

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

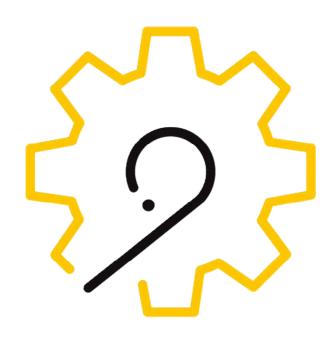
REVISION DATE

September 1, 2021

PAGES 6

DOCUMENT CONTROL NUMBER

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SECTION 1 EFFICACY STUDY SUMMARY

Client Project No.		G6 Materials Corp. DBA Graphene Laboratories Inc. 760 Koehler Ave. Suite 2 Ronkonkoma, NY 11779 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	12706 B1	Carolina
Fill X174 bacterlophage	siliali, lioli-eliveloped virus	13700-B1	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	Pump CE 1137 For Reference	
Stopwatch	Stopwatch SW015 01/25/2022	
Ambient Temperature/RH	CE 1179	For Reference Only

SECTION 5 MEDIA AND REAGENTS

Туре	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 Lm		
	N.Unger	All	Data tables added

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

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

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

Test Parameter		Test Result	Natural Decay Result	Units
Organism	Species	Coliphage φX174		
	ATCC No.	1370	6-B1	
	Challenge Concentration	5.0 x	(10 ⁹	PFU/mL
Samples	0	TNTC (2628)	TNTC (2628)	PFU
(15min.)	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

Test Parameter		Test Result	Natural Decay Result	Units
Organism	Species	E.co	E.coli	
	ATCC No.	112	29	
	Challenge Concentration	8.8 x	10 ⁸	CFU/mL
Samples	0	TNTC (2628)	TNTC (2628)	CFU
(15min.)	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