Aerobiology Laboratory Associates, Incorporated
A Pace Analytical® Laboratory

Certificate of Analysis
AIHA-LAP EMLAP# 102977

43760 Trade Center Place
Suite 100
Sterling, VA 20166
8776489150

ECS Mid Atlantic, LLC
14026 Thunderbolt Place
Chantilly VA, 20151
Attn: Bobby Rhett
Project: **47-11652-I Minnie Howard**
Condition of Sample(s) Upon Receipt: Acceptable

Date Collected: 9/1/2021
Date Received: 9/2/2021
Date Analyzed: 9/7/2021
Date Reported: 9/8/2021
Project ID: 21038932

1054 Spore Trap Analysis: SOP 3.8

Client Sample #	A-01				A-OUT			
Sample Location	Room 117				Outdoors			
Sample Volume (L)	75				75			
Lab Sample #	21038932-001				21038932-003			
Spore Identification	RawCt	spr/m^3	%Ttl	I/O	RawCt	spr/m^3	%Ttl	I/O
ascospores	3	40	18	1/491	92	19,627	23	-
basidiospores	6	80	35	1/798	80	63,872	75	-
Cercospora	-	-	-	-	1	13	<1	-
Cladosporium	4	53	24	1/18	72	960	1	-
Colorless	-	-	-	-	20	267	<1	-
Curvularia	1	13	6	1/1	1	13	<1	-
Drechslera/Bipolaris group	-	-	-	-	1	13	<1	-
Helicosporium/Helicomyces	-	-	-	-	1	13	<1	-
hyphal elements	-	-	-	-	5	67	<1	-
Penicillium/Aspergillus group	3	40	18	1/9	27	360	<1	-
Pestalotiopsis	-	-	-	-	3	40	<1	-
Smuts,Periconia,Myxomycetes	-	-	-	-	4	53	<1	-
Torula	-	-	-	-	1	13	<1	-
	Debris Rating **2**				Debris Rating **2**			
Analytical Sensitivity	Analytical Sensitivity: **13** spr/m^3				Analytical Sensitivity: **13** spr/m^3			
Comments								
Total *See Footnotes	17	227	~100%	1/376	308	85,312	~100%	-

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Client Sample #	A-02				A-OUT			
Sample Location	Room 118				Outdoors			
Sample Volume (L)	75				75			
Lab Sample #	21038932-002				21038932-003			
Spore Identification	RawCt	spr/m^3	%Ttl	I/O	RawCt	spr/m^3	%Ttl	I/O
ascospores	2	27	20	1/736	92	19,627	23	-
basidiospores	2	27	20	1/2395	80	63,872	75	-
Cercospora	-	-	-	-	1	13	<1	-
Cladosporium	3	40	30	1/24	72	960	1	-
Colorless	-	-	-	-	20	267	<1	-
Curvularia	-	-	-	-	1	13	<1	-
Drechslera/Bipolaris group	-	-	-	-	1	13	<1	-
Helicosporium/Helicomyces	-	-	-	-	1	13	<1	-
hyphal elements	-	-	-	-	5	67	<1	-
Penicillium/Aspergillus group	2	27	20	1/14	27	360	<1	-
Pestalotiopsis	-	-	-	-	3	40	<1	-
Smuts,Periconia,Myxomycetes	1	13	10	1/4	4	53	<1	-
Torula	-	-	-	-	1	13	<1	-
	Debris Rating **2**				Debris Rating **2**			
Analytical Sensitivity	Analytical Sensitivity: **13** spr/m^3				Analytical Sensitivity: **13** spr/m^3			
Comments								
Total *See Footnotes	10	133	~100%	1/640	308	85,312	~100%	-

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Client Sample #	A-OUT2				A-OUT			
Sample Location	Outdoors				Outdoors			
Sample Volume (L)	75				75			
Lab Sample #	21038932-004				21038932-003			
Spore Identification	RawCt	spr/m^3	%Ttl	I/O	RawCt	spr/m^3	%Ttl	I/O
ascospores	97	20,693	26	1/1	92	19,627	23	-
basidiospores	72	57,485	72	1/1	80	63,872	75	-
Cercospora	-	-	-	-	1	13	<1	-
Cladosporium	73	973	1	1/1	72	960	1	-
Colorless	8	107	<1	1/3	20	267	<1	-
Curvularia	3	40	<1	3/1	1	13	<1	-
Drechslera/Bipolaris group	1	13	<1	1/1	1	13	<1	-
Epicoccum	1	13	<1	-	-	-	-	-
Helicosporium/Helicomyces	-	-	-	-	1	13	<1	-
hyphal elements	8	107	<1	2/1	5	67	<1	-
Penicillium/Aspergillus group	23	307	<1	1/1	27	360	<1	-
Pestalotiopsis	1	13	<1	1/3	3	40	<1	-
Rusts	1	13	<1	-	-	-	-	-
Smuts,Periconia,Myxomycetes	6	80	<1	2/1	4	53	<1	-
Torula	-	-	-	-	1	13	<1	-
	Debris Rating **2**				Debris Rating **2**			
Analytical Sensitivity	Analytical Sensitivity: **13** spr/m^3				Analytical Sensitivity: **13** spr/m^3			
Comments								
Total *See Footnotes	294	79,845	~100%	1/1	308	85,312	~100%	-

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Signature Page

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1. The results in this report are related to this project and these samples only.
2. Results in this report are intended for the Aerobiology Laboratory Associates, Inc. client listed above and cannot be discussed with anyone outside of that given company without written authorization.
3. Minimum Reporting Limits (MRL) for BULKS, DUSTS, SWABS, and WATER samples are a calculation based on 1 raw count, the sample size and the dilution plate on which organism was counted. Results are a compilation of counts taken from multiple dilutions and multiple medias.
4. Raw count is the total number of colonies identified on a given sample, without any calculations performed based on air volume, surface area, water volume, or weight.
5. Total count is a calculated value based on the type of sample submitted, the raw count, and the calculation related to the volume, weight or surface area.

Suzanne Blevins
Laboratory Director

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Footnotes and Additional Report Information

Debris Rating Table

1	Minimal (<5%) particulate present	Reported values are minimally affected by particulate load.
2	5% to 25% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
3	26% to 75% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
4	75% to 90% of the trace occluded with particulate	Negative bias is expected. The degree of bias increases directly with the percent of the trace that is occluded.
5	Greater than 90% of the trace occluded with particulate	Quantification not possible due to large negative bias. A new sample should be collected at a shorter time interval or other measures taken to reduce particulate load.

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1. Penicillium/Aspergillus group spores are characterized by their small size, round to ovoid shape, being unicellular, and usually colorless to lightly pigmented. There are numerous genera of fungi whose spore morphology is similar to that of the Penicillium/Aspergillus type. Two common examples would be Paecilomyces and Acremonium. Although the majority of spores placed in this group are Penicillium, Aspergillus, or a combination of both. Keep in mind that these are not the only two possibilities.

2. Ascospores are sexually produced fungal spores formed within an ascus. An ascus is a sac-like structure designed to discharge the ascospores into the environment, e.g. Ascobolus.

3. Basidiospores are typically blown indoors from outdoors and rarely have an indoor source. However, in certain situations a high basidiospore count indoors may be indicative of a wood decay problem or wet soil.

4. The colorless group contains colorless spores which were unidentifiable to a specific genus. Examples of this group include Acremonium, Aphanocladium, Beauveria, Chrysosporium, Engyodontium microconidia, yeast, some arthrospores, as well as many others.

5. Hyphae are the vegetative mode of fungi. Hyphal elements are fragments of individual Hyphae. They can break apart and become airborne much like spores and are potentially allergenic. A mass of hyphal elements is termed the mycelium. Hyphae in high concentration may be indicative of colonization.

6. Dash (-) in this report, under raw count column means 'not detected (ND)'; otherwise 'not applicable' (NA).

7. The positive-hole correction factor is a statistical tool which calculates a probable count from the raw count, taking into consideration that multiple particles can impact on the same hole; for this reason the sum of the calculated counts may be less than the positive hole corrected total.

8. Due to rounding totals may not equal 100%.

9. Analytical Sensitivity for each spores is different for Non-viable sample when the spores are read at different percentage. Analytical Sensitivity is calculated as spr/m ^{3} divided by raw count. spr/m ^{3} = raw counts x (100/ % read) x (1000/Sample volume). If Analytical Sensitivity is 13 spr/m ^{3} at 100% read, Analytical Sensitivity at 50% read would be 27 spr/m ^{3}, which is 2 times higher. Analytical Sensitivity provided on the report is based on an assumed 100% of the trace being analyzed.

10. Minimum Reporting Limits (MRL) for BULKS, DUSTS, SWABS, and WATER samples are a calculation based on the sample size and the dilution plate on which the organism was counted. Results are a compilation of counts taken from multiple dilutions and multiple medias. This means that every genus of fungi or bacteria recovered can be counted on the plate on which it is best represented.

11. If the final quantitative result is corrected for contamination based on the blank, the blank correction is stated in the sample comments section of the report.

12. The results in this report are related to this project and these samples only.

13. For samples with an air volume of < 100L, the number of significant figures in the result should be considered (2) two. For samples with air volumes between 100-999L, the number of significant figures in the result should considered (3) three. For example, a sample with a result of 55,443 spr/m^3 from a 75L sample using significant figures should be considered 55,000. The same result of 55,443 from a 150L sample using significant figures should be considered 55,400 spr/m ^{3}.

14. If the In/Out ratio is greater than 100 times it is indicated >100/1, rather than showing the real value.

Terminology Used in Direct Exam Reporting

Conidiophores are a type of modified hyphae from which spores are born. When seen on a surface sample in moderate to numerous concentrations they may be indicative of fungal growth.

Suzanne Blevins
Laboratory Director

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