

Study Summary Article

Efficacy of the P3000 System against Two Respirable Microorganisms: *Staphylococcus epidermidis and Aspergillus brasiliensis*

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Article Info

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- · Pulmonary Disease Reduction
- · Bioaerosol Efficacy

FDA Compliance:

This study was conducted in compliance with FDA Good Laboratory Practices (GLP) as defined in 21 CFR, Part 58.

Testing Lab:

Aerosol Research and Engineering Laboratories, Inc. Project #: 10905.30

Conflict of Interest:

Aerosol Research and Engineering Laboratories, Inc. have no affiliations with, or involvement in any capacity, with Puraclenz's financial interests such as; membership, employment, stock ownership, or other equity interest.

ABSTRACT

Background: Due to the high rate of pulmonary disease occurrence, systems designed to reduce respirable bioaerosol transfer of pulmonary infections have been attracting significant attention. This in-vitro study characterized the efficacy of the P3000 air purification system at reducing respirable bioaerosol for two species of microorganisms from room air. The selected bacteria species, Methicillin Resistant *Staphylococcus epidermidis*, was chosen for its recognition as a surrogate species for other dangerous Gram-positive *Staphylococcus* species such as; Methicillin-Resistant *Staph. aureus* [MRSA]. In addition, the selected mold species *Aspergillus brasiliensis* can be considered a surrogate for other types of dangerous black molds such as *Stachybotrys chartarum* (Toxic Black Mold). This study was performed to demonstrate the efficacy of the device in a hermetically sealed test chamber in order to mimic real-world efficiency.

Methods: The microorganisms were aerosolized into a sealed environmental bioaerosol chamber containing the P3000 device using a Collison 24-Jet Nebulizer or dry powder feeder. All bioaerosols tested had a mass median aerodynamic diameter (MMAD) ranging from 0.7-4.0 μ m (species dependent). Bioaerosol sampling was performed using impingers (Ace Glass, AGI-30) and viable cascade impactors (SKC BioStage) depending on the challenge species and concentrations. Bioaerosol samples were taken at multiple time points throughout each trial in order to quantify the reduction rate capability of the air purification device. Impinger samples were serially diluted, plated, incubated, and enumerated in triplicate to yield a viable bioaerosol concentration for each sampling time point. Chamber control trial data, or natural decay, was subtracted from the device trial data to yield net LOG reductions for each of the bioaerosol challenges. There were no deviations from protocol observed during trials.

Results: The P3000 air purifier was effective against both bacterial and fungal species. Results indicate *Staphylococcus epidermidis*, achieved a 2.63 +/- 0.13 net LOG reduction (99.76% reduction) in 420 minutes. When the P3000 was challenged with *Aspergillus brasiliensis*, it achieved a reduction of 1.31 +/- 0.14 net LOG or 95.1% of respirable spores. Real-time ion monitoring showed an average production of 500 negatively charged ions per cubic centimeter of ambient air measured 3 feet away from the device throughout testing.

Conclusion: The P3000 air purification device was shown to be effective at reducing the concentration of these microorganisms, in room air, by 95.1% with *A. brasiliensis* spores and 99.76% with *Staph. epidermidis*. Therefore, the P3000's unique ionization technology makes an effective air purifying system.

This study was conducted in compliance with FDA Good Laboratory Practices (GLP) as defined in 21 CFR, Part 58.

Introduction

This study was conducted to evaluate the efficacy of the P3000 air purification device at reducing two aerosolized respirable microorganisms. The P3000 device is a photocatalytic oxidation (PCO) system. It is intended for use in medium to large sized offices, schools, retail stores, hospitality venues, doctor and dental offices, veterinary clinics and laboratories. In addition, the P3000 contains a pre-filter to

protect the device's optics and catalyst from airborne particulate that can cause fowling that may diminish the device's performance over time. The test plan was designed to challenge the P3000 and determine the rate at which it reduces bacteria and mold spores in a closed environmental chamber. Demonstrating the reduction in potentially hazardous



organisms is key to determining efficacy of the device. A picture of the P3000 device is shown below in Figure 1.

Study Overview

The effectiveness of the P3000 device was evaluated against a Gram positive bacteria and a mold spore. For more organism information, please see species selection section in the body of this report. Testing was conducted to characterize a single P3000 commercial unit against two microorganism species to demonstrate the capability of the P3000 device's unique PCO system's ability to reduce viable bioaerosol concentrations, therefore theoretically reducing chances of airborne infection.



Figure 1: The P3000 device is a photocatalytic oxidation (PCO) system

Test Device Description

The P3000 device uses photocatalytic oxidation, also known as PCO, technology to reduce pathogens in the environment. The PCO functions by exposing titanium oxide coated catalyst with UV light to produce positively and negatively charged ions that deactivate pathogens. A small prefilter is located where air is pulled through the device to help prevent fowling of the catalyst or UV lamps. Ion monitoring was performed and it showed an average of approximately 500 negatively charged ions per cubic centimeter consistently throughout trials. The species and characterization of these ions was not analyzed during this test.

Bioaerosol Testing Chamber

A large sealed aerosol test chamber was used to replicate a potentially contaminated room environment and to contain any potential release of aerosols into the surrounding environment. The aerosol test chamber is constructed of 304 stainless steel and is equipped with three viewing windows and An air-tight lockable chamber door for system setup and general ingress and egress. The test chamber internal dimensions are 9.1 ft x 9.1 ft x 6.9 ft, with a displacement volume of 579 cubic feet, or 16,000 liters. Figure 2 shows the bioaerosol chamber used for all testing in this study.

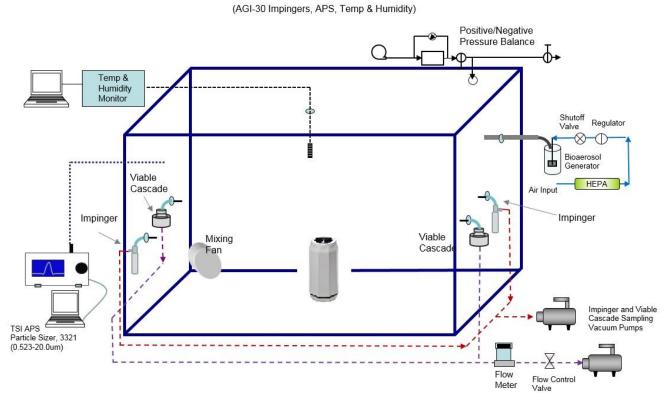


Figure 2: Exterior picture of the Stainless Steel Bioaerosol Test Chamber used for all P3000 Testing. Chamber is equipped with HEPA in/out, multiple bioaerosol sampling ports, decontamination, temperature and humidity control, and pressure balance.

The chamber is equipped with filtered HEPA inlets, digital internal temperature and humidity monitors, heater and humidifier, lighting system, multiple sampling ports, aerosol mixing fans, and a HEPA filtered exhaust system that are operated with wireless remote control. The chamber is equipped with four 3/8-inch diameter stainless steel probes for aerosol sampling, a 1-inch diameter port for bio-aerosol dissemination into the chamber using a Collison 24-jet nebulizer or dry powder eductor for the aerosolization of the microorganisms.

All sample and dissemination ports are inserted approximately 18 inches from the interior walls of the chamber and at a height of approximately 40 inches from the floor to avoid wall effects. The aerosol sampling and aerosol dissemination probes are stainless steel and bulk headed through the chamber walls to provide external remote access to the aerosol generator and samplers during testing. The test chamber is equipped with two high-flow HEPA filters for the introduction of filtered purified air into the test chamber during aerosol evacuation/purging of the system between test trials and a HEPA filtered exhaust blower with a 500 ft³/min rated flow capability for rapid evacuation of remaining bioaerosols. A Magnehelic gauge, with a range of 0.0 +/- 0.5 inch H₂O (Dwyer instruments, Michigan City IN), is used to monitor and balance the system pressure during aerosol generation, aerosol purging, and testing cycles.





General Large Chamber Bioaerosol Configuration

Figure 3: Bio-Aerosol Test Chamber Flow Diagram. Chamber includes bioaerosol induction, multiple bioaerosol sampling ports, Particle size monitoring, internal mixing fans, temperature and humidity controls. Main system HEPA Evacuation System not pictured.

Environmental Controls

For increased stability of bioaerosols, relative humidity inside the chamber is kept at 65% +/- 5% using a PID humidity controller in combination with an ultra-sonic humidifier to nebulize filtered DI water. Temperature controls maintain chamber trial conditions at typical ambient conditions of $74^{\circ}F$ +/- $2^{\circ}F$

Bioaerosol Generation System

All test bioaerosols were disseminated using a Collison 24-jet nebulizer (BGI Inc. Waltham MA) Figure 4, with the exception of the *A. brasiliensis* spores which were aerosolized using a dry powder eductor. The aerosolization of bioaerosols were driven by purified filtered house air supply. A pressure regulator allowed for control of disseminated particle size, use rate, and sheer force generated within the Collison nebulizer. Prior to testing, the Collison nebulizer flow rate and use rate were characterized using an air supply pressure of approximately 40-60 psi, which obtained an output volumetric flow rate of 50-80 lpm with a fluid dissemination rate of approximately 1.25 mL/min. The

Collison nebulizer was flow characterized using a calibrated TSI model 4040 mass flow meter (TSI Inc., St Paul MN).



Figure 4. 6-Jet Collison nebulizer. Glass and 304 stainless steel construction, BGI Industries.

Bioaerosol Sampling and Monitoring System

Two AGI impingers (Ace Glass Inc. Vineland NJ) were used for bioaerosol collection of all biological aerosols to determine chamber concentrations. The two AGI Impingers were placed at opposite corners of the chamber in order to represent an entire room sample. The mixing fans inside the chamber worked to ensure a homogenous air mixture inside the chamber.





Figure 5: SKC Single Stage BioStage Viable Cascade Impactor used for bacterial and spore sampling for select time points during bioaerosol trials. LOD is >0.01 cfu/L.

The AGI-30 impinger vacuum source was maintained at a negative pressure of 18 inches of Hg, during all characterization and test sampling, to assure critical flow conditions. The AGI-30 sample impingers were flow characterized using a calibrated TSI model 4040 mass flow meter. A general flow diagram of the aerosol test system is shown above in Figure 3.

During testing with less resilient organisms, or those which fall out of the air more easily, sample collections were also obtained using a pair of viable cascade impactors. A viable cascade impactor (SKC Inc., Valley View, PA) comprises an inlet cone, precision-drilled 400-hole impactor stage, and a base that holds a standard-size agar plate (Figure 5). A high flow pump pulls microorganisms in air through the holes (jets) at 30 liters per minute, where they are collected directly onto the agar surface. This method is the most sensitive for detection of organisms at low concentrations.

Vegetative Bacteria Challenges:

The vegetative bacteria organism used for this study was methicillin resistant *Staphylococcus epidermidis* (ATCC 12228). *Staphylococcus epidermidis* is a Gram-positive bacterium and BSL1 simulant for a wider range of medically significant pathogens, such as Methicillin Resistant *Staphylococcus aureus* (MRSA). These pathogens are most common in hospitals and can cause life-threatening infections if contracted.

Endospore Challenges:

Aspergillus brasiliensis (ATCC 16404), formerly known as A. niger, is one of the most common species of the genus Aspergillus. A. brasiliensis is routinely defined as a surrogate for various toxic black mold species such as *Stachybotrys Chartarum*. Mold is general is attributed to many respiratory problems found in infants, elderly and immunocompromised individuals. Purified A. brasiliensis spores were used in bulk dry powder form with an approximate concentration of 1 x 10⁹ cfu/gram.

Vegetative Cells Culture & Preparation

Pure strain seed stocks were purchased from ATCC (American Type Culture Collection, Manassas VA). Working

stock cultures were prepared using aseptic techniques in a class 2 biological safety cabinet and followed standard preparation methodologies. Approximately 250mL of each biological stock was prepared in tryptic soy liquid broth media, and incubated for 24-48 hours with oxygen infusion (1cc/min) at 37°C. Biological stock concentrations were around 1 x 10¹⁰ cfu/ml.

Stock cultures were centrifuged for 10 minutes at 3000rpm in an LD-3 centrifuge in sterile 15mL conical tubes, growth media was removed, and the cells re-suspended in sterile PBS buffer for aerosolization. Aliquots of these suspensions were enumerated on tryptic soy agar plates (Hardy Diagnostics, Cincinnati OH) for viable counts and stock concentration calculation. For each organism, test working stocks were grown in sufficient volume to satisfy use quantities for all tests conducted using the same culture stock material.

Fungal Spore Culture & Preparation

A. brasiliensis fungal spores were obtained in purified bulk powder form at a concentration of 1×10^9 cfu/g. To verify the bulk powder spore concentration, an aliquot of weighed dry powder was prepared in suspension in PBS + 0.005% Tween 80 at a mass: volume ratio to obtain a concentration of 1×10^9 cfu/ml. This aliquoted spore suspension was plated prior to testing to verify concentration.

Plating and Enumeration

Impinger and stock biological cultures were serially diluted and plated in triplicate. (Multiple serial dilutions) using a standard spread plate assay technique onto tryptic soy agar plates. The plated cultures were incubated for 24-48 hours depending on the species and enumerated and recorded.

When working with microorganisms at extremely low concentrations the viable cascade sampling was used. This method samples the chamber by pulling 30 liters per minute through the cascade device directly onto an agar plate. Enumeration of colonies grown depends on the concentration of the sample. Colony counts totaling up to 400 can then be adjusted using the positive conversion table.



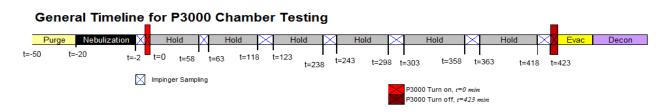


Figure 6: General Trial Timeline for P3000 Decontamination Trials.

This table is based on the principle that, as the number of viable particles being impinged on a given plate increases, the probability of the next particle going into an "empty hole" decreases. This can be corrected statistically using the conversion formula of Feller, W (1950).

Post-Testing Decontamination and Prep

Following each test, the chamber was air flow evacuated/purged for a minimum of twenty minutes between tests and analyzed with the APS for particle concentration decrease to baseline levels between each test. The chamber was decontaminated at the conclusion of the trials with aerosol/vaporous hydrogen peroxide (35%). The Collison nebulizer and impingers were cleaned at the conclusion of each day of testing by soaking in a 5% bleach bath for 20 minutes. The nebulizer and impingers were then submerged in a DI water bath, removed, and spray rinsed 6x with filtered DI water until use. A general trial timeline can be found in **Figure 6** above.

Data Analysis

Results from the control trials were graphed and plotted to show natural viability loss over time in the chamber. These control runs served as the basis to determine the time required for the P3000 device to achieve at least a 4 LOG (99.99%) reduction in viable bioaerosol above the natural losses from the control runs. The control and trial runs are plotted showing LOG reduction in viable bioaerosol for each organism. All data is normalized with time zero enumerated concentrations. Subsequent samples are normalized and plotted to show the loss of viability over time.

Methods: Bioaerosol Efficacy Testing

Methods Control:

To accurately assess the P3000 unit, test chamber pilot control trials were performed with all organisms over a 240minute time period to characterize the biological challenge aerosol delivery/collection efficiency, and viable concentration over time. Control testing was performed to provide baseline comparative data in order to assess the actual reduction from the P3000 challenge testing and verify that viable bioaerosol concentrations persisted above the required concentrations over the entire pilot control test period. During control runs, a single low velocity fan located in the corner of the bioaerosol test chamber was turned on for the duration of trial to ensure a homogenous aerosol concentration within the aerosol chamber. The mixing fan was used for all control runs and was turned off during P3000 The two impingers used for decontamination trials. bioaerosol collection were pooled and mixed prior to plating and enumeration

Methods: P3000 Testing

For each control and challenge test, the Collison nebulizer was filled with approximately 40 mL of biological stock and operated at 40 psi for a period of 20 minutes. Then, the impingers were filled with 20 mL of sterilized PBS (addition of 0.005% v/v Tween 80) for bioaerosol collection. The addition of Tween 80 was used in order to increase the impinger collection efficiency and de-agglomeration of all microorganisms. The chamber mixing fan was turned on during bioaerosol dissemination to assure a homogeneous bioaerosol concentration in the test chamber prior to taking the first impinger sample (T=0).

Biological Test Matrix

Trial	Run	Pathogenic Organism	Test Species (gram, description)	ATCC Ref	Target Monodispersed Particle Size	Challenge Conc. (#/L)	Trial Time (min)	Sample Time (min)	Sampling	Plating and Enumeration
1 2 3 4	Control Challenge Challenge Challenge	staphylococcus	Staphylococcus Epidermidis (+, vegetative)	12228	2.5-3.0um	10 ⁴ -10 ⁶	420	0, 60, 120, 180, 240, 300, 360, 420	Impingers and Viable Cascade	all samples in triplicate
5 6 7 8	Control Challenge Challenge Challenge	Molds (spore)	Aspergillus brasiliensis (mold, spore forming)	16404	<5.0um	10 ⁴ -10 ⁶	180	0, 60, 120, 180	Impingers and Viable Cascade	all samples in triplicate

Figure 7: Test Matrix for the P3000 air purification system.



Following bioaerosol generation, baseline bioaerosol concentrations were established for each pilot control and P3000 test by sampling simultaneously with two AGI-30 impingers located at opposite corners of the chamber. AGI samples were collected for 2 to 10 minutes at intervals of 60 minutes throughout the entire test period. The biological test matrix can be found in Figure 7.

Collected impinger chamber samples were pooled and mixed at each sample interval for each test. Aliquots of impinger samples were collected and then used for plating. Impingers were rinsed 6x with sterile filtered water between each sampling interval, and re-filled with sterile PBS using sterile graduated pipettes for sample collection.

The P3000 biological testing was done following GLP practices. The unit was turned on immediately following a time 0 baseline sample and operated for the entirety of the test. Subsequent impinger samples were taken at various time points throughout the trial. These samples were enumerated for viable concentration to measure the effective viable bioaerosol reduction during operation of the P3000 device over time.

All samples were plated in triplicate on tryptic soy agar media over a minimum 3 log dilution range. Plates were incubated for 24-48 hours and enumerated for viable plaque forming units (pfu) or colony forming units (cfu) to calculate aerosol challenge concentrations in the chamber and reduction of viable microorganisms.

Results

This study was performed to evaluate the P3000 device's efficacy at reducing bioaerosols, in a controlled bioaerosol test chamber. The variety of test organisms were chosen specifically for their ability to gauge a device's efficacy against the most commonly encountered microorganisms in room air.

The ions being produced by the device were logged periodically throughout testing to verify the production of approximately 500 negatively charged ions per cubic centimeter of ambient air. Consistent ion production is crucial in functionality of the device at reducing bioaerosols. The unique active approach to safer air could be pivotal in years to come.

When tested against the *Staphylococcus epidermidis*, the device showed a net LOG reduction of 2.63 +/- 0.13 in 420 minutes. When tested against *Aspergillus brasiliensis* the device achieved a net LOG reduction of 1.31 +/- 0.14 in 180 minutes. The highly electrostatic nature of spores lead to an increased natural decay and therefore limited the reduction efficiency resolution. Net LOG reduction data can be found in the graph **Figure 8** and the table in **Figure 9** below.

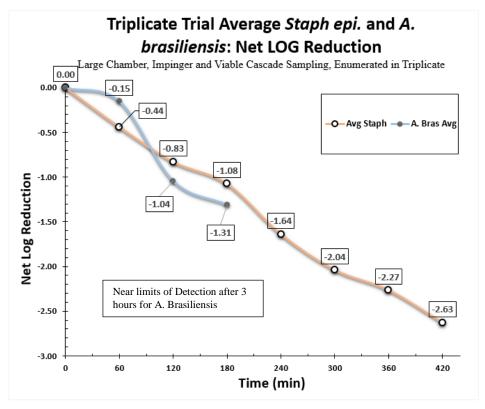


Figure 8: Net LOG Reduction for the P3000 for Staph epi. and A. brasiliensis.



Bioaeros ol Type	Species (gram, description)	Number of Trials		Data Type	Trial 1	Trial 2	Trial 3	Average
Bacterial	Staphylococcus Epidermidis	3	420	Net Log Reduction	-2.52	-2.77	-2.61	-2.63+/-0.13
Dacteria	(+, vegetative)	5	420	Net % Reduction	99.7%	99.8%	99.8%	99.8% +/- 0.07%
	Aspergillus brasiliensis		100	Net Log Reduction	-1.44	-1.33	-1.16	-1.31+/- 0.14
Mold	(mold, spore forming)	3	180	Net % Reduction	96.4%	95.3%	93.1%	95.1% +/- 1.67%

Average % NET Reduction and NET LOG Reduction of Viable BioAerosols

Figure 9: Executive Summary.

Overall Study Conclusion

In conclusion, the device achieved net LOG reduction of all bioaerosols. There were no deviations from protocol observed throughout the trials. Reduction of a range of microorganisms should reduce the risks of contracting airborne illnesses when used as directed. All results are ≤ 0.30 standard deviation and data was quality checked for accuracy.



References

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Analytical Testing Facility

Aerosol Research and Engineering Labs, Inc. 15320 S. Cornice Street Olathe, KS 66062

Project

10905.30

Study Director

Jamie Balarashti Aerosol Research and Engineering Laboratories

GLP Statement

We, the undersigned, herby certify that the work described herein was conducted by Aerosol Research and Engineering Laboratories in compliance with FDA Good Laboratory Practices (GLP) as defined in 21 CFR, Part 58.

Conflict of Interest Statement

Aerosol Research and Engineering Laboratories, Inc. have no affiliations with, or involvement in any capacity, with Puraclenz's financial interests such as; membership, employment, stock ownership, or other equity interest.

Study Director:

Jamie Balarashti Study Director ARE Labs Inc.

6/24/2021 Date

Principal Investigator:

Sean McLeod Principal Investigator ARE Labs, Inc.

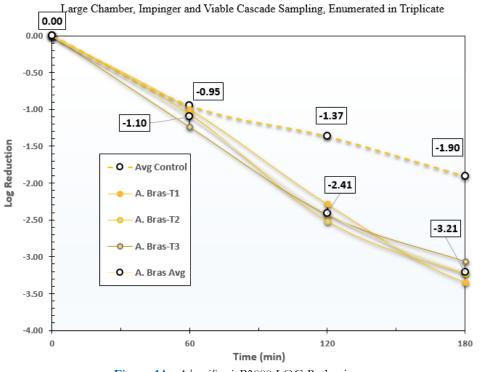
6/24/2021

Date



Appendix A: LOG and Net LOG Reduction Graphs

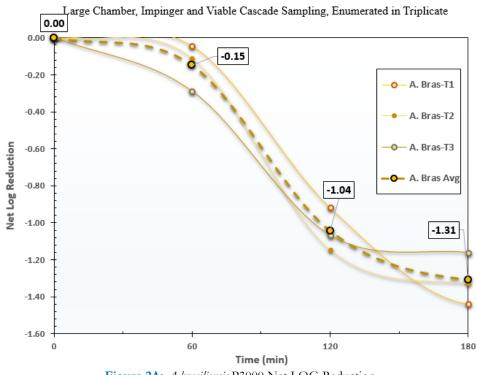




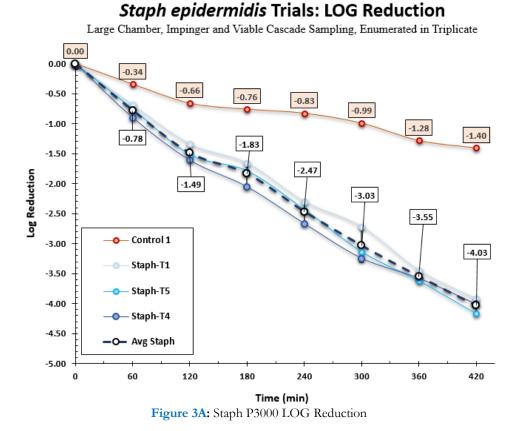
A. Brasiliensis Trials: LOG Reduction

Figure 1A: A.brasiliensis P3000 LOG Reduction

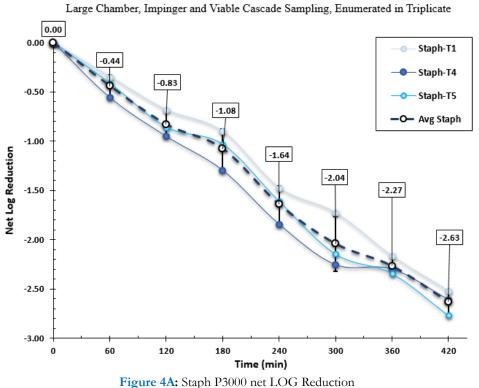
A. Brasiliensis Trials: Net LOG Reduction







Staph epidermidis Trials: Net LOG Reduction





Appendix B: Raw Data

AEROSOL Desearch and Engineering L a b o r a t o r i e s

Trial	Information		TR	AL LOG REDU	CTION RESUL	.TS			
	TEST DATE: Thursday, February 25, 2021				-•-Staph C				
	TRIAL PERFORMED BY: SMM		0.0	-0,34					
	TRIAL NUMBER: C1			-0.34	-0.76	-0.83 -0	0.99		
	TEST ORGANSIM: Staph		-1.0				-1.28	-1.40	
TRL	AL NAME ID (GRAPHS/TABLES): Staph Control T1								
Davi	as Information		-2.0						
Devi	Ce Information MANUFACTURER: Puraclenz	-							
	UNIT MODEL: P3000	5	-3.0						
	FAN SPEED (CFM): NA	Ē							
	UNIT SERIAL #: NA	edt	-4.0						
	FITER ID #: NA	LOG Reduction							
	FILTER LOT #: NA	2	-5.0						
Gond	eral Testing Conditions		-6.0						
Gene	TEST CHAMBER VOLUME (m ³): 16		-0.0						
	NEBULIZER CONDITIONS: Collison 24-Jet; approx. 20 min neb		-7.0						
	SAMPLING METHOD: Impinger & Cascade		-7.0						
	CHAMBER MIXING FAN: yes		-8.0						
	TEMP (F): 74								
	RH (%): 70		-9.0						
	OTHER INSTRUMENTS: na		-5.0	60 120	180	240 3	00 360	420	
	TRIAL COMMENTS/NOTES na				Time (min	,			
					nine (min)			
BIOA	EROSOL Sample ID and Summary Data	S1	S2	<u>S3</u>	S4	S5	S6	S7	S8
	SAMPLING TIME (min)	0	60	120	180	240	300	360	420
	IMPINGER USED (y / n)	· ·	У	У	У	У	У	У	У
	VIABLE CASCADE USED (y / n) CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air)	n 3.213E+05	n 1.461E+05	у 70.100.000	у	у	n	n 10050 000	n
	CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu pruL Air)	3.213E+05	1.461E+05	70400.000	56000.000	48000.000	32746.667	16853.333	12693.333
	IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)	0.83%	4.29%						
	INFINGER DILUTION CONSISTENCE CHECKS (% agreeneni)	0.03%	4.29%						
	VIADI E CONSISTENCY CHECKS (% agreement)								
	VIABLE CONSISTENCY CHECKS (% agreement) IMP & VIABLE CROSS CHECK (% agreement)								
	IMP & VIABLE CROSS CHECK (% agreement)	3 213E+05	1 461E+05	7 040F+04	5 600E+04	4 800F+04	3 275E+04	1 685E+04	1 269E+04
		3.213E+05 100.0000%	1.461E+05 45.4772%	7.040E+04 21.9087%	5.600E+04 17.4274%	4.800E+04 14.9378%	3.275E+04 10.1909%	1.685E+04 5.2448%	1.269E+04 3.9502%
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)								
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%)	100.0000%	45.4772%	21.9087%	17.4274%	14.9378%	10.1909%	5.2448%	3.9502%
Impir	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfw/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀)	100.0000% 0.0000%	45.4772% 54.5228%	21.9087% 78.0913%	17.4274% 82.5726%	14.9378% 85.0622%	10.1909% 89.8091%	5.2448% 94.7552%	3.9502% 96.0498%
Impir	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (%)	100.0000% 0.0000%	45.4772% 54.5228%	21.9087% 78.0913%	17.4274% 82.5726%	14.9378% 85.0622%	10.1909% 89.8091%	5.2448% 94.7552%	3.9502% 96.0498%
Impir	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions	100.0000% 0.0000% 0.00	45.4772% 54.5228% -0.34	21.9087% 78.0913% -0.66	17.4274% 82.5726% -0.76	14.9378% 85.0622% -0.83	10.1909% 89.8091% -0.99	5.2448% 94.7552% -1.28	3.9502% 96.0498% -1.40
Impir	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (log ₁₀) LOG REDUCTION FROM T=0 (log ₁₀) mger Sampling Conditions SAMPLING TIME (min)	100.0000% 0.0000% 0.00	45.4772% 54.5228% -0.34 60	21.9087% 78.0913% -0.66 120	17.4274% 82.5726% -0.76 180	14.9378% 85.0622% -0.83 240	10.1909% 89.8091% -0.99 300	5.2448% 94.7552% -1.28 360	3.9502% 96.0498% -1.40 420
Impir	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi)	100.0000% 0.0000% 0.00 0.00	45.4772% 54.5228% -0.34 60 20.0	21.9087% 78.0913% -0.66 120 20.0	17.4274% 82.5726% -0.76 180 20.0	14.9378% 85.0622% -0.83 240 20.0	10.1909% 89.8091% -0.99 300 20.0	5.2448% 94.7552% -1.28 360 20.0	3.9502% 96.0498% -1.40 420 20.0
Impii	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm)	100.0000% 0.0000% 0.00 20.0 2.0 12.5	45.4772% 54.5228% -0.34 60 20.0 5.0	21.9087% 78.0913% -0.66 120 20.0 5.0	17.4274% 82.5726% -0.76 180 20.0 5.0	14.9378% 85.0622% -0.83 240 20.0 5.0	10.1909% 89.8091% -0.99 300 20.0 5.0	5.2448% 94.7552% -1.28 360 20.0 10.0	3.9502% 96.0498% -1.40 420 20.0 10.0
Impir	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) mger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi)	100.0000% 0.0000% 0.00 20.0 2.0 12.5	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5	21.9087% 78.0913% -0.66 120 20.0 5.0 12.5	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5	10.1909% 89.8091% -0.99 300 20.0 5.0 12.5	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5	3.9502% 96.0498% -1.40 20.0 10.0 12.5
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) mger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10 ⁴)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3	21.9087% 78.0913% -0.66 20.0 5.0 12.5 -3	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3	10.1909% 89.8091% -0.99 300 20.0 5.0 12.5 -2	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2	3.9502% 96.0498% -1.40 420 20.0 10.0 12.5 -2
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dog(u) LOG REDUCTION FROM T=0 (log(u) INGER SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (cpm) DILUTION RATIO (10 ⁶) DROPLET SIZE (µi)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100	21.9087% 78.0913% -0.66 20.0 5.0 12.5 -3 100	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) mger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10 ⁴)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100 53	21.9087% 78.0913% -0.66 20.0 5.0 12.5 -3 100 25	17.4274% 82.5726% -0.76 1880 20.0 5.0 12.5 -3 100 18	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dg ₁₀) IOG REDUCTION FROM T=0 (dg ₁₀) mger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10 ³) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	100.0000% 0.0000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100 53 44 37	21.9087% 78.0913% -0.66 20.0 5.0 12.5 -3 100 25 19	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77
Dilution Range #1	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dog ₁₀) ING REDUCTION FROM T=0 (dog ₁₀) INGER SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (pm) DILUTION RATIO (10*) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100 53 44 37 -3 37	21.9087% 78.0913% -0.66 20.0 5.0 12.5 -3 100 25 19	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17.50	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 19 14 12 15.00	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (log ₁₀) Inger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (lpm) IMPINGER FLOW RATE (lpm) CHLUTION RATIO (10 ²) DROPLET SIZE (µi) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/mi)	100.0000% 0.0000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 4.00 400,000	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100 53 44 37 44,67 446,667	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dog ₁₀) ING REDUCTION FROM T=0 (dog ₁₀) mger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (pm) IMPINGER FLOW RATE (pm) DILUTION RATIO (10*) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 4.00 400,000 3.20E+05	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100 53 44 37 44,67 446,667 1.43E+05	21.9087% 78.0913% -0.66 20.0 5.0 12.5 -3 100 25 19	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17.50	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 19 14 12 15.00	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dg(u) INGER SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPIN	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 4.00 400,000 3.20E+05 -3	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100 53 44 37 -3 37 44,67 446,667 1.43E+05 -4	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000 5.60E+04 -1	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
Dilution Range #1	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dog ₁₀) ING REDUCTION FROM T=0 (dog ₁₀) INGER SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (bmi) IMPINGER FLOW RATE (bmi) IMPINGER FLOW RATE (bmi) DILUTION RATIO (10*) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/m) CHAMBER BIOAEROSOL CONCENTRATION (cfu or pfu/m)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 4.00 400,000 3.20E+05 -3 100	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 -3 100 53 44 37 53 44 37 446,667 1.43E+05 1.43E+05	21.9087% 78.0913% -0.66 20.0 5.0 12.5 -3 100 25 19 220,00 220,000 7.04E+04	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 7 17,50 175,000 5.60E+04	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
Dilution Range #1	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dg(u) INGER SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPIN	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 2 4.00 400,000 3.20E405 -3 100	45.4772% 54.5228% -0.34 20.0 5.0 12.5 -3 100 53 44 37 44,657 446,667 1.43E+05 -4 100 6	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000 5.60E+04 -1	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
Dilution Range #1	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dg(u) INGER SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPIN	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 4.00 400,000 3.20E+05 -3 100 48 37	45.4772% 54.5228% -0.34 20.0 5.0 12.5 -3 100 53 44 37 44 37 44 667 1.43E+05 446,667 1.43E+05 6 6 6	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000 5.60E+04 -1	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
Dilution Range #1	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dog;o) ING REDUCTION FROM T=0 (dog;o) INGER SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (bmi) IMPINGER FLOW RATE (bmi) IMPINGER FLOW RATE (bmi) DILUTION RATIO (10*) DROPLET SIZE (µi) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) CHAMBER BIOAEROSOL CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10*) DROPLET SIZE (µi)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 2 4.00 400,000 3.20E405 -3 100	45.4772% 54.5228% -0.34 20.0 5.0 12.5 -3 100 53 44 37 44,657 446,667 1.43E+05 -4 100 6	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000 5.60E+04 -1	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dg ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (bm) DILUTION RATIO (10 ³) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 2 2 4.00 400,000 3.20E+05 -3 100 48 37 36	45.4772% 54.5228% -0.34 20.0 5.0 12.5 -3 100 5.3 44 37 -3 -3 -3 100 5.3 44 37 -4 44,67 446,667 1.43E+05 -4 100 6 6 6 2	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000 5.60E+04 -1	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
Dilution Range #1	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dg ₁₀) ager Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (bmi) IMPINGER FLOW RATE (bmi) IMPINGER FLOW RATE (bmi) DILUTION RATIO (10*) DROPLET SIZE (µi) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) CHAMBER BIOAEROSOL CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10*) IMPINGER CONCENTRATION (cfu or pfu/L Air) CHAMBER BIOAEROSOL CONCENTRATION (cfu or pfu/L Air) CHAMBER BIOAEROSOL CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10*) DROPLET SIZE (µi) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) PLATE AVERAGE COUNTS (# / drop) PLATE AVERAGE COUNTS (# / drop)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 5 2 2 4.00 400,000 3.20E+05 -3 100 48 37 36	45.4772% 54.5228% -0.34 60 20.0 5.0 12.5 13 3 40 44 37 44 53 44 37 44 53 44 37 44 53 44 37 44 53 44 37 2 44 50 100 6 6 6 6 2 2 4 50 2 4 50 50 50 50 50 50 50 50 50 50 50 50 50	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000 5.60E+04 -1	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33
Dilution Range #1	IMP & VIABLE CROSS CHECK (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (dg ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (bm) DILUTION RATIO (10 ³) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ⁴) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	100.0000% 0.000% 0.00 20.0 2.0 12.5 -4 100 5 5 2 2 4.00 400,000 3.20E+05 -3 100 48 37 36	45.4772% 54.5228% -0.34 20.0 5.0 12.5 -3 100 5.3 44 37 -3 -3 -3 100 5.3 44 37 -4 44,67 446,667 1.43E+05 -4 100 6 6 6 2	21.9087% 78.0913% -0.66 20.0 5.0 12.5 	17.4274% 82.5726% -0.76 180 20.0 5.0 12.5 -3 100 18 17 17.50 175,000 5.60E+04 -1	14.9378% 85.0622% -0.83 240 20.0 5.0 12.5 -3 100 19 14 12 12 15.00 150,000	10.1909% 89.8091% -0.99 20.0 5.0 12.5 -2 100 110 100 97 102.33 102,333	5.2448% 94.7552% -1.28 360 20.0 10.0 12.5 -2 100 115 107 94 94 105.33 105.333	3.9502% 96.0498% -1.40 20.0 10.0 12.5 -2 100 83 78 77 79.33 79.33

Figure 1B: S. epidermidis Control

AEROSOL Descarch and Engineering L a b o r a t o r i e s

formation TEST DATE: Wednesday, May 26, 2021 TRIAL PERFORMED BY: SMM TRIAL NUMBER: T1		0.0			TION RESUL	aph T1			
TRIAL NUMBER: T1		0.0							
			-0.69						
TEST ORGANSIM: Staph		-1.0		-1,34					
NAME ID (GRAPHS/TABLES): Staph T1					-1.66				
Information		-2.0			-2				
						-2//2			
	5	-3.0					-3.44		
	C i						-3	.92	
	ng	-4.0						►	
	, and the second s								
FILTER LOT #: NA	ğ	-5.0							
		-6.0							
		-7.0							
SAMPLING METHOD: Impinger & Cascade									
CHAMBER MIXING FAN: yes		-8.0							
TEMP (F): 74									
RH (%): 70		-9.0							
OTHER INSTRUMENTS: na		0	30 60 90	120 150) 180 210 24	0 270 300 3	80 360 390 42	20 450 480	
TRIAL COMMENTS/NOTES na					Time (mi	n)			
					fine (in	"			
ROSOL Sample ID and Summary Data	S1	S2		S3	S4	S 5	S6	S6	S7
SAMPLING TIME (min)	0	60		120	180	240	300	360	420
IMPINGER USED (y / n)	У	у		у	у	У	У	у	у
VIABLE CASCADE USED (y / n)	n	n		n	n	n	n	n	n
HAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air)	6.667E+05	1.365E	+05 3.04	40E+04	1.461E+04	3.360E+03	1.280E+03	2.405E+02	8.000E+
HAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)									
IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)			0 27	.27%					
VIABLE CONSISTENCY CHECKS (% agreement)									
	6 667E±05	1 365E	+05 3.0	10E+04	1 461E±04	3 360E±03	1 280E±03	2 405E±02	8.000E+0
									0.0120%
									99.9880
									-3.92
	0.00	0.00				2.00			0.02
	0	60		120	180	240	300	360	420
	-					-			
									20.0
									10.0
			,						12.5 0
						-2		100	100
	10	35		80	42	20	90	137	57
		48		70	44	18	80	155	47
ENUMERATED PLATE COUNTS (# / drop)	15	45			51	25	70	159	46
PLATE AVERAGE COUNT (# / drop)	12.50	42.67	7	80.00	45.67	21.00	80.00	150.33	50.00
IMPINGER CONCENTRATION (cfu or pfu/ml)	1,250,000	426,66	57 8	0,000	45,667	21,000	8,000	1,503	500
CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air)	6.67E+05	1.37E+	05 2.	56E+04	1.46E+04	3.36E+03	1.28E+03	2.41E+02	8.00E+01
DILUTION RATIO (10 ^x)	-3	-2		-3	-1	0		0	0
DROPLET SIZE (µl)	100	100			100	500		100	500
ENUMERATED PLATE COUNTS (# / drop)				12					
				11					
PLATE AVERAGE COUNT (# / drop)		•		11.00				·	•
I LATE AVERAGE COUNT (#/ dlob)									
IMPINGER CONCENTRATION (cfu or pfu/ml)			1	10,000					
	al Testing Conditions EST CHAMBER VOLUME (m ²): 16 NEBULIZER CONDITIONS: Collison 24-let; approx. 20 min neb SAMPLING METHOD: Impinger & Cascade CHAMBER MIXING FAN: yes TEMP (F): 74 RH (%): 70 OTHER INSTRUMENTS: na TRIAL COMMENTS/NOTES na TRIAL COMMENTS/NOTES na ROSOL Sample ID and Summary Data ROSOL Sample ID and Summary Data MPINGER USED (y / n) VIABLE CASCADE USED (y / n) VIABLE CASCADE USED (y / n) WABLE CASCADE USED (y / n) WABLE CASCADE USED (m) HAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air) THAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air) MPINGER DILUTION CONSISTENCY CHECKS (% agreement) MP & VIABLE COSS CHECK (% agreement) MP & VIABLE CONSENTRATION (cfu or pfu/L Air) RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (cgue) JEF Sampling Conditions SAMPLING TIME (min) MPINGER FLOW RATE (pm) DILUTION RATIO (10 ²) DROPLET SIZE (µt) ENUMERATED PLATE COUNTS (# / drop) MPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (cfu or pfu/L Air) MPINGER FLOW RATE (pm)	MANUFACTURER: Puracienz UNIT MODEL: P3000 FAN SPEED (CFM): NA UNIT STRIAL#: NA FITER ID #: NA FITER ID #: NA SAMPLING CONDITIONS: Collison 24-let; approx. 20 min neb SAMPLING THEW (M); 70 OTHER INSTRUMENTS: na ITEMP (F); 74 RR (%); 70 OTHER INSTRUMENTS: na TRIAL COMMENTSNOTES na IMPINGER USED (y /n) NHAMBER MPINGER BIOBIO AEBCOSOL CONCENTRATION (cfu pful Ari RIGK) 6.667E-035 'HAMBER MPINGER BIOBIO AEBCOSOL CONCENTRATION (cfu pful Ari RIMBINGER DILLITION CONSISTENCY CHECKS (% agreement) 6.667E-035 IMPINGER DILLTION CONSISTENCY CHECKS (% agreement) 100.0000% VIABLE CONSISTENCY CHECKS (% agreement) 100.0000% RELATIVE PERCENT REMAINING FROM T=0 (%) 0.000 RELATIVE PERCENT REMAINING FROM T=0 (%) 0.0000% LOG REDUCTION FROM	2 Information 3.0 MANUFACTURER Puracient 3.0 UNIT MODEL: P3000 FAN SPEED (CPM); NA UNIT SENIAL #: NA 4.0 FILTER LD #: NA 5.0 al Testing Conditions 5.0 EST CHAMBER VOLUME (m ²): 16 5.0 NEBULIZER CONDITIONS: Colliso 24-jet; approx. 20 min neb 5.0 SAMPLING METHOD: Impinger & Cascade 7.0 CHAMBER MINNOF FAN; yes 8.0 TEMP (F): 74 8.4 RH (%): 70 7.0 OTHER INSTRUMENTS: na 0 TRIAL COMMENTS NOTES na 0 NAMBER MINNOF FAN; yes 5.1 HAMBER IMPINCER BIOBIOARROSOL CONCENTRATION (cfu or pful. Ar) 6.667E+05 1.365E HAMBER VIABLE BIOBIOARROSOL CONCENTRATION (cfu or pful. Ar) 6.667E+05 1.365E HAMBER MINGER/SOL CONCENTRATION (cfu or pful. Ar) 6.667E+05 1.365E HAMBER MINGER/SOL CONCENTRATION (cfu or pful. Ar) 6.667E+05 1.365E HAMBER MINGER/SOL CONCENTRATION (cfu or pful. Ar) 6.667E+05 1.365E CHAMBER BIOBIOARROSOL CONCENTRATION (cfu or pful. Ar) 6.667E+05 1.365E MIMPINGER BIOBIOARROSOL CONCENTRATION (cfu or	Performation MANUFACTURE: practor: UNIT MODEL: P3000 FAN SPEED (CTM): NA UNIT SRUAL # NA HTTER ID # NA FILTER LOT # FILTER LOT # F	e Information MAINING-TURRE: Puraclenz UNIT MODEL: 93000 FAN SPEED (CP4) MA IUNT SERIAL # MA HTER ID #: MA HTER ID	b Information Image: Second Seco	b Information	Deformation Ave: Note: Description 2-27 2-27 MANUARCITERE: Paradomic LAST: MODELE: PROD ParaSympet Draw, Para Bit Testand. + WA	PL INTENDIO PLATERIES Practices INTENDIO PLATERIES Pract

Figure 2B: S. epidermidis Trial 1

AEROSOL Descarch and Engineering L a b o r a t o r i e s

Trial	Information		TR	IAL LOG REDI	JCTION RESU	LTS			
	TEST DATE: Tuesday, June 15, 2021				- - -S	taph T2			
	TRIAL PERFORMED BY: JCT		0.0						
	TRIAL NUMBER: T2			0.90					
	TEST ORGANSIM: Staph		-1.0	<u> </u>					
TR	IAL NAME ID (GRAPHS/TABLES): Staph T2			-1.61					
Devi	ice Information		-2.0			.67			
	MANUFACTURER: Puraclenz	_	-3.0			3.25			
	UNIT MODEL: P3000	ļo i					-3.58		
	FAN SPEED (CFM): NA	3	-4.0				4	.01	
	UNIT SERIAL #: NA	se s	-4.0						
	FITER ID #: NA	LOG Reduction	-5.0						
	FILTER LOT #: NA	=	-3.0						
Gen	eral Testing Conditions		-6.0						
	TEST CHAMBER VOLUME (m ³): 16								
	NEBULIZER CONDITIONS: Collison 24-Jet; approx. 20 min neb		-7.0						
	SAMPLING METHOD: Impinger & Cascade								
	CHAMBER MIXING FAN: yes		-8.0						
	TEMP (F): 74								
	RH (%): 70		-9.0						
	OTHER INSTRUMENTS: na			60 90 120 1	150 180 210 2	40 270 300 3	30 360 390 42	20 450 480	
	TRIAL COMMENTS/NOTES na								
					Time (m	in)			
BIOA	AEROSOL Sample ID and Summary Data	S1	S2	S 3	S4	S 5	S6	S6	
	SAMPLING TIME (min)	0	60	120	180	240	300	360	420
	IMPINGER USED (y / n)	у	У	У	У	у	У	У	У
	VIABLE CASCADE USED (y / n)	n	n	n	n	n	n	n	n
	CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air)	6.844E+05	8.587E+04	1.675E+04	6.027E+03	1.469E+03	3.893E+02	1.813E+02	6.693E+01
	CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)								
	IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)	36.17%	66.94%	8.54%	11.67%	3.21%	7.89%		52.35%
	VIABLE CONSISTENCY CHECKS (% agreement)								
	IMP & VIABLE CROSS CHECK (% agreement)								
	CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)	6.844E+05	8.587E+04	1.675E+04	6.027E+03	1.469E+03	3.893E+02	1.813E+02	6.693E+01
	RELATIVE PERCENT REMAINING FROM T=0 (%)	100.0000%	12.5455%	2.4468%	0.8805%	0.2147%	0.0569%	0.0265%	0.0098%
	RELATIVE PERCENT REMOVAL FROM T=0 (%)	0.0000%	87.4545%	97.5532%	99.1195%	99.7853%	99.9431%	99.9735%	99.9902%
	LOG REDUCTION FROM T=0 (log10)	0.00	-0.90	-1.61	-2.06	-2.67	-3.25	-3.58	-4.01
Imni	inger Sampling Conditions								
mpi	SAMPLING TIME (min)	0	60	120	180	240	300	360	420
	IMPINGER FILL VOL (ml)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	IMPINGER SAMPLING TIME (min)	3.0	5.0	5.0	5.0	10.0	10.0	10.0	10.0
	IMPINGER FLOW RATE (lpm)	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	DILUTION RATIO (10 ^x)	-4	-3	-2	-2	-1	-1	-1	0
	DROPLET SIZE (µl)	100	100	100	100	100	100	100	100
1#		13	38	40	19	99	32	11	24
nge	ENUMERATED PLATE COUNTS (# / drop)	18	48	38	17	85	24	11	26
n R:	ENOMERATED PLATE COUNTS (# / diop)	16	35	86	17	87	20	12	31
Dilution Range #1									
Di	PLATE AVERAGE COUNT (# / drop)	15.67	40.33	54.67	17.67	90.33	25.33	11.33	27.00
	IMPINGER CONCENTRATION (cfu or pfu/ml)	1,566,667	403,333	54,667	17,667	9,033	2,533	1,133	270
	CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air)	8.36E+05	1.29E+05	1.75E+04	5.65E+03	1.45E+03	4.05E+02	1.81E+02	4.32E+01
	DILUTION RATIO (10 ^x)	-5	-4	-3	-3	-2	-2	0	-1
	DROPLET SIZE (µl)	100	100	100	100	100	100	500	100
		1	1	5	3	10	2		4
1#				10	2	12	2		4
mge #1	ENUMERATED ATTENDEATE COUNTRY (# 14.5)	0	2	10	-				
on Range #1	ENUMERATED PLATE COUNTS (# / drop)	0 2	2 1	0	1	6	3		9
vilution Range #1		2	1	0	1			,	
Dilution Range #1	PLATE AVERAGE COUNT (# / drop)	2	1	0	2.00	9.33	2.33	۲	5.67
Dilution Range #1		2	1	0	1			Y	

Figure 3B: S. epidermidis Trial 2

AEROSOL Desearch and Engineering L a b o r a t o r i e s

Trial	Information		TRI	AL LOG REDU	JCTION RESU	LTS			
	TEST DATE: Wednesday, June 16, 2021					taph T3			
	TRIAL PERFORMED BY: JCT		0.0						
	TRIAL NUMBER: T3).76					
	TEST ORGANSIM: Staph		-1.0						
TR	IAL NAME ID (GRAPHS/TABLES): Staph T3				-1.79				
Πον	ice Information		-2.0		-2	43			
Dev	MANUFACTURER: Puraclenz					-3.14			
	UNIT MODEL: P3000	8	-3.0				-3.62		
	FAN SPEED (CFM): NA	LOG Reduction						.17	
	UNIT SERIAL #: NA	ed	-4.0						
	FITER ID #: NA	e G							
	FILTER LOT #: NA	<u> </u>	-5.0						
C	eral Testing Conditions		60						
Gen	TEST CHAMBER VOLUME (m ³): 16		-6.0						
	NEBULIZER CONDITIONS: Collison 24-Jet; approx. 20 min neb		-7.0						
	SAMPLING METHOD: Impinger & Cascade		-7.0						
	CHAMBER MIXING FAN: yes		-8.0						
	TEMP (F): 74		-8.0						
	RH (%): 70		-9.0						
	OTHER INSTRUMENTS: Picarro, Interscan, Tiger			60 90 120 1	.50 180 210 24	40 270 300 3	30 360 390 4	20 450 480	
	TRIAL COMMENTS/NOTES								
	TRIAL COMMENTS/NOTES				Time (mi	in)			
BIOA	AEROSOL Sample ID and Summary Data	S1	S2	S 3	S4	S 5	S 6	S 6	S 7
	SAMPLING TIME (min)	0	60	120	180	240	300	360	420
	IMPINGER USED (y / n)	У	У	У	У	У	У	У	У
	VIABLE CASCADE USED (y / n)	n	n	n	n	n	n	n	n
	CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air)	3.947E+05	6.933E+04	1.200E+04	6.400E+03	1.451E+03	2.880E+02	9.413E+01	2.672E+01
	CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)								
	IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)	22.40%	37.50%	20.00%	0.00%	24.52%	20.00%	31.90%	-
	VIABLE CONSISTENCY CHECKS (% agreement)								
	IMP & VIABLE CROSS CHECK (% agreement)								
	CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)	3.947E+05	6.933E+04	1.200E+04	6.400E+03	1.451E+03	2.880E+02	9.413E+01	2.672E+01
	RELATIVE PERCENT REMAINING FROM T=0 (%)	100.0000%	17.5676%	3.0405%	1.6216%	0.3676%	0.0730%	0.0239%	0.0068%
	RELATIVE PERCENT REMOVAL FROM T=0 (%)	0.0000%	82.4324%	96.9595%	98.3784%	99.6324%	99.9270%	99.9761%	99.9932%
	LOG REDUCTION FROM T=0 (log ₁₀)	0.00	-0.76	-1.52	-1.79	-2.43	-3.14	-3.62	-4.17
Impi	inger Sampling Conditions								
	SAMPLING TIME (min)	0	60	120	180	240	300	360	420
	IMPINGER FILL VOL (ml)	20.0	20.0	20.0	20.0	20.0	20.0	20.0	20.0
	IMPINGER SAMPLING TIME (min)	3.0	5.0	5.0	5.0	10.0	10.0	10.0	10.0
	IMPINGER FLOW RATE (lpm)	12.5	12.5	12.5	12.5	12.5	12.5	12.5	12.5
	DILUTION RATIO (10 ^x)	-4	-4	-3	-3	-2	-2	-1	-1
	DROPLET SIZE (µl)	100	100	100	100	100	100	100	100
ie #1		5	2	4	2	8	1	5	
Sang	ENUMERATED PLATE COUNTS (# / drop)	8	2	3	2	7	2	8	
Inoi		12	1	3	2	16	3	8	
Dilution Range #1		0.00	1.5	2.22	2.00	40.00	2.00	7.00	
-	PLATE AVERAGE COUNT (# / drop)	8.33	1.67	3.33	2.00	10.33	2.00	7.00	
	IMPINGER CONCENTRATION (cfu or pfu/ml)	833,333	166,667	33,333	20,000	10,333	2,000	700	
	CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air)	4.44E+05	5.33E+04	1.07E+04	6.40E+03	1.65E+03	3.20E+02	1.12E+02	
	DILUTION RATIO (10 ^x)	-3	-3	-2	-2	-1	-1	0	0
_	DROPLET SIZE (µl)	100	100	100	100	100	100	100	500
		69	15	47	18	78	17	51	88
ge #		65	37	49	22	81	16	51	79
Range #	ENUMERATED PLATE COUNTS (# / drop)			29	20	75	15	41	
ion Range #	ENUMERATED PLATE COUNTS (# / drop)	60	28	20					
Oilution Range #						70.00	16.00	47.07	02.50
Dilution Range #1	PLATE AVERAGE COUNT (# / drop)	64.67	26.67	41.67	20.00	78.00	16.00	47.67	83.50
Dilution Range #						78.00 7,800 1.25E+03	16.00 1,600 2.56E+02	47.67 477 7.63E+01	83.50 167 2.67E+01

Figure 4B: S. epidermidis Trial 3



ial Information			T	RIAL	. LO	G REI	ουςτι	ONR	ESUL	TS		
TEST DATE: Wednesday, February 12, 2020							- - -A.	Bras C	1			
TRIAL PERFORMED BY: SMM		0.0 🧧										
TRIAL NUMBER: C1			1	2-	-0.95							
TEST ORGANSIM: A. Bras		-1.0					-1.37					
TRIAL NAME ID (GRAPHS/TABLES): A. Bras C1							- -		-1.90			
evice Information		-2.0									-2.42	
MANUFACTURER: Puraclenz		-3.0										
UNIT MODEL: P3000	<u>.</u>	-5.0										
FAN SPEED (CFM): NA	nct											
UNIT SERIAL #: NA	LOG Reduction	-4.0										
FITER ID #: NA	Ū											
FILTER LOT #: NA	2	-5.0										
eneral Testing Conditions		-6.0										
TEST CHAMBER VOLUME (m ³): 16												
NEBULIZER CONDITIONS: Collison 24-Jet; approx. 20 min neb		-7.0										
SAMPLING METHOD: Impinger & Cascade												
CHAMBER MIXING FAN: yes		-8.0										
TEMP (F): 74		-0.0										
RH (%): 70		-9.0										
OTHER INSTRUMENTS: na		-9.0	3	0	60	90	120	150	180	210	240	270
TRIAL COMMENTS/NOTES na												
							Time (min)				
OAEROSOL Sample ID and Summary Data	S	1		S 5			S7		S	8		S9
SAMPLING TIME (min)	C)		60			120		18	30		240
IMPINGER USED (y / n))	,		у			у)	,		у
VIABLE CASCADE USED (y / n)	r	า		n			n		r	า		n
CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air)	2.267	E+03	2.5	560E-	+02		97.600		28.3	320		8.533
CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)												
IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)	30.0	0%				0	3.64%	C	17.5	3%		
VIABLE CONSISTENCY CHECKS (% agreement)												
IMP & VIABLE CROSS CHECK (% agreement)												
CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)	2.267	E+03	2.5	560E-	+02	9.	760E+0	1	2.832	E+01	8	.533E+
RELATIVE PERCENT REMAINING FROM T=0 (%)	100.0			.294			.3059%		1.24			0.3765
RELATIVE PERCENT REMOVAL FROM T=0 (%)	0.00	00%	88	.705	9%	9	5.6941%	, D	98.75		9	9.6235
LOG REDUCTION FROM T=0 (log ₁₀)	0.0			-0.95			-1.37		-1.			-2.42

Impi	nger Sampling Conditions					
	SAMPLING TIME (min)	0	60	120	180	240
	IMPINGER FILL VOL (ml)	20.0	20.0	20.0	20.0	20.0
	IMPINGER SAMPLING TIME (min)	2.0	5.0	5.0	5.0	5.0
	IMPINGER FLOW RATE (lpm)	12.5	12.5	12.5	12.5	12.5
	DILUTION RATIO (10 ^x)	-2	-1	-1	0	0
	DROPLET SIZE (µl)	100	100	100	100	500
#1		4	7	4	8	17
ange	ENUMERATED PLATE COUNTS (# / drop)	1	12	5	9	15
n R:	ENOMERATED PLATE COUNTS (# / ulop)	2	5	2	7	8
Dilution Range #1						_
D	PLATE AVERAGE COUNT (# / drop)	2.33	8.00	3.67	8.00	13.33
	IMPINGER CONCENTRATION (cfu or pfu/ml)	2,333	800	367	80	27
	CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air)	1.87E+03	2.56E+02	1.17E+02	2.56E+01	8.53E+00
	DILUTION RATIO (10 ^x)	-3	0	0	0	-1
	DROPLET SIZE (µl)	100	750	100	500	750
#1		1		30	39	
ange	ENUMERATED PLATE COUNTS (# / drop)	0		20	58	
n Ri	ENOMERATED FLATE COON IS (# / diop)	0		23		
Dilution Range #1						
Di	PLATE AVERAGE COUNT (# / drop)	0.33	•	24.33	48.50	
	IMPINGER CONCENTRATION (cfu or pfu/ml)	3,333		243	97	
	CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air)	2.67E+03		7.79E+01	3.10E+01	

Figure 5B: A. brasiliensis Control



**** brosh 13 **** brosh 13 **** brosh 13 TRUE (PREVER) Provide Processing		Information		TRIAL LOO	G REDUCTION	RESULTS		
THE M. MUMBER TI TURA YOURDATION A fondations Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI Device Information MININGE (PROCE IN XAMPED (CRAMPEX TABLES) X. Bas: TI MININGE (PROCE IN XAMPE	11141							
TIST ORGANNE's & Basilierinis Image: Control of the image: Control of		TRIAL PERFORMED BY: SMM	0.0					
TEST ORGANNEA A basilinesis TEST ORGANNEA A basilinesis Device Information MARIVERCITIESIS, A basi Tal Device Information TEST COMMINS Set Tal		TRIAL NUMBER: T1		-0.99				
Device Information MANTRACTIBER Proteins MANTRACTIBER Proteins Antractions EXAMPLE OF Main Protocols Antractions Baneral Testing Conditions		TEST ORGANSIM: A. Brasiliensis	-1.0					
Device Information Instructures functions	TRI	AL NAME ID (GRAPHS/TABLES): A. bras. T1						
MANUFECTIONE: Automatical production of the product of the pr			-2.0		-2.28			
NUME MODEL - PARD INTERTION - MA INTERTION - MA INTERTION - MA BELIER LOT #	Devi					、		
Seneral Testing Conditions Instrumentation of the space			<mark>-3.0</mark>			-3 34	-3.58	
Seneral Testing Conditions Instrumentation of the space			, ici				-	
Seneral Testing Conditions Instrumentation of the space		UNIT SERIAL #: NA	-4.0					
Seneral Testing Conditions Instrumentation of the space		FITER ID #: NA	Ŭ					
TIST CHAMBER VOLUER (m): 16 NEBULZER CONDITIONS: (Gilson 24-det; approx. 20 min neb SAMPLINO MITTION: Impiger & Casade CHAMBER MINIOF EAN; yes TISMA CONDITIONS: (Gilson 24-det; approx. 20 min neb SAMPLINO MITTION: (F): 4 HI (%): 70 OTHER INSTRUMENTS: m2 -70 -0 0 00 90 120 150 200 240 270 3BOAEEROSOL Sample ID and Summary Data OTHER INSTRUMENTS: m2 S1 S2 S3 S4 S5 SIGAEEROSOL Sample ID and Summary Data CHAMBER MINER MOBIOAEROSOL CONCENTRATION (chaptin, Lin) UMPROBE USED (r): UABLE ED08IOAEROSOL CONCENTRATION (chaptin, Lin) DATE: CHAMBER MINER DIBIOAEROSOL CONCENTRATION (chaptin, Link) DATE: CHAMBER MININGAEROSUL CONCENTRATION (chaptin, Link) DATE: CHAMBER DIBIOAEROSOL CONCENTRATION (chaptin, Link) DATE: CHAMBER DIBIONEROSOL CONCENTRATION (chaptin, Link) DATE: CHAPTER DIBINGER FILL VOL (rd) DATE: CHAPTER DIBINGER FILL VOL (rd) DATE: CHAPTER DIBINGER FILL VOL (rd) DATE: CHAPTER DIBINGER CONCENTRATION (chaptin, Link) DATE: CHAPTER DI		FILTER LOT #: NA	-5.0					
TIST CHAMBER VOLUME (m): 14 NEBULIZER CONDITIONS: Collision 24-let; approx. 20 min neb SAMPLINO METIOID: Impinge & Cascade CHAMBER MINING FAX: yes TIMPI (%): 70 -70 <td>Gen</td> <td>eral Testing Conditions</td> <td>-6.0</td> <td></td> <td></td> <td></td> <td></td>	Gen	eral Testing Conditions	-6.0					
SAMPLING RETHOP, tropper 2, Cascade CLAMBER MIXING FAN, ye: IEP (7): 74 IEP (7): 75 IEP (7)								
SAMPLING RETHOP, tropper 2, Cascade CLAMBER MIXING FAN, ye: IEP (7): 74 IEP (7): 75 IEP (7)			-7.0					
TEMP (F) 74 BI (%) 70 OTHER INSTRUMENTS: not TRULAL COMMENTS: NOTES: not TRULAL RUE NOING CONCENTRATION (dep plut, hot Participation (Notes) (Notes								
Bill (b): 70 OTHER INSTRUMENTS: no TRALCOMMENTNOTES no 9.0 0 0.0		CHAMBER MIXING FAN: yes	-8.0					
OTHER INSTRUMENTS: no TRAL COMMENTS NOTES ma 0 0 10 100 100 100 200 200 100 200		TEMP (F): 74						
TRAL-COMMENTS NOTES nu Time (min) BIO-AEROSOL Sample ID and Summary Data S1 S2 S3 S4 S5 SAMPLING TIME (min) 0 60 120 1800 240 MARKOSOL Sample ID and Summary Data S3 S4 S5 S4 S5 CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (edin pinL Ar) 9.867E+03 1.003E+03 5.120E+01 4.460E+00 2.613E+00 CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (edin pinL Ar) 9.867E+03 1.003E+03 5.120E+01 4.460E+00 2.613E+00 VIABLE CONSISTENCY CHECKS (% agreement) 0 1.003E+03 5.120E+01 4.460E+00 2.513E+00 RELATIVE PERCENT REMAINING PROM T=0 (%) 0.0000% 89.8376% 99.4811% 99.95465% 99.735% LOG REDUCTION FORM T=0 (%) 0.0000% 89.8376% 99.4811% 99.95465% 99.735% LOG REDUCTION FORM T=0 (%) 0.0000% 89.8376% 99.4811% 99.95465% 99.735% LOG REDUCTION FORM T=0 (%) 0.00 2.00 2.00 2.00 2.00 2.00		RH (%): 70						
Mile UNULY SIDAEROSOL Sample ID and Summary Data S1 S2 S3 S4 S5 SAMPLING TIME (min) IMPINGER USED (y /n) VIABLE COSSIC CONCENTRATION (indir pful. Arr) CHAMBER BIOBIDAEROSOL CONCENTRATION (indir pful. Arr) IMPINGER DILITION CONSISTENCY CHECKS (% agreement) IMPINGER DILITION CONSISTENCY CHECKS (% agreement) IMPI & VIABLE CONSISTENCY CHECKS (% agreement) IMPI & RELATIVE PERCENT REAMONING (ROM T=0 (%) 0.0000% 10.03E+03 5.120E+01 4.480E+00 2.613E+0 CHAMBER BIOBIDAEROSUL CONCENTRATION (chu or pful. Arr) RELATIVE PERCENT REAMONING (ROM T=0 (%) 0.0000% 10.03E+03 5.120E+01 4.480E+00 2.613E+0 CHAMBER BIOBIDAEROSUL CONCENTRATION (chu or pful. Arr) RELATIVE PERCENT REAMONING (ROM T=0 (%) 0.0000% 10.03E+03 5.120E+01 4.480E+00 2.613E+00 SAMPLING TIME (min) 100.0000% 0 0 0 0 0 0 0 0 0 0 0 0 0 0		OTHER INSTRUMENTS: na		0 30 60	90 120 15	50 180 210	240 270	
SAMPLING TIME (min) IMPINCER USED (y' m) 0 60 120 180 240 IMPINCER USED (y' m) y		TRIAL COMMENTS/NOTES na			Time (mi	n)		
SAMPLING TIME (min) IMPINCER USED (y'n) VIABLE CASCACE USED (y'n) CHAMBER INDIVICER BIOBIOAEROSOL CONCENTRATION (sfu pful. Air) P3867E+03 y		FROSOL Sample ID and Summary Data	S1	S 2	\$3	S 4	S 5	
VIABLE CASCADE USED (y/ n) CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (chi più L Ar) CHAMBER VIABLE E BIOBIOAEROSOL CONCENTRATION (chi più L Ar) MININGER SILUTION CONSISTENCY CHECKS (% agreenero) n </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>								
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CHAMBER VIABLE BIOBIDAEROSOL CONCENTRATION (cfu or pfuL Ar) IMPINGER DILUTION CONSISTENCY CHECKS (% agreement) IMP & VIABLE CONSISTENCY CHECKS (% agreement) RELATIVE PERCENT REMAINING FROM T=0 (%) 9.867E+03 1.003E+03 5.120E+01 4.480E+00 2.613E+0 CHAMBER BIOBIDAEROSOL CONCENTRATION (cfu or pfuL Air) RELATIVE PERCENT REMAINING FROM T=0 (%) 9.867E+03 1.003E+03 5.120E+01 4.480E+00 2.613E+0 RELATIVE PERCENT REMOVAL FROM T=0 (%) 9.867E+03 1.003E+03 5.120E+01 4.480E+00 2.613E+0 SAMPLING TIME (min) 0 60 120 2.613E+0 SAMPLING TIME (min) 0 60 120 2.613E+0 IMPINGER SAMPLING TIME (min) 0 60 120 2.00 <td></td> <td>VIABLE CASCADE USED (y / n)</td> <td>n</td> <td>n</td> <td>n</td> <td>n</td> <td>n</td>		VIABLE CASCADE USED (y / n)	n	n	n	n	n	
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VIABLE CONSISTENCY CHECKS (% agreement) IMP & VIABLE CONSISTENCY CHECKS (% agreement) CHAMBER BIOBIOAEROSOL CONCENTRATION (ch or pfl/L Air) 9.867E+03 1.003E+03 5.120+01 4.460E+00 2.613E+0 RELATIVE PERCENT REMAINING (FAOV T=0 (%) 9.867E+03 1.0.1622% 0.5189% 0.0454% 0.0265% 99.9735% 99.9546% 99.9735% 99.9546% 99.9735% 1.00 0.000% 89.8378% 99.4811% 99.9546% 99.9735% LIG REDUCTION FROM T=0 (%) 0.00 0.99 -2.28 -3.34 -3.58 IMPINGE TELL VOL (m) 0.0 0.00 0.99 -2.28 -3.34 -3.58 IMPINGE FILL VOL (m) 0.00 60 120 180 240 IMPINGER FILL VOL (m) 20.0 <td></td> <td>CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)</td> <td></td> <td></td> <td></td> <td></td> <td></td>		CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)						
IMP & VIABLE CROSS CHECK (% agreement) 9.867E+03 1.003E+03 5.120E+01 4.480E+00 2.613E+0 RELATIVE PERCENT REMAINING FROM T=0 (%) 00.0000% 18.8378% 99.4611 99.9673% RELATIVE PERCENT REMAINING FROM T=0 (%) 0.0000% 18.8378% 99.42.8 -3.34 -3.58 IOG REDUCTION FROM T=0 (%) 0.0000% 10.9387% 99.4114 99.9673% BELATIVE PERCENT REMAINING FROM T=0 (%) 0.0000% 0.99 -2.28 -3.34 -3.58 MEDUTIVE PERCENT REMAINING FROM T=0 (%) 0.0 -0.99 -2.28 -3.34 -2.58 SAMPLING TIME (min) 0 60 120 280 20.0 <td< td=""><td></td><td>IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)</td><td>15.00%</td><td></td><td></td><td>13.33%</td><td>4.00%</td></td<>		IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)	15.00%			13.33%	4.00%	
CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfurL Air) RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMAINING FROM T=0 (%) DO000% 10.1622% 89.8378% 5.120E+01 0.5189% 4.480E+00 0.0454% 2.65189% mpinger Sampling Conditions 0.00 0.00 0.99 -2.28 -3.34 -3.58 mpinger Sampling Conditions SAMPLING TIME (min) 0 60 120 180 240 MPINGER SAMPLING TIME (min) 0 60 120 180 240 IMPINGER FLOW RATE (pm) 12.5 12.5 12.5 12.5 12.5 pinturions Ratio (u ⁺) -2 -2 0 0 0 MPINGER FLOW RATE (pm) 17.00 16.00 3.00 16.7 pinturions Ratio (u ⁺) -2 -2 0 0 0 DILUTION RATIO (u ⁺) -2 -2 0 0 0 pinture Rate Distance Count (# /drop) 17.00 16.00 3.00 16.7 pinture Average Count (# /drop) 17.00		VIABLE CONSISTENCY CHECKS (% agreement)						
RELATIVE PERCENT REMAINING FROM T=0 (%) RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (%) LOG REDUCTION FROM T=0 (%) LOG REDUCTION FROM T=0 (%) DO000%10.1622% 89.8378%0.01454% 99.4811%0.0265% 99.935% 99.4311%BELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (%) DG REDUCTION FROM TEO (%) PG REDUCTION FROM TEO								
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Ideal <td< th=""><th></th><th></th><th></th><th></th><th></th><th></th><th>2.613E+00</th></td<>							2.613E+00	
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SAMPLING TIME (min)060120180240IMPINGER FILL VOL (mi)20.020.020.020.020.020.020.0IMPINGER SAMPLING TIME (min)3.05.05.010.010.010.0IMPINGER FILL VOL (min)12.512.512.512.512.512.512.5IMPINGER FILOW RATE (lpm)12.512.512.512.512.512.512.512.5DILUTION RATIO (0°)-2-2-20000DROPLET SIZE (µ)100100100100100100100PLATE AVERAGE COUNT (# / drop)17.0016.003.001.67IMPINGER CONCENTRATION (cfu or pfu/min)17.0016.003.001.67IMPINGER DIOAEROSOL CONCETRATION (cfu or pfu/min)9.07t+035.12t+014.80t+002.67t+00Impineer EIOAEROSOL CONCETRATION (cfu or pfu/min)-3-1000DILUTION RATIO (0°)-3-10000DILUTION RATIO (0°)-3-10000CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/min)22.9118ENUMERATED PLATE COUNTS (# / drop)2301523015ENUMERATED PLATE AVERAGE COUNT (# / drop)2.00031.3313.008.008.00IMPINGER CONCENTRATION (cfu or pfu/min)2.00031.3313.008.0016Implication Concentration (cfu or pfu		RELATIVE PERCENT REMOVAL FROM T=0 (%)	100.0000% 0.0000%	10.1622% 89.8378%	0.5189% 99.4811%	0.0454% 99.9546%	0.0265% 99.9735%	
IMPINGER FILL VOL (m) IMPINGER SAMPLING TIME (min)20.020.020.020.0IMPINGER SAMPLING TIME (min)3.05.05.010.010.0IMPINGER FLOW RATE (hpm)12.512.512.512.512.5Term of the second s		RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀)	100.0000% 0.0000%	10.1622% 89.8378%	0.5189% 99.4811%	0.0454% 99.9546%	0.0265% 99.9735%	
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DescriptionDROPLET SIZE (µ)100100100100100100PLATE AVERAGE COUNT (# / drop)17.0020221315311213421315301671415010010010015030016715015030016715015030016715015030171501503017150150500500150100100500500150150150500500150150150150500150150150150500150150150150500150150150150500150150150150500150150150150500150150150150500150150150150500150 <td>mpi</td> <td>RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml)</td> <td>100.0000% 0.0000% 0.00 0.00</td> <td>10.1622% 89.8378% -0.99 60 20.0</td> <td>0.5189% 99.4811% -2.28 120 20.0</td> <td>0.0454% 99.9546% -3.34 180 20.0</td> <td>0.0265% 99.9735% -3.58 240 20.0</td>	mpi	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml)	100.0000% 0.0000% 0.00 0.00	10.1622% 89.8378% -0.99 60 20.0	0.5189% 99.4811% -2.28 120 20.0	0.0454% 99.9546% -3.34 180 20.0	0.0265% 99.9735% -3.58 240 20.0	
PropertionDROPLET SIZE (µ)100100100100100100PropertionPropertion262022131531121315311213421315301610110016030016710110016030016710100160301710100160301711100100500500111531111153111115301511151515111515151115151511151515111515151115151511151515111515151115151511151515111515151115151511151515111515151115151511151515111515151115151511151515121515151415 <t< td=""><td>mpi</td><td>RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min)</td><td>100.0000% 0.0000% 0.00 20.0 3.0</td><td>10.1622% 89.8378% -0.99 60 20.0 5.0</td><td>0.5189% 99.4811% -2.28 120 20.0 5.0</td><td>0.0454% 99.9546% -3.34 180 20.0 10.0</td><td>0.0265% 99.9735% -3.58 240 20.0 10.0</td></t<>	mpi	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min)	100.0000% 0.0000% 0.00 20.0 3.0	10.1622% 89.8378% -0.99 60 20.0 5.0	0.5189% 99.4811% -2.28 120 20.0 5.0	0.0454% 99.9546% -3.34 180 20.0 10.0	0.0265% 99.9735% -3.58 240 20.0 10.0	
by PLATE AVERAGE COUNT (# / drop)131531121342131312134213131213421313121342131312134214151213421514100160301671610010050030171511100100500500151110010050050016100100100500500161001001001050016100100100105001611811817118118181111111119111111111011121111111113 <t< td=""><td>mpi</td><td>RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm)</br></td><td>100.0000% 0.0000% 0.00 20.0 3.0 12.5</td><td>10.1622% 89.8378% -0.99 60 20.0 5.0 12.5</td><td>0.5189% 99.4811% -2.28 120 20.0 5.0 12.5</td><td>0.0454% 99.9546% -3.34 180 20.0 10.0 12.5</td><td>0.0265% 99.9735% -3.58 240 20.0 10.0 12.5</td></t<>	mpi	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions 	100.0000% 0.0000% 0.00 20.0 3.0 12.5	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5	0.5189% 99.4811% -2.28 120 20.0 5.0 12.5	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5	
Solution13153112134213134213134213134213131342131313134213131313131314121313131421313131313161614151516301615151516301715151516301715151516301615151610010050050016100100100500500500161515151516171515151515181515151515191115151515101115151515101115151515101115151515101115151515111515151515111515151515111515151515121515151515 <tr< td=""><td>mpi</td><td>RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) OILUTION RATIO (10*)</td><td>100.0000% 0.000% 0.00 20.0 3.0 12.5 -2</td><td>10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2</td><td>0.5189% 99.4811% -2.28 120 20.0 5.0 12.5 0</td><td>0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0</td><td>0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0</td></tr<>	mpi	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) OILUTION RATIO (10*)	100.0000% 0.000% 0.00 20.0 3.0 12.5 -2	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 120 20.0 5.0 12.5 0	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0	
Information of the construction of the cons	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) OILUTION RATIO (10*)	100.0000% 0.000% 0.00 20.0 3.0 12.5 -2 100	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 120 20.0 5.0 12.5 0 100	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100	
Information of the construction of the cons	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10*) DROPLET SIZE (µl)	100.0000% 0.000% 0.00 20.0 3.0 12.5 -2 100 26	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 120 20.0 5.0 12.5 0 100 20	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 2	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 22	
Information of the construction of the cons	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10*) DROPLET SIZE (µl)	100.000% 0.000% 0.00 20.0 3.0 12.5 -2 100 26 13	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 100 20 15	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 2 3	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 100 2 1	
CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) 9.07E+03 5.12E+01 4.80E+00 2.67E+00 Image: property of propere	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10°) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	100.000% 0.00 0.00 20.0 3.0 12.5 -2 100 26 13 12	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 2 3 4	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 1 2 1 2	
Image: Second and the optimization of the o	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER FILL VOL (ml) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 ³) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	100.000% 0.00 0.00 20.0 3.0 12.5 -2 100 26 13 12 12.0	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 2 3 4 3.00	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 1 1 2 1 2	
DROPLET SIZE (µ) 100 100 500 500 BROPLET SIZE (µ) 100 100 500 500 500 Algebra 2 29 11 8 2 30 15 2 30 15 2 30 15 2 30 13.00 8.00 PLATE AVERAGE COUNT (# / drop) 2.00 31.33 13.00 8.00 IMPINGER CONCENTRATION (cfu or pfu/m) 20,000 3,133 26 16	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10°) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/m)	100.000% 0.00 0.00 20.0 3.0 12.5 -2 100 26 13 12 12 12,00 26 13,00 12,00	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 16.00 160	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 2 3 4 3 4 3.00 30	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 1 1 2 1 2 1 2 1 7 7	
2 29 11 8 ENUMERATED PLATE COUNTS (# / drop) 2 30 15 2 PLATE AVERAGE COUNT (# / drop) 2.00 31.33 13.00 8.00 IMPINGER CONCENTRATION (cfu or pfu/ml) 20,000 3,133 26 16	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10°) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/m)	100.000% 0.00 0.00 20.0 3.0 12.5 -2 100 26 13 12 12 12,00 26 13,00 12,00	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 15 13 15 13 16.00 160 5.12E+01	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 2 3 4 3 4 3.00 30 4.80E+00	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 1 0 2 1 2 1 2 1 2 1 2	
Benumerated plate counts (# / drop) 2 30 15 2 35 2 35 Plate AVERAGE COUNT (# / drop) 2.00 31.33 13.00 8.00 IMPINGER CONCENTRATION (cfu or pfu/ml) 20,000 3,133 26 16	#1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (pm) DILUTION RATIO (10*) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/l Ai) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/l Ai)	100.000% 0.000% 0.00 20.0 3.0 12.5 100 26 13 12 26 13 12 17,00 17,000 9.07E+03	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2 100	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 160 5.12E+01 0	0.0454% 99.9546% -3.34 20.0 10.0 12.5 0 100 2 3 4 3 4 3.00 30 4.80E+00	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 1 2 1 2 1 2 1 2 1 7 2 5 7 107 2 6 7 107 2 6 7 107 2 6 7 107 10 7 2 0 100 100 100 100 100 100 100 100 100	
IMPINGER CONCENTRATION (cfu or pfu/ml) 20,000 3,133 26 16	Dilution Range #1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (pm) DILUTION RATIO (10*) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/l Ai) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/l Ai)	100.0000% 0.000 0.00 20.0 3.0 12.5 100 26 13 12 26 13 12 26 13 12 100 17,000 17,000 17,000 9.07E+03	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2 100	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 160 5.12E+01 0	0.0454% 99.9546% -3.34 20.0 10.0 12.5 0 100 2 3 4 2 3 4 3 4 3.00 30 4.80E+00 0 500	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 100 2 1 2 1 2 1 2 1 2 1 2 1 2 1	
IMPINGER CONCENTRATION (cfu or pfu/ml) 20,000 3,133 26 16	#1 Dilution Range #1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (pm) DILUTION RATIO (10*) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/l Ai) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/l Ai)	100.000% 0.000% 0.00 20.0 3.0 12.5 100 26 13 12 26 13 12 17,00 17,000 9.07E+03 3 100	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2 100 100 -1 100 29	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 160 5.12E+01 0	0.0454% 99.9546% -3.34 20.0 10.0 12.5 0 100 2 3 4 2 3 4 3 4 3.00 30 4.80E+00 0 5000 11	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 100 2 1 3 2 1 2 1 2 1 2 1 7 2 2 5 7 10 7 2 500	
IMPINGER CONCENTRATION (cfu or pfu/ml) 20,000 3,133 26 16	#1 Dilution Range #1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10 ³) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ³) DROPLET SIZE (µl)	100.000% 0.000% 0.00 20.0 3.0 12.5 100 26 13 12 26 13 12 26 13 12 17,00 17,000 9.07E+03	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2 100 100 -1 100 29 30	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 160 5.12E+01 0	0.0454% 99.9546% -3.34 20.0 10.0 12.5 0 100 2 3 4 2 3 4 3 4 3.00 30 4.80E+00 0 5000 11	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 100 2 1 3 2 1 2 1 2 1 2 1 7 2 2 5 7 10 7 2 500	
IMPINGER CONCENTRATION (cfu or pfu/ml) 20,000 3,133 26 16	#1 Dilution Range #1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10 ³) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) IMPINGER CONCENTRATION (cfu or pfu/L Air) DILUTION RATIO (10 ³) DROPLET SIZE (µl)	100.000% 0.000% 0.00 20.0 3.0 12.5 100 26 13 12 26 13 12 26 13 12 17,00 17,000 9.07E+03	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2 100 100 -1 100 29 30	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 160 5.12E+01 0	0.0454% 99.9546% -3.34 20.0 10.0 12.5 0 100 2 3 4 2 3 4 3 4 3.00 30 4.80E+00 0 5000 11	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 100 2 1 2 1 2 1 2 1 2 1 2 1 2 1	
	#1 Dilution Range #1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (pm) DILUTION RATIO (10°) DROPLET SIZE (µl) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L air) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L air) DILUTION RATIO (10°) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	100.000% 0.000% 0.00 20.0 3.0 12.5 100 26 13 12 26 13 12 26 13 12 17,00 17,000 9.07E+03 2 2 2 2 2	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2 100 100 20.0 5.0 12.5 -2 100 20 30 35	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 160 5.12E+01 0	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 2 2 3 4 2 3 4 4 3.00 30 4.80E+00 0 5000 11 15	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 0 100 2 1 3 2 1 2 1 2 1 2 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 2 3 1 3 2 3 1 3 1	
CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) 1.07E+04 1.00E+03 4.16E+00 2.56E+00	#1 Dilution Range #1	RELATIVE PERCENT REMOVAL FROM T=0 (%) LOG REDUCTION FROM T=0 (log ₁₀) anger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FILL VOL (mi) IMPINGER FLOW RATE (pm) DILUTION RATIO (10°) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L air) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L air) DILUTION RATIO (10°) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop)	100.000% 0.000% 0.00 20.0 3.0 12.5 -2 100 26 13 12 26 13 12 17.00 17,000 9.07E+03 -3 100 2 2 2 2 2 2	10.1622% 89.8378% -0.99 60 20.0 5.0 12.5 -2 100 100 20 5.0 12.5 -2 100 35 30 35	0.5189% 99.4811% -2.28 20.0 5.0 12.5 0 100 20 15 13 13 160 5.12E+01 0	0.0454% 99.9546% -3.34 180 20.0 10.0 12.5 0 100 22 3 4 2 3 4 4 3.00 30 4.80E+00 0 5000 111 15	0.0265% 99.9735% -3.58 240 20.0 10.0 12.5 100 22 1 2 1 2 1 2 1 2 1 2 5 0 8 8 8 8.00	

Figure 6B: A. brasiliensis Trial 1



rial	Information			TRIAL LOG	REDUCTION	RESULTS	
	TEST DATE: Thursday, June 3, 2021				–––A. bras.	T2	
	TRIAL PERFORMED BY: SMM		0.0 🔍				
	TRIAL NUMBER: T2			-1.06			
	TEST ORGANSIM: A. Brasiliensis		-1.0				
TRI	AL NAME ID (GRAPHS/TABLES): A. bras. T2						
			-2.0		-2.51		
)evi	ce Information						
	MANUFACTURER: Puraclenz	S	-3.0		+	3.23	
	UNIT MODEL: P3000 FAN SPEED (CFM): NA	E:					.72
	UNIT SERIAL #: NA	, in the second s	-4.0				
	FITER ID #: NA	e e e e e e e e e e e e e e e e e e e					
	FILTER LOT #: NA	LOG Reduction	-5.0				
Sen	eral Testing Conditions		-6.0				
	TEST CHAMBER VOLUME (m ³): 16						
	NEBULIZER CONDITIONS: Collison 24-Jet; approx. 20 min neb		-7.0				
	SAMPLING METHOD: Impinger & Cascade						
	CHAMBER MIXING FAN: yes		-8.0				
	TEMP (F): 74						
	RH (%): 70		-9.0				
	OTHER INSTRUMENTS: na		0	30 60	90 120 150	180 210 2	40 270
	TRIAL COMMENTS/NOTES na				Time (min)	
	EPOSOL Sample ID and Summary Data	S	1	S2	S 3	S4	S 5
	EROSOL Sample ID and Summary Data SAMPLING TIME (min)))	60	120	180	240
	IMPINGER USED (y/n)		•				-
	VIABLE CASCADE USED (y/n)		y n	y n	y n	y n	y n
	CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air)		E+04	1.088E+03	3.813E+01	7.307E+00	2.347E+0
	CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)	1.244	E+04	1.066E+03	3.013E+01	7.307E+00	2.347 E+0
	IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)	25.0	10%		62.50%	42.53%	16.67%
	VIABLE CONSISTENCY CHECKS (% agreement)	23.	JU /0		02.30%	42.55 %	10.07 /8
	IMP & VIABLE CROSS CHECK (% agreement)						
	CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)	4.24	E.04	4 0005 .02	2 9425 .04	7 2075 .00	2 2 475 . 0
	RELATIVE PERCENT REMAINING FROM T=0 (%)	1.244	E+04	1.088E+03 8.7429%	3.813E+01 0.3064%	7.307E+00 0.0587%	2.347E+0 0.0189%
	RELATIVE PERCENT REMOVAL FROM T=0 (%)	0.00		91.2571%	99.6936%	99.9413%	99.9811%
	LOG REDUCTION FROM T=0 (log ₁₀)		00	-1.06	-2.51	-3.23	-3.72
mpi	nger Sampling Conditions		•	<u> </u>	400	400	0.40
	SAMPLING TIME (min))	60	120	180	240
	IMPINGER FILL VOL (ml)		0.0	20.0	20.0	20.0	20.0
	IMPINGER SAMPLING TIME (min)		.0	5.0	5.0	10.0	10.0
	IMPINGER FLOW RATE (lpm)	12	2.5	12.5	12.5	12.5	12.5
	DILUTION RATIO (10 ^x)		2	-2	0	0	0
_	DROPLET SIZE (µl)		00	100	100	100	100
#			7		15	2	2
3e			3		18	3	0
Range	ENUMERATED PLATE COUNTS (# / drop)		:0		19	5	2
tion Range	ENUMERATED PLATE COUNTS (# / drop)	2					
Dilution Range			.67	•	17 33	3 33	1 33
Dilution Range	PLATE AVERAGE COUNT (# / drop)	26	.67		17.33	3.33	1.33
Dilution Range #1	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml)	26 26,	667		173	33	13
Dilution Range	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air)	26 26, 1.42	667 E+04		173 5.55E+01	33 5.33E+00	13 2.13E+00
Dilution Range	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ^x)	26 26, 1.42	667 E+04 3	-1	173 5.55E+01 0	33 5.33E+00 0	13 2.13E+00 0
	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air)	26 26, 1.42 -	667 E+04 3 00	100	173 5.55E+01 0 500	33 5.33E+00 0 500	13 2.13E+00
1#	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ^x)	26, 26, 1.42 - -	667 E+04 3 00 2	100 38	173 5.55E+01 0 500 35	33 5.33E+00 0 500 28	13 2.13E+00 0 500
1#	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ^x)	26 26, 1.42 - - 11	667 E+04 3 00 2 2	100 38 34	173 5.55E+01 0 500	33 5.33E+00 0 500	13 2.13E+00 0
1#	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ^x) DROPLET SIZE (μl)	26 26, 1.42 - - 11	667 E+04 3 00 2	100 38	173 5.55E+01 0 500 35	33 5.33E+00 0 500 28	13 2.13E+00 0 500
1#	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/mi) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ^x) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop)	26 26, 1.42 - - 11	667 E+04 3 00 2 2 2	100 38 34 30	173 5.55E+01 0 500 35 30	33 5.33E+00 0 500 28 30	13 2.13E+00 0 500 8
	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/m) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10*) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop)	26 26, 1.42 - - - - - - - - - - - - - - - - - - -	667 E+04 3 00 2 2 2 2 2	100 38 34 30 34.00	173 5.55E+01 0 500 35 30 32,50	33 5.33E+00 0 500 28 30 29.00	13 2.13E+00 0 500 8 8
1#	PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/ml) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ^x) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	26 26, 1.42 - - - - - - - - - - - - - - - - - - -	667 E+04 3 00 2 2 2	100 38 34 30	173 5.55E+01 0 500 35 30	33 5.33E+00 0 500 28 30	13 2.13E+00 0 500 8

Figure 7B: A. brasiliensis Trial 2



	Information			TRIAL LOO	G REDUCTION	RESULTS	
	TEST DATE: Thursday, June 3, 2021				→A. bras	s. T3	
	TRIAL PERFORMED BY: SMM		0.0				
	TRIAL NUMBER: T3						
	TEST ORGANSIM: A. Brasiliensis		-1.0	-1.24			
TRL	AL NAME ID (GRAPHS/TABLES): A. bras. T3				:+.		
			-2.0		-2,43		
)evi	ce Information						
	MANUFACTURER: Puraclenz	e	-3.0			-3.06	
	UNIT MODEL: P3000	LOG Reduction					-3.64
	FAN SPEED (CFM): NA	p p	-4.0				
	UNIT SERIAL #: NA	Be					
	FITER ID #: NA	8	-5.0				
	FILTER LOT #: NA	1	-3.0				
Send	eral Testing Conditions		-6.0				
	TEST CHAMBER VOLUME (m ³): 16						
	NEBULIZER CONDITIONS: Collison 24-Jet; approx. 20 min neb		-7.0				
	SAMPLING METHOD: Impinger & Cascade						
	CHAMBER MIXING FAN: yes						
	TEMP (F): 74		-8.0				
	RH (%): 70						
			-9.0	0 30 60	90 120 15	0 180 210	240 270
	OTHER INSTRUMENTS: na		, in the second s	50 60	50 120 15	10 180 210	240 270
	TRIAL COMMENTS/NOTES na				Time (mi	n)	
BIOA	EROSOL Sample ID and Summary Data	S	1	S2	S 3	S4	S 5
	SAMPLING TIME (min)	0		60	120	180	240
	IMPINGER USED (y / n)	у		у	у	y	y
	VIABLE CASCADE USED (y / n)	, r		, n	'n	'n	n
	CHAMBER IMPINGER BIOBIOAEROSOL CONCENTRATION (cfu pfu/L Air)	1.093		6.347E+02	4.037E+01	9.440E+00	2.507E+0
	-	1.095	E+04	0.347 E+02	4.037E+01	9.440E+00	2.307 E+00
	CHAMBER VIABLE BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)	24.2	00/	51.25%	9 35.43%		25.93%
	IMPINGER DILUTION CONSISTENCY CHECKS (% agreement)	24.2	9%	51.25%	53.43%		25.93%
	VIABLE CONSISTENCY CHECKS (% agreement)						
	IMP & VIABLE CROSS CHECK (% agreement)						
	CHAMBER BIOBIOAEROSOL CONCENTRATION (cfu or pfu/L Air)	1.093		6.347E+02	4.037E+01	9.440E+00	2.507E+00
	RELATIVE PERCENT REMAINING FROM T=0 (%)	100.00		5.8049%	0.3693%	0.0863%	0.0229%
	DELATIVE DED CENT DEMOVAL ED OM T_0 (%)	0 000)0%				
	RELATIVE PERCENT REMOVAL FROM T=0 (%)			94.1951%	99.6307%	99.9137%	
	LOG REDUCTION FROM T=0 (log ₁₀)	0.000		94.1951% -1.24	99.6307% -2.43	99.9137% -3.06	99.9771% -3.64
mpii	LOG REDUCTION FROM T=0 (log ₁₀)						
mpii			0				
mpii	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions	0.0)0	-1.24	-2.43	-3.06	-3.64
mpii	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min)	0.0 0	0) .0	-1.24 60	-2.43 120	-3.06 180	-3.64 240
mpii	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi)	0.0 0 20	0 0 .0 0	-1.24 60 20.0	-2.43 120 20.0	-3.06 180 20.0	-3.64 240 20.0
mpii	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm)	0.0 20 3. 12	0 0 0 0 .5	-1.24 60 20.0 5.0 12.5	-2.43 120 20.0 5.0 12.5	-3.06 180 20.0 10.0 12.5	-3.64 240 20.0 10.0 12.5
mpii	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 ^s)	0.0 20 3. 12	0 0 0 5 2	-1.24 60 20.0 5.0 12.5 -2	-2.43 120 20.0 5.0 12.5 0	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0
	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm)	0.0 20 3. 12 -2 10	0 0 0 5 2 0	-1.24 60 20.0 5.0 12.5 -2 100	-2.43 120 20.0 5.0 12.5 0 100	-3.06 180 20.0 10.0 12.5	-3.64 240 20.0 10.0 12.5 0 100
	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 ^s)	0.0 20 3. 12 	0 .0 .0 .5 2 0 5	-1.24 60 20.0 5.0 12.5 -2 100 1	-2.43 120 20.0 5.0 12.5 0 100 14	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0 100 1
	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 ^s)	0.0 20 3. 12 	0 .0 0 .5 2 0 5 5	-1.24 60 20.0 5.0 12.5 -2 100 1 3	-2.43 120 20.0 5.0 12.5 0 100 14 16	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0 100 1 1 3
	LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10*) DROPLET SIZE (µ)	0.0 20 3. 12 	0 .0 0 .5 2 0 5 5	-1.24 60 20.0 5.0 12.5 -2 100 1	-2.43 120 20.0 5.0 12.5 0 100 14	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0 100 1
	LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 ³) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop)	0.0 20 3. 12 	0 .0 0 .5 2 0 5 9 9	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4	-2.43 120 20.0 5.0 12.5 0 100 14 16 16	-3.06 180 20.0 10.0 12.5 0	-3.64 20.0 10.0 12.5 0 100 1 1 3 0
	LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10*) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop)	0.0 20 3. 12 10 11 11 11 11 11 17	0 0 0 5 5 9 9 67	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 16 15.33	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0 100 1 1 3 0 1.33
	LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10*) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/m)	0.0 200 3. 12 10 11 11 11 17, 17,	0 0 0 0 5 5 9 9 9 6 7	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67 2,667	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0 100 1 1 3 0 1.33 13
	LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (ml) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10*) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop)	0.0 20 3. 12 10 11 11 11 11 11 17	0 0 0 0 5 5 9 9 9 6 7	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 16 15.33	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0 100 1 1 3 0 1.33
	LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10*) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu/m)	0.0 200 3. 12 10 11 11 11 17, 17,	0 0 0 5 5 9 9 3 67 67 67 67 67 6403	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67 2,667	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153	-3.06 180 20.0 10.0 12.5 0	-3.64 240 20.0 10.0 12.5 0 100 1 1 3 0 1.33 13
	LOG REDUCTION FROM T=0 (log10) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (hm) IMPINGER FLOW RATE (hm) DILUTION RATIO (10*) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu'mi) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu'L Air)	0.0 20 3. 12 	0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67 2,667 8.53E+02	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 16 15.33 153 4.91E+01	-3.06 180 20.0 10.0 12.5 0 100	-3.64 240 20.0 10.0 12.5 0 100 1 3 0 1 3 0 1.33 13 2.13E+00
#1 Dilution Range #1	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (hmi) IMPINGER FLOW RATE (hmi) DILUTION RATIO (10*) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu'na) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu'l Air) DILUTION RATIO (10*)	0.0 20 3. 12 	0 .0 0 5 5 9 9 9 9 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.667 8.53E+02 -1	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153 4.91E+01 0	-3.06 180 20.0 10.0 12.5 0 100 100	-3.64 240 20.0 10.0 12.5 0 100 1 3 0 1 3 0 1.33 13 2.13E+00 0
#1 Dilution Range #1	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (m) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 [°]) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/T Air) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/T Air) DILUTION RATIO (10 [°]) DROPLET SIZE (µ)	0.0 20 20 3. 12 	0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67 2.667 8.53E+02 -1 100	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153 4.91E+01 0 500	-3.06 180 20.0 10.0 12.5 0 100 100 0 500	-3.64 240 20.0 10.0 12.5 0 100 1 3 0 1.33 13 2.13E+00 0 500
#1 Dilution Range #1	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (hmi) IMPINGER FLOW RATE (hmi) DILUTION RATIO (10*) DROPLET SIZE (µl) ENUMERATED PLATE COUNTS (# / drop) PLATE AVERAGE COUNT (# / drop) IMPINGER CONCENTRATION (cfu or pfu'na) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu'l Air) DILUTION RATIO (10*)	0.0 20 20 3. 12 	0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.667 2.667 8.53E+02 -1 100 9	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153 4.91E+01 0 500 48	-3.06 180 20.0 10.0 12.5 0 100 100 100 500 28	-3.64 240 20.0 10.0 12.5 0 100 1 3 0 1.33 13 2.13E+00 0 500 10
#1 Dilution Range #1	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (m) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 [°]) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/T Air) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/T Air) DILUTION RATIO (10 [°]) DROPLET SIZE (µ)	0.0 20 20 3. 12 10 11 11 11 12 10 	0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67 2.667 8.53E+02 -1 100 9 11	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153 4.91E+01 0 500 48	-3.06 180 20.0 10.0 12.5 0 100 100 100 500 28	-3.64 240 20.0 10.0 12.5 0 100 1 3 0 1.33 13 2.13E+00 0 500 10
Dilution Range #1	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (m) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 [°]) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/T Air) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/T Air) DILUTION RATIO (10 [°]) DROPLET SIZE (µ)	0.0 20 20 3. 12 10 11 11 11 12 10 	0 0 0 0 0 0 0 0 0 0 0 0 0 0	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67 2.667 8.53E+02 -1 100 9 11	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153 4.91E+01 0 500 48	-3.06 180 20.0 10.0 12.5 0 100 100 100 500 28	240 20.0 10.0 12.5 0 100 1 3 0 1.33 13 2.13E+00 0 500 10
#1 Dilution Range #1	LOG REDUCTION FROM T=0 (log ₁₀) nger Sampling Conditions SAMPLING TIME (min) IMPINGER FILL VOL (mi) IMPINGER SAMPLING TIME (min) IMPINGER SAMPLING TIME (min) IMPINGER FLOW RATE (lpm) DILUTION RATIO (10 ^s) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop) IMPINGER CONCENTRATION (cfu or pfu/L Air) CHAMBER BIOAEROSOL CONCETRATION (cfu or pfu/L Air) DILUTION RATIO (10 ^s) DROPLET SIZE (µ) ENUMERATED PLATE COUNTS (# / drop)	0.0 20 20 3. 12 10 11 11 11 12 10 9.421 10 3 3 1 10 10 10 	0) 0 0 0 5 3 0 6 7 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 7 6 6 6 6 6 6 6 6 6 6 6 6 6	-1.24 60 20.0 5.0 12.5 -2 100 1 3 4 2.67 2.667 8.53E+02 -1 100 9 11 19	-2.43 120 20.0 5.0 12.5 0 100 14 16 16 15.33 153 4.91E+01 0 500 48 51	-3.06 180 20.0 10.0 12.5 0 100 100 200 28 31	-3.64 240 20.0 10.0 12.5 0 100 1 3 0 1.33 13 2.13E+00 0 500 10 8

Figure 8B: A. brasiliensis Trial 3



Appendix C: Calculations

To evaluate the viable aerosol delivery efficiency and define operation parameters of the system, calculations based on (theoretical) 100% efficacy of aerosol dissemination were derived using the following steps:

- Plating and enumeration of the biological to derive the concentration of the stock suspension (*C_s*) in pfu/mL or cfu/mL, or cfu/g for dry powder.
- Collison 24 jet nebulizer use rate (R_{neb}) (volume of liquid generated by the nebulizer/time) at 28 psi air supply pressure = 1.0 mL/min.
- Collison 24 jet Generation time (t) = 20 or 30 minutes, test dependent.
- Chamber volume $(V_c) = 15,993$ Liters

Assuming 100% efficiency, the quantity of aerosolized viable particles (V_P) per liter of air in the chamber for a given nebulizer stock concentration (C_s) is calculated as:

Nebulizer:
$$V_P = \frac{C_s \cdot R_{neb}}{V_c} t$$

Plating and enumeration of the biological to derive the concentration of the dry powder (C_p) in cfu/g.

- Eductor use rate (M_p) (Mass of powder generated by the eductor in grams)
- Chamber volume $(V_c) = 15,993$ Liters

Assuming 100% efficiency, the quantity of aerosolized viable particles (V_P) per liter of air in the chamber for a given dry powder stock concentration (C_p) is calculated as:

Eductor:
$$V_p = \frac{C_p \cdot M_p}{V_c}$$



AGI – 30 impinger or 47mm filter collection calculation:

- Viable aerosol concentration collection (C_a) = cfu or pfu/L of chamber air.
- Viable Impinger concentration collection $(C_{Imp}) = cfu$ or pfu/mL from enumeration of impinger sample or filter sample.
- Impinger sample collection volume $(I_{vol}) = 20$ mL collection fluid/impinger, or extraction fluid for filter.
- AGI-30 impinger or filter sample flow rate $(Q_{imp}) = 12.5 \text{ L/min.}$
- AGI-30 impinger or filter sample time (t) = 5 or 10 minutes, test dependent.

For viable impinger or filter aerosol concentration collection (C_a) = cfu or pfu/L of chamber air:

$$C_a = \frac{\mathbf{C}_{\mathrm{Imp}} \cdot \mathbf{I}_{\mathrm{vol}}}{\mathbf{Q}_{\mathrm{imp}}} \mathbf{t}$$

The aerosol system viable delivery efficiency (expressed as %) is:

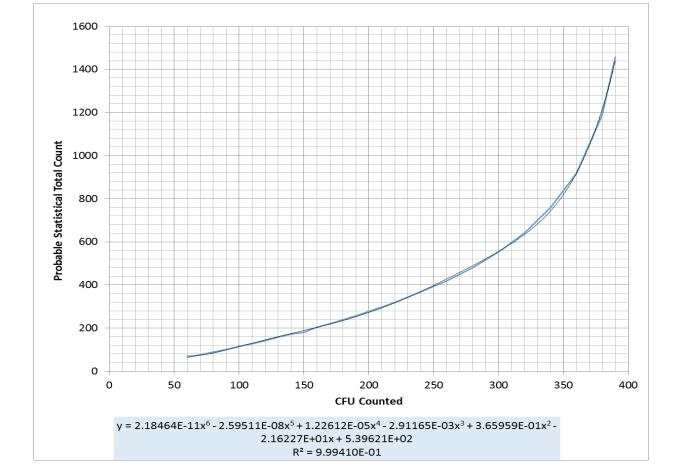
$$Efficiency = \frac{C_{a}}{V_{p}} \cdot 100$$

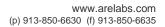
The table below is based on the principle that, as the number of viable particles being impinged on a given plate increases, the probability of the next particle going into an "empty hole" decreases. This can be corrected statistically by using the conversion formula of Feller [4]:

Pr = N [1/N + 1/N-1 + 1/N-2 + 1/N-r+1]

N is the number of holes (400) in the sampling head. For easy use of this formula please refer to the table in chapter 17.2 For each colony count \mathbf{r} a statistically corrected total count \mathbf{Pr} can be easily seen in the table.







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17.2 Positive hole conversion table for all MAS-100 air monitoring systems r = number of colony forming units counted on 100 mm petri dish Pr = probable statistical total count

Г	Pr	r	Pr	R	Pr	R	Pr	R	Pr	Г	Pr	R	Pr	R	Pr
1	1	51	54	101	116	151	189	201	279	251	394	301	557	351	836
2	2	52	56	102	118	152	191	201	281	252	397	302	561	352	844
3	3	53	57	102	119	153	193	202	283	252	400	302	565	353	853
4	4	54	58	103	120	154	194	203	285	254	402	304	569	354	861
5	5	55	59	105	122	155	196	205	287	255	405	305	573	355	870
6	6	56	60	105	123	156	197	205	289	256	408	306	578	356	879
7	7	57	61	107	124	157	199	200	291	257	411	307	582	357	888
8	8	58	63	108	126	158	201	208	293	258	413	308	586	358	897
9	9	59	64	109	127	159	202	209	295	259	416	309	591	359	907
10	10	60	65	110	128	160	204	210	297	260	419	310	595	360	917
11	11	61	66	111	130	161	206	211	299	261	422	311	599	361	927
12	12	62	67	112	131	162	207	212	301	262	425	312	604	362	937
13	13	63	68	113	133	163	209	213	304	263	428	313	608	363	947
14	14	64	70	114	134	164	211	213	306	264	431	314	613	364	958
15	15	65	71	115	135	165	212	215	308	265	433	315	618	365	969
16	16	66	72	116	137	166	214	216	310	266	436	316	622	366	981
17	17	67	73	117	138	167	214	217	312	267	439	317	627	367	992
18	18	68	74	118	140	168	218	218	314	268	442	318	632	368	1005
19	19	69	76	119	141	169	219	210	317	269	445	319	637	369	1017
20	20	70	77	120	142	170	213	210	319	203	449	320	642	370	1030
20	20	71	78	120	144	171	223	220	321	271	452	321	647	371	1030
21	23	72	79	122	145	172	224	222	323	272	452	321	652	372	1043
22	24	73	80	122	145	173	224	222	325	272	455	323	657	373	1071
23	24	74	82	123	****************	173	228	223	325	273	450	323	662	374	
24	25	75	83	124	148 150	175	220	224	330	274		325	667	375	1086 1102
25	20	76	84	125	150	175	230	225	332	275	464 467	325	673	376	1118
20	28	77	85	120	151	177	232	220	335	270	407	320	678	377	1134
28		78		127		178		227		278		328		378	
20	29 30	79	87 88	120	154	179	235 237	220	337	279	474	329	684	379	1152 1170
30	30	80	89	129	156 157	179	237	229	339 342	279	477 480	329	689 695	379	1170
31	32	81	90	130	*****************	181	239	230	344	281	400	331	701	381	1209
32		82		131	158	182		231		282		332		382	
33	33 34		92 93	132	160 161	183	242 244	232	346	283	487	333	706	383	1230 1252
34	35	83 84	93	133		184	244	233	349 351	203	491 494	334	712	384	1252
35	35	85	94	134	163	185		234	353	285	494	335	718 724	385	1301
36	38	86	95	135	164	186	248 250	235	355	286	497 501	336	730	386	1327
				1	166										
37	39	87	98	137	167	187	252	237	358	287	504	337	737	387	1356
38	40 41	88 89	99 101	138 139	169	188 189	254	238 239	361 363	288 289	508 511	338 339	743 749	388 389	1387
40		90		139	171	109	255	239		209		340		390	1420
40	42	90	102	140	172		257		366		515		756	390	1456
	43		103		174	191	259	241	368	291	519	341	763		1496
42	44	92 93	104	142 143	175	192 193	261	242	371	292 293	522	342 343	769	392	1541
43	45	93	106	143	177	193	263	243	373	293	526	343	776	393 394	1591
44	47		107		178		265		376		530	****************	783		1648 1715
45	48	95	108 110	145 146	180	195	267	245 246	378 381	295	534	345	791	395	
46	49	96			181	196 197	269	246		296 297	537	346	798	396	1795
	50	97	111	147	183		271		384		541	347	805	397	1895
48	51	98	112	148	185	198	273	248	386	298	545	348	813	398	2028
49	52	99	114	149	186	199	275	249	389	299	549	349	820	399	2228
50	53	100	115	150	188	200	277	250	391	300	553	350	828		