G104673149	
Sample	Product	Air Purifier	
	Model	Breathe+ Pro	
Procedural	Engineer	Leta Myers	
	Reviewer	Nicholas Unger	
	Dates Tested	7/1/2021 – 7/2/2021	
	Report Date	7/2/2021	
Standard	Non-standardized Test Method: Microbial Reduction Rate Test		
Testing Facility	Intertek Microbiological Laboratory 1717 Arlingate Ln. Columbus, OH 43228 United States		

SECTION 2 TEST PROCEDURE

The test chamber measured 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.

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

SECTION 4 EQUIPMENT

Equipment Type	Equipment No.	Calibration Due Date
Micropipette	CE 2587	6/2/2022
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	01/25/2022
Ambient Temperature/RH	CE 1179	For Reference Only

SECTION 5 MEDIA AND REAGENTS

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

SECTION 6 SAMPLE ACQUISITION

Acquisition method	Shipped to Intertek
Description	Air Purifier
Model Number	Breathe+ Pro
Arrival date	6/7/2021
Condition	New
Sample Identification No.	COL2106071513-001
Development Level	Production

SECTION 7 SUMMARY OF RESULTS



Date / Project Number	Engineer / Reviewer	Pages	Description of Change
9/1/21 G104673149	L. Myers <i>LM</i> N.Unger <i>NTU</i>	All	Data tables added

Completed by:	Leta Myers	Reviewed by:	Nicholas Unger
Title:	Microbiology Tech I	Title:	Staff Engineer
Signature:	<u>Signature on file</u>	Signature	<u>Signature on file</u>
Date	<u>2-July-2021</u>	Date:	<u>2-July-2021</u>

Organism Type	Virus
Temperature Min/Max	21°C (70°F)
Humidity Min/Max	55% RH
Organism Name	<i>Phi-X174</i>
Percent Reduction	99.9%

Organism Type	Bacteria
Temperature Min/Max	21°C (70°F)
Humidity Min/Max	60% RH
Organism Name	<i>E. coli</i>
Percent Reduction	99.9%

Test Parameter		Test Result	Natural Decay Result	Units
Organism	Species	<i>Coliphage φX174</i>		---
	ATCC No.	13706-B1		---
	Challenge Concentration	5.0 x 10 ⁹		PFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)	PFU
	15	198	TNTC (2628)	PFU
	30	4	TNTC (2628)	PFU
	45	2	TNTC (2628)	PFU
	60	2	TNTC (2628)	PFU
	75	1	TNTC (2628)	PFU
	90	2	TNTC (2628)	PFU
	105	3	TNTC (2628)	PFU
120	1	TNTC (2628)	PFU	
Results	--	99.9%		Reduction

ANTIMIROBIAL EFFICACY TEST REPORT

GRAPHENE LABORATORIES INC.

Report No.: 104673149COL-001

Test Parameter		Test Result	Natural Decay Result	Units
Organism	Species	<i>E.coli</i>		---
	ATCC No.	11229		---
	Challenge Concentration	8.8 x 10 ⁸		CFU/mL
Samples (15min.)	0	TNTC (2628)	TNTC (2628)	CFU
	15	67	TNTC (2628)	CFU
	30	2	TNTC (2628)	CFU
	45	2	TNTC (2628)	CFU
	60	<1	TNTC (2628)	CFU
	75	<1	TNTC (2628)	CFU
	90	<1	TNTC (2628)	CFU
	105	<1	TNTC (2628)	CFU
	120	<1	TNTC (2628)	CFU
Results	--	99.9%		Reduction