



Customer Name: Mid-Atlantic Environmental Consultants, Inc. Sample Date: January 4, 2018
 Customer Address: 5320 North Pioneer Road Date Received: January 4, 2018
 Gibsonia, PA 15044 Date of Report: January 5, 2018
 Customer Phone: (724) 444-3460 Fax: (724) 444-3463
 PO Number: Attention: Joseph Pillart
 Project Name/Number: Blackhawk Intermediate School - 635 Shenango Road - Beaver Falls, PA

Customer sample numbers below are uniquely identified by prefixing Laboratory # 1062-18

Direct Microscopic Examination - Bulk
 Analytical Method: USMS-T017

Customer Sample Number	Bulk-1														
	Exterior Wall Room A202														
Particle ID	Rare Amt	Few	Mod	Many	Num	Rare Amt	Few	Mod	Many	Num	Rare Amt	Few	Mod	Many	Num
Alternaria conidia															
Ascospores															
Aspergillus fruiting structures															
Aspergillus/Penicillium-like conidia															
Basidiospores															
Bipolaris/Drechslera conidia															
Chaetomium ascospores															
Cladosporium conidia															
Curvularia conidia															
Epicoccum conidia															
Hyphal Fragments					X										
Insect fragments															
Penicillium fruiting structures															
Pithomyces/Ulocladium conidia															
Plant fragments															
Pollen (unidentified)															
Rusts															
Smuts/ Myxomycetes															
Stachybotrys conidia					X										
Stachybotrys fruiting structures				X											
Torula conidia															
Unidentified dematiaceous conidia															
Unidentified hyaline conidia															
Skin Cell Fragments			2												
Debris			2												
No fungal conidia/hyphal fragments noted															
Analyst Initials			HC												
Date Analyzed			1/5/18												

Results relate only to the samples tested. The Aspergillus/Penicillium-like category cannot be differentiated by non-viable sampling methods.
 Mod = Moderate; Num = Numerous

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Technical Manager: Herbert Layman
 Herbert Layman, BS, SM, CIEC



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Airborne Spore Trap Analysis - Air-O-Cell
 Analytical Method: USMS-M008

Total Volume (L)	75				75				75			
Sample Number	MA-1				MA-2				MA-3			
Location:	Classroom A302				Classroom A202				Reference A211 Storage Room			
Particle ID	Raw ct.	AS	Spores/m ³	%	Raw ct.	AS	Spores/m ³	%	Raw ct.	AS	Spores/m ³	%
Alternaria												
Ascospores												
Aspergillus/Penicillium-like	1	13	13	17%	7	13	91	3%	2	13	26	4%
Basidiospores	2	13	26	33%	1	13	13	0%	2	13	26	4%
Bipolaris/Drechslera												
Cercospora												
Chaetomium												
Cladosporium	2	13	26	33%	1	13	13	0%	2	13	26	4%
Curvularia												
Epicoccum												
Helicomyces												
Nigrospora												
Oidium												
Pithomyces/Ulocladium									2	13	26	4%
Polythrincium												
Rusts												
Smuts/ Myxomycetes	1	13	13	17%					2	13	26	4%
Stachybotrys					231	13	3,003	96%	35	13	455	78%
Torula												
Unidentified dematiaceous conidia												
Unidentified hyaline conidia												
Total Mold (Spores/m³ of air)	6		78		240		3,120		45		585	
Pollen	0	13	< 13		0	13	< 13		0	13	< 13	
Hyphal Fragments					16	13	208		13	13	169	
Insect Fragments												
Plant Fragments												
Stachybotrys fruiting structures					7	13	91		3	13	39	
Skin Cell Fragments			1				1				1	
Debris			2				2				2	
Analyst Initials			HC				HC				HC	
Date Analyzed			01/05/18				01/05/18				01/05/18	

Entire trace analyzed. Results relate only to the samples tested. Results are reported as calculated. For biological data, the first and/or second digit should be considered significant. Total percentage may not equal 100% due to rounding. Percentages reported as 0% are greater than 0 and less than 0.5%. The *Aspergillus/Penicillium*-like category cannot be differentiated by non-viable sampling methods.
 AS=Analytical Sensitivity (spore/m³); Blank Lines = None Detected

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Airborne Spore Trap Analysis - Air-O-Cell
 Analytical Method: USMS-M008

Total Volume (L)	75				75							
Sample Number	MA-4				MA-5							
Location:	Library - Back Area				Reference Ground Floor Hallway near Elevator							
Particle ID	Raw ct.	AS	Spores/m ³	%	Raw ct.	AS	Spores/m ³	%	Raw ct.	AS	Spores/m ³	%
Alternaria												
Ascospores												
Aspergillus/Penicillium-like	33	13	429	75%	87	13	1,131	81%				
Basidiospores					1	13	13	1%				
Bipolaris/Drechslera												
Cercospora												
Chaetomium												
Cladosporium	7	13	91	16%	4	13	52	4%				
Curvularia												
Epicoccum	1	13	13	2%								
Helicomyces												
Nigrospora												
Oidium												
Pithomyces/Ulocladium												
Polythrincium												
Rusts												
Smuts/ Myxomycetes					4	13	52	4%				
Stachybotrys	3	13	39	7%	11	13	143	10%				
Torula												
Unidentified dematiaceous conidia												
Unidentified hyaline conidia												
Total Mold (Spores/m³ of air)	44		572		107		1,391					
Pollen	0	13	< 13		0	13	< 13					
Hyphal Fragments	1	13	13		1	13	13					
Insect Fragments												
Plant Fragments												
Penicillium fruiting structures					1	13	13					
Skin Cell Fragments			1				2					
Debris			3***				2					
Analyst Initials			HC				HC					
Date Analyzed			01/05/18				01/05/18					

Entire trace analyzed. Results relate only to the samples tested. Results are reported as calculated. For biological data, the first and/or second digit should be considered significant. Total percentage may not equal 100% due to rounding. Percentages reported as 0% are greater than 0 and less than 0.5%. The *Aspergillus/Penicillium*-like category cannot be differentiated by non-viable sampling methods.
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*** A debris rating of 3 or greater indicates that the accuracy of the analysis is likely affected.

Technical Manager: *Herbert Layman*
 Herbert Layman, BS, SM, CIEC

GUIDELINES FOR DIRECT MICROSCOPIC EXAMINATION – (DME) OF BULK, SWAB AND TAPE SAMPLES

These guidelines are not intended for determination of health significance nor are they necessarily representative of unacceptable indoor environments.

Molds require a food source, moisture, and spore production to proliferate, removing any one of these factors can control fungal growth. However, because of their ubiquitous nature, spores can never be completely eliminated from an area.

RELATIVE ABUNDANCE OF CONIDIA/HYPHAL FRAGMENTS per high power field (600x)		
RATING	¹ RELATIVE AMOUNTS OF OBSERVED FUNGAL STRUCTURES	SIGNIFICANCE
Rare	0-1	Indicates a minimal amount of conidia (spores) and/or other fungal structures. Most normal indoor surfaces will show no to low fungal conidia/hyphal fragments. Generally, water indicator moulds such as <i>Stachybotrys</i> or <i>Chaetomium</i> should be further investigated.
Few	2-4	Indicates low amounts of settled spores. Typically, this amount is not consistent with active fungal growth, however, it may suggest an active source nearby, or that a surface has not been cleaned appropriately. The presence of hyphal fragments or fruiting structures may indicate a nearby source of contamination. Generally, the presence of moisture indicator moulds (e.g., <i>Stachybotrys</i> or <i>Chaetomium</i>) may suggest a chronic or acute water condition from sources such as roofs, plumbing leaks, increased humidity, etc.
Moderate	5-10	Indicates a moderate to heavy amount of fungal contamination (conidia/spores). Generally, this category is indicative of a surface that is or has been affected by active fungal growth. The presence of fruiting structures or hyphal fragments may support the premise that fungal growth is on-going. However, the presence of moderate to numerous conidia/spores alone does not necessarily indicate the viability of the spores. Further investigation of the affected areas may be warranted.
Many	11-100	Indicates that the sample area was highly contaminated with fungal spores and/or hyphal fragments. Samples in this category display an unusually high number of conidia/spores or other fungal structures in each microscopic field.
Numerous	>100	Indicates that the sample area was highly contaminated with fungal spores and/or hyphal fragments. Samples in this category display an unusually high number of conidia/spores or other fungal structures in each microscopic field.

¹This scale of relative abundance is affected by the size of the sampled area. If very large areas are sampled with a swab for example, this may cause the results to be skewed into a lower or higher category. These results correspond, roughly, to a sample area measuring one square inch.

SKIN CELL ANALYSIS	
SKIN CELL RATING	RELATIVE AMOUNTS OF OBSERVED SKIN CELLS per high power field (600 X)
0	No skin cells present
1	<2
2	2 to 5
3	6 to 10
4	11 to 15
5	≥16

DEBRIS RATING (using 600X magnification)		
DEBRIS RATING	CONDITIONS FOR REPORTING DEBRIS RATING	SIGNIFICANCE
0	Debris is not present.	Sample may be a blank sample or from a very clean or remediated area.
1	Debris is present and <10% of the average viewing field is obscured.	Minimal amount of debris is observed.
2	Debris is present and 10% to <40% of the average viewing field is obscured.	Low amount of debris is observed, relative amounts of conidia/hyphal fragments may be affected.
3 ¹	Debris is present and 40% to 75% of the average viewing field is obscured.	Moderate amount of debris is observed, relative amounts of conidia/hyphal fragments may be underestimated.
4 ¹	Debris is present and >75% of the average viewing field is obscured.	High amount of debris is observed, relative amounts of conidia/hyphal fragments are estimated.
5 ^{1,2}	Debris is present and the entire viewing field is obscured.	Presence of conidia/hyphal fragments noted. Suggest recollect.

¹A debris rating of 3 or greater indicates that the accuracy of the analysis is likely affected.

²A debris rating of 5 indicates that only the presence of conidia/hyphal fragments was noted. Recollection of the sample is suggested.

SPORE TRAP INTERPRETATION TIPS

Currently there are no numeric standards for airborne or surface microbial contamination indoors. Suggested guidelines are constantly being reviewed and edited as more information surrounding microbial IAQ issues surface.

Some common denominators should be considered when interpreting results:

1. Comparison of indoor/outdoor concentration ratios.

a. Generally indoor fungal counts should be lower than outdoor counts and the types of fungi found indoors should be similar to outdoors. During inclement weather, remember to note time, temperature, and season.

b. However, indoor levels may be higher than corresponding outdoor levels (winter time in the northern U.S.) with a predominance of ***Aspergillus/Penicillium*** or ***Cladosporium*** conidia with no significant amplification of any moulds.

c. There is always a potential bias from infiltration of outdoor air, poor housekeeping, excessive indoor relative humidity, or potential contamination sources (e.g. water intrusion through a basement wall) that may negatively influence post-remedial verification or clearance levels.

2. Complaint vs. non-complaint areas or affected vs. non-affected areas.

3. Consider air exchange rates and activity levels in a building structure, weather, and season of the year.

4. Rank order assessment and concentration (e.g. Spores/m³ of air) of the fungi.

a. If the total indoor spore count is >2000 spore/m³ of air, an indoor air quality issue may be present.

b. Spore counts >100 spores/m³ of indoor air of ***Stachybotrys*** or ***Chaetomium*** for post-remedial verification is generally not acceptable.

5. The investigator should look for various patterns among the types of moulds detected indoors:

a. Are there water indicator microorganisms present such, as but not limited to, ***Chaetomium***, ***Stachybotrys***, ***Rhodotorula***, ***Trichoderma***, and ***Scopulariopsis***?

b. ***Aspergillus/Penicillium*** and/or ***Cladosporium*** are usually primary (1st) colonizers in damp or moisture intrusion areas of homes or commercial buildings.

c. ***Chaetomium*** or ***Stachybotrys*** are tertiary (3rd) colonizers of indoor materials and are usually associated with chronic long standing water/moisture issues in a building.

d. The presence of ***hyphal fragments*** or ***fruiting structures*** usually indicate amplification (growth) of fungi on building substrates.

e. ***Ascospores*** and ***basidiospores*** most often represent the entrance of inadequately filtered outdoor air. Most indoor materials will not support the growth of these fungi.

6. When unidentified ***hyaline*** (clear) or ***dematiaceous*** (dark-pigmented) conidia are noted on a spore trap sample, it indicates that no particular fungus can be identified.

SPORE TRAP RESULT INTERPRETATION

DEBRIS RATING (using 600X magnification) (Air-O-Cell, Micro 5, Allergenco D, Cyclex d, VersaTrap, etc.)

DEBRIS RATING	CONDITIONS FOR REPORTING DEBRIS RATING	SIGNIFICANCE
0	A visible trace, including particulates and debris, is not observed.	Indicates the sample was a blank or that improper sampling occurred.
1	Debris is present and <10% of the average viewing field is obscured.	Minimal amount of debris is observed.
2	Debris is present and 10% to <40% of the average viewing field is obscured.	Low amount of debris is observed, counts may be affected.
3 ¹	Debris is present and 40% to 75% of the average viewing field is obscured.	Moderate amount of debris is observed, relative amounts of conidia/hyphal fragments may be underestimated.
4 ¹	Debris is present and >75% of the average viewing field is obscured.	High amount of debris is observed, counts are estimated.
5 ^{1,2}	Debris is present and the entire viewing field is obscured.	Periphery of trace is the area analyzed. Presence of conidia/hyphal fragments noted. Suggest recollect.
6 ¹	Unable to analyze due to heavy debris	Unable to analyze due to heavy debris. Suggest recollect.

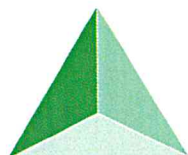
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SKIN CELL ANALYSIS

SKIN CELL RATING	RELATIVE AMOUNTS OF OBSERVED SKIN CELLS per high power field (600X)
0	No skin cells present
1	No skin cells present
2	2 to 5
3	6 to 10
4	11 to 15
5	≥16

End of Report



U.S. Micro-Solutions, Inc.
 1075 S Main Street, Suite 104
 Greensburg, PA 15601
 PHONE: 724-853-4047 FAX: 724-853-4049
supplies@usmslab.com



LABORATORY TEST REQUEST - CHAIN OF CUSTODY

CUSTOMER NAME: MID ATLANTIC ENVIRONMENTAL CONSULTANTS, INC.		PHONE #: 724-444-3460	FAX #: 724-444-3463	
ADDRESS: 5320 NORTH PIONEER ROAD		CITY: GIBSONIA	STATE: PA	ZIP: 15044
ATTENTION TO: JOSEPH PILLART		E-MAIL: MIDATLANTIC@ZOOMINTERNET.NET		
SAMPLE OBTAINED BY:		RESULTS: <input type="checkbox"/> FAX <input checked="" type="checkbox"/> EMAIL	PO#: mcom-18-01	PROPOSAL #
PROJECT NAME/NUMBER: BLACKHAWK INTERMEDIATE SCHOOL - 635 SHENANGO ROAD - BEAVER FALLS, PA				
TURN-AROUND-TIME: (SPORE TRAP & DME ONLY)*				
STANDARD (48-72 hr) <input type="checkbox"/>		NEXT DAY (24 hr, M-F) <input type="checkbox"/>	SAME DAY (6 hr, M-F) <input checked="" type="checkbox"/>	3-HOUR (M-F) <input type="checkbox"/>
				SATURDAY <input type="checkbox"/>
COMMENTS:			NOTABLE WEATHER CONDITIONS:	

SAMPLE NUMBER	SAMPLE DATE/TIME	SAMPLE CODE	ANALYSIS CODE	SAMPLE LOCATION AND DESCRIPTION	SAMPLE VOLUME/AREA
MA-1	4 / JAN / 18	ST	M2	CLASSROOM A 302	75L
MA-2	4 / JAN / 18	ST	M2	CLASSROOM A 202	75L
MA-3	4 / JAN / 18	ST	M2	Reference A211 Storage Room	75L
MA-4	4 / JAN / 18	ST	M2	Library - BACK AREA	75L
MA-5	4 / JAN / 18	ST	M2	Reference Ground Floor HALLWAY NEAR ELEVATOR.	75L
BULK-1	4 / JAN / 18	B	M1	EXTERIOR WALL ROOM A202	N/A

RELINQUISHED BY - CUSTOMER (MUST SIGN)	DATE AND TIME	
<i>[Signature]</i>	4 / JAN / 18 1330	
RECEIVED BY - LAB USE ONLY	DATE AND TIME	Laboratory Number
<i>[Signature]</i>	11/4/18 2:50	1062-17

Rev 9/21/2016

SAMPLE CODE	
A	Air Plate
B	Bulk
ST	Spore Trap
S	Swab
W	Water
T	Tape
O	Other

ANALYSIS CODE			
M1	Direct Microscopic Exam (DME)	COL	Colilert - Coliform Bacteria
M2	Spore Trap Count <input type="checkbox"/> Allergenco-D <input checked="" type="checkbox"/> Air-O-Cell <input type="checkbox"/> Micro-5 <input type="checkbox"/> Cycllex-d	HCU	3T Heater Cooler Unit Culture
M3	Fungal Culture w/ Genus ID	HPC	Heterotrophic Plate Count
B1	Bacterial Culture w/ Gram Stain ID	MYC	Mycobacteria Culture
B2	Bacterial Culture w/ Gram-positive Genus & Gram-Negative Species ID	MRSA	MRSA (<i>Staphylococcus aureus</i>)
B3	Sewage Screen	MISC	Other:

*All samples received after 1:00 p.m. Monday - Friday will be considered received the NEXT business day.
 Same Day and Next Day samples received on Saturday will be reported on Monday and Tuesday, respectively.