EXPANDED FUNGAL REPORT ™

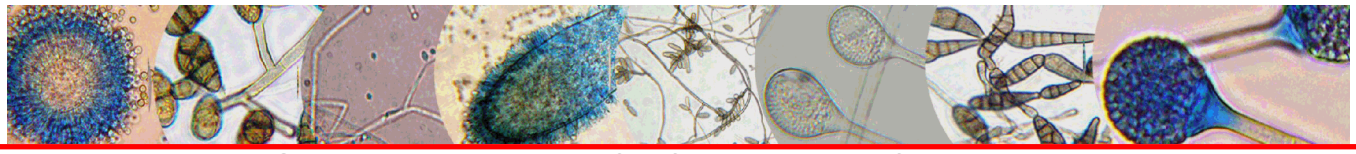
Prepared Exclusively For

Holland CSD

103 Canada St.
Holland, NY 14080
Phone:716-537-8261

Report Date:	**9/20/2018**
Project:	**Holland Middle School**
EMSL Order:	**141805069**

ACCREDITED
Environmental Testing Cert #2845.24



EMSL Analytical, Inc.
490 Rowley Road Depew, NY 14043
Phone: (716) 651-0030 Fax: (716) 651-0394 Web: http://www.EMSL.com Email:buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

1. Description of Analysis

Analytical Laboratory

EMSL Analytical, Inc. (EMSL) is a nationwide, full service, analytical testing laboratory network providing Asbestos, Mold, Indoor Air Quality, Microbiological, Environmental, Chemical, Forensic, Materials, Industrial Hygiene and Mechanical Testing services since 1981. Ranked as the premier independently owned environmental testing laboratory in the nation, EMSL puts analytical quality as its top priority. This quality is recognized by many well-respected federal, state and private accrediting agencies, such as AIHA-LAP, LLC's EMLAP and proficiency testing providers such as AIHA, LLC's EMPAT programs, and assured by our high quality personnel, including many Ph.D. microbiologists and mycologists.

EMSL is an independent laboratory that performed the analysis of these samples. EMSL did not conduct the sampling or site investigation for this report. The samples referenced herein were analyzed under strict quality control procedures using state-of-the-art microbiological methods. The analytical methods used and the data presented are scientifically and legally defensible.

The laboratory data is provided in compliance with AIHA-LAP, LLC policy modules and ISO-IEC 17025 guidelines for the particular test(s) requested, including any associated limitations for the methods employed. These data are intended for use by professionals having knowledge of the testing methods necessary to interpret them accurately.

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Air Samples - Spore traps:

Spore traps are commercially available sampling devices that capture airborne particles on an adhesive slide. Air is pulled through the device using a vacuum pump. Spores, as well as other airborne particles, are impacted on the collection adhesive. Using spore trap collection methods has inherent limitations. These collection methods are biased towards larger spore sizes.

The analysis for total spore counts is a direct microscopic examination and does not include culturing or growing the fungi. Therefore, the results include both viable and non-viable spores. Some fungal groups produce similar spore types that cannot be distinguished by direct microscopic examination alone (i.e., *Aspergillus/Penicillium*, and others). Other spore types may lack distinguishing features that aid in their identification. These types are grouped into larger categories such as Ascospores or Basidiospores.

Fungal spores are identified and grouped by morphological characteristics including color, shape, septation, ornamentation, and fruiting structures (if present) which are compared to published mycological identification keys and texts. EMSL reports provide spore counts per cubic meter of air to three significant figures. Please note that each spore category is reported to three significant figures. Due to rounding and the application of three significant figures the sum of the individual spore numbers may not equal the total spore count on the report. EMSL does not maintain responsibility for final volume concentrations (counts/m3) since this volume is provided by the field collector and can not be verified by EMSL.

EMSL analyzes spore traps using phase contrast microscopy. There is a wide choice of collection devices (Air-O-Cell, Micro-5, Burkhard, etc.) on the market. Differences in analytical method may exist between spore trap devices.

Spore trap results are reported in spores per cubic meter of air. Due to the other airborne particles collected with the spores, EMSL reports a background particle density. Background density is an indication of overall particulate matter present on the sample (i.e. dust in the air). High background concentrations may obscure spores such as the *Penicillium/Aspergillus* group. The rating system is from 1-5 with 1 = 1 - 25% of the background obscured by material, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76% - 99%, 5 = 100% or overloaded. A background rating of 4 or higher should be regarded as a minimum count since the actual concentrations may be higher than those reported. EMSL will not be held responsible for overloading of samples. Sample volumes are left to the discretion of the company or persons conducting the fieldwork.

Skin fragment density is the percentage of skin cells making up the total background material, 1 = 1 - 25%, 2 = 26 - 50%, 3 = 51 - 75%, 4 = 76-100%. Skin fragment density is considered an indication of the general cleanliness in the area sampled. It has been estimated that up to 90% of household dust consists of dead skin cells.

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2. Analytical Results

See attached data reports and charts.

EMSL Analytical, Inc.

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EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number
141805069-0001

Client Sample ID
2613-0587

Location
MS rm 106 E2B

Sample Volume (L)
150

Sample Type
Inside

Comments

Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
Alternaria (Ulocladium)	None Detected	20	Less than Background
Ascospores	680	9790	Less than Background
Aspergillus/Penicillium	None Detected	100	Less than Background
Basidiospores	200	3710	Less than Background
Bipolaris++	None Detected	None Detected	Equal To Background
Chaetomium	None Detected	None Detected	Equal To Background
Cladosporium	200	1400	Less than Background
Curvularia	None Detected	None Detected	Equal To Background
Epicoccum	7*	7*	Equal To Background
Fusarium	None Detected	None Detected	Equal To Background
Ganoderma	20	950	Less than Background
Myxomycetes++	80	440	Less than Background
Pithomyces++	None Detected	7*	Less than Background
Rust	None Detected	None Detected	Equal To Background
Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
Stachybotrys/Memnoniella	None Detected	None Detected	Equal To Background
Unidentifiable Spores	None Detected	None Detected	Equal To Background
Zygomycetes	None Detected	None Detected	Equal To Background
Botrytis	None Detected	None Detected	Equal To Background
Polythrincium	None Detected	40	Less than Background
Spegazzinia	None Detected	None Detected	Equal To Background
Zygophiala/Schizothyrium	None Detected	20	Less than Background
Total Fungi	**1187**	**16484**	**Less than Background**
Other			
Hyphal Fragment	None Detected	None Detected	Equal To Background
Insect Fragment	None Detected	None Detected	Equal To Background
Pollen	None Detected	7*	Less than Background

Analytical Sensitivity 600x:	21	counts/cubic meter
Analytical Sensitivity 300x *:	7*	counts/cubic meter
Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	2	1 to 4 (low to high); 5 (overloaded)

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Christopher Goulah, Microbiology Manager
or Other Approved Signatory

Samples received in good condition unless otherwise noted. High levels of background particulate can obscure spores and other particulates, leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client.

Samples analyzed by EMSL Analytical, Inc. Depew, NY A2LA Accredited Environmental Testing Cert #2845.24

Initial report from: 09/20/2018 14:46:56

EMSL Analytical, Inc.

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EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number
141805069-0002

Client Sample ID
2613-0590

Location
MS rm 121 music

Sample Volume (L)
150

Sample Type
Inside

Comments

Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
Alternaria (Ulocladium)	None Detected	20	Less than Background
Ascospores	7740	9790	Less than Background
Aspergillus/Penicillium	570	100	470
Basidiospores	2810	3710	Less than Background
Bipolaris++	None Detected	None Detected	Equal To Background
Chaetomium	None Detected	None Detected	Equal To Background
Cladosporium	1100	1400	Less than Background
Curvularia	None Detected	None Detected	Equal To Background
Epicoccum	None Detected	7*	Less than Background
Fusarium	None Detected	None Detected	Equal To Background
Ganoderma	440	950	Less than Background
Myxomycetes++	40	440	Less than Background
Pithomyces++	None Detected	7*	Less than Background
Rust	None Detected	None Detected	Equal To Background
Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
Stachybotrys/Memnoniella	None Detected	None Detected	Equal To Background
Unidentifiable Spores	None Detected	None Detected	Equal To Background
Zygomycetes	None Detected	None Detected	Equal To Background
Botrytis	None Detected	None Detected	Equal To Background
Polythrincium	40	40	Equal To Background
Spegazzinia	20	None Detected	20
Zygophiala/Schizothyrium	None Detected	20	Less than Background
Total Fungi	**12760**	**16484**	**Less than Background**
Other			
Hyphal Fragment	None Detected	None Detected	Equal To Background
Insect Fragment	None Detected	None Detected	Equal To Background
Pollen	None Detected	7*	Less than Background

Analytical Sensitivity 600x:	21	counts/cubic meter
Analytical Sensitivity 300x *:	7*	counts/cubic meter
Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	2	1 to 4 (low to high); 5 (overloaded)

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Christopher Goulah, Microbiology Manager
or Other Approved Signatory

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Holland, NY 14080

EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number
141805069-0003

Client Sample ID
2613-0593

Location
MS aud

Sample Volume (L)
150

Sample Type
Inside

Comments

Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
Alternaria (Ulocladium)	None Detected	20	Less than Background
Ascospores	200	9790	Less than Background
Aspergillus/Penicillium	10200	100	10100
Basidiospores	100	3710	Less than Background
Bipolaris++	None Detected	None Detected	Equal To Background
Chaetomium	None Detected	None Detected	Equal To Background
Cladosporium	200	1400	Less than Background
Curvularia	None Detected	None Detected	Equal To Background
Epicoccum	20	7*	13
Fusarium	None Detected	None Detected	Equal To Background
Ganoderma	60	950	Less than Background
Myxomycetes++	None Detected	440	Less than Background
Pithomyces++	None Detected	7*	Less than Background
Rust	None Detected	None Detected	Equal To Background
Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
Stachybotrys/Memnoniella	None Detected	None Detected	Equal To Background
Unidentifiable Spores	None Detected	None Detected	Equal To Background
Zygomycetes	None Detected	None Detected	Equal To Background
Botrytis	20	None Detected	20
Polythrincium	None Detected	40	Less than Background
Spegazzinia	None Detected	None Detected	Equal To Background
Zygophiala/Schizothyrium	None Detected	20	Less than Background
Total Fungi	**10800**	**16484**	**Less than Background**
Other			
Hyphal Fragment	None Detected	None Detected	Equal To Background
Insect Fragment	None Detected	None Detected	Equal To Background
Pollen	None Detected	7*	Less than Background

Analytical Sensitivity 600x:	21	counts/cubic meter
Analytical Sensitivity 300x *:	7*	counts/cubic meter
Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	3	1 to 4 (low to high); 5 (overloaded)

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Christopher Goulah, Microbiology Manager
or Other Approved Signatory

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EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number
141805069-0004

Client Sample ID
2613-0598

Location
MS rm 221

Sample Volume (L)
150

Sample Type
Inside

Comments

Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
Alternaria (Ulocladium)	None Detected	20	Less than Background
Ascospores	1600	9790	Less than Background
Aspergillus/Penicillium	100	100	Equal To Background
Basidiospores	440	3710	Less than Background
Bipolaris++	None Detected	None Detected	Equal To Background
Chaetomium	None Detected	None Detected	Equal To Background
Cladosporium	610	1400	Less than Background
Curvularia	None Detected	None Detected	Equal To Background
Epicoccum	None Detected	7*	Less than Background
Fusarium	None Detected	None Detected	Equal To Background
Ganoderma	60	950	Less than Background
Myxomycetes++	40	440	Less than Background
Pithomyces++	None Detected	7*	Less than Background
Rust	None Detected	None Detected	Equal To Background
Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
Stachybotrys/Memnoniella	None Detected	None Detected	Equal To Background
Unidentifiable Spores	None Detected	None Detected	Equal To Background
Zygomycetes	None Detected	None Detected	Equal To Background
Botrytis	None Detected	None Detected	Equal To Background
Polythrincium	None Detected	40	Less than Background
Spegazzinia	None Detected	None Detected	Equal To Background
Zygophiala/Schizothyrium	None Detected	20	Less than Background
Total Fungi	**2850**	**16484**	**Less than Background**
Other			
Hyphal Fragment	None Detected	None Detected	Equal To Background
Insect Fragment	None Detected	None Detected	Equal To Background
Pollen	7*	7*	Equal To Background

Analytical Sensitivity 600x:	21	counts/cubic meter
Analytical Sensitivity 300x *:	7*	counts/cubic meter
Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	3	1 to 4 (low to high); 5 (overloaded)

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

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EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number
141805069-0005

Client Sample ID
2613-0602

Location
exterior playing fields

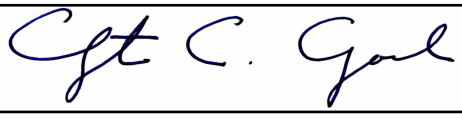
Sample Volume (L)
150

Sample Type
Background

Comments

Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
Alternaria (Ulocladium)	20	N/A	N/A
Ascospores	9790	N/A	N/A
Aspergillus/Penicillium	100	N/A	N/A
Basidiospores	3710	N/A	N/A
Bipolaris++	None Detected	N/A	N/A
Chaetomium	None Detected	N/A	N/A
Cladosporium	1400	N/A	N/A
Curvularia	None Detected	N/A	N/A
Epicoccum	7*	N/A	N/A
Fusarium	None Detected	N/A	N/A
Ganoderma	950	N/A	N/A
Myxomycetes++	440	N/A	N/A
Pithomyces++	7*	N/A	N/A
Rust	None Detected	N/A	N/A
Scopulariopsis/Microascus	None Detected	N/A	N/A
Stachybotrys/Memnoniella	None Detected	N/A	N/A
Unidentifiable Spores	None Detected	N/A	N/A
Zygomycetes	None Detected	N/A	N/A
Botrytis	None Detected	N/A	N/A
Polythrincium	40	N/A	N/A
Spegazzinia	None Detected	N/A	N/A
Zygophiala/Schizothyrium	20	N/A	N/A
Total Fungi	**16484**	**N/A**	**N/A**
Other			
Hyphal Fragment	None Detected	N/A	N/A
Insect Fragment	None Detected	N/A	N/A
Pollen	7*	N/A	N/A

Analytical Sensitivity 600x:	21	counts/cubic meter
Analytical Sensitivity 300x *:	7*	counts/cubic meter
Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	2	1 to 4 (low to high); 5 (overloaded)



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EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number
141805069-0006

Client Sample ID
2613-0606

Location
blank

Sample Volume (L)

Sample Type
Blank

Comments

Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
Alternaria (Ulocladium)	None Detected	None Detected	N/A
Ascospores	None Detected	None Detected	N/A
Aspergillus/Penicillium	None Detected	None Detected	N/A
Basidiospores	None Detected	None Detected	N/A
Bipolaris++	None Detected	None Detected	N/A
Chaetomium	None Detected	None Detected	N/A
Cladosporium	None Detected	None Detected	N/A
Curvularia	None Detected	None Detected	N/A
Epicoccum	None Detected	None Detected	N/A
Fusarium	None Detected	None Detected	N/A
Ganoderma	None Detected	None Detected	N/A
Myxomycetes++	None Detected	None Detected	N/A
Pithomyces++	None Detected	None Detected	N/A
Rust	None Detected	None Detected	N/A
Scopulariopsis/Microascus	None Detected	None Detected	N/A
Stachybotrys/Memnoniella	None Detected	None Detected	N/A
Unidentifiable Spores	None Detected	None Detected	N/A
Zygomycetes	None Detected	None Detected	N/A
Botrytis	None Detected	None Detected	N/A
Polythrincium	None Detected	None Detected	N/A
Spegazzinia	None Detected	None Detected	N/A
Zygophiala/Schizothyrium	None Detected	None Detected	N/A
Total Fungi	**None Detected**	**None Detected**	**N/A**
Other			
Hyphal Fragment	None Detected	None Detected	N/A
Insect Fragment	None Detected	None Detected	N/A
Pollen	None Detected	None Detected	N/A

Analytical Sensitivity 600x:	0	counts/cubic meter
Analytical Sensitivity 300x *:	0*	counts/cubic meter
Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	1	1 to 4 (low to high); 5 (overloaded)

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

Christopher Goulah, Microbiology Manager
or Other Approved Signatory

Samples received in good condition unless otherwise noted. High levels of background particulate can obscure spores and other particulates, leading to underestimation. Background levels of 5 indicate an overloading of background particulates, prohibiting accurate detection and quantification. Present = Spores detected on overloaded samples. Results are not blank corrected unless otherwise noted. The detection limit is equal to one fungal spore, structure, pollen, fiber particle or insect fragment. "*" Denotes particles found at 300X. "-" Denotes not detected. Due to method stopping rules, raw counts in excess of 100 are extrapolated based on the percentage analyzed. EMSL maintains liability limited to cost of analysis. This report relates only to the samples reported above and may not be reproduced, except in full, without written approval by EMSL. EMSL bears no responsibility for sample collection activities or analytical method limitations. Interpretation and use of test results are the responsibility of the client.

Samples analyzed by EMSL Analytical, Inc. Depew, NY A2LA Accredited Environmental Testing Cert #2845.24

Initial report from: 09/20/2018 14:46:56

EMSL Analytical, Inc.

490 Rowley Road Depew, NY 14043
Phone: (716) 651-0030 Fax: (716) 651-0394 Web: http://www.EMSL.com Email:buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805069
Customer ID: HCSD25
Collected: 9/19/2018
Received: 9/19/2018
Analyzed: 9/20/2018

Proj: Holland Middle School

Test Report: Air-O-Cell(™) Analysis of Fungal Spores & Particulates by Optical Microscopy (Methods MICRO-SOP-201, ASTM D7391)

Lab Sample Number
141805069-0007

Client Sample ID
2613-0612

Location
MS library

Sample Volume (L)
150

Sample Type
Inside

Comments

Particle Identification	Sample Concentration (counts/m³)	Background Concentration (counts/m³)	Background Corrected (counts/m³)
Alternaria (Ulocladium)	20	20	Equal To Background
Ascospores	320	9790	Less than Background
Aspergillus/Penicillium	None Detected	100	Less than Background
Basidiospores	80	3710	Less than Background
Bipolaris++	None Detected	None Detected	Equal To Background
Chaetomium	None Detected	None Detected	Equal To Background
Cladosporium	420	1400	Less than Background
Curvularia	None Detected	None Detected	Equal To Background
Epicoccum	7*	7*	Equal To Background
Fusarium	None Detected	None Detected	Equal To Background
Ganoderma	20	950	Less than Background
Myxomycetes++	None Detected	440	Less than Background
Pithomyces++	None Detected	7*	Less than Background
Rust	None Detected	None Detected	Equal To Background
Scopulariopsis/Microascus	None Detected	None Detected	Equal To Background
Stachybotrys/Memnoniella	None Detected	None Detected	Equal To Background
Unidentifiable Spores	None Detected	None Detected	Equal To Background
Zygomycetes	None Detected	None Detected	Equal To Background
Botrytis	None Detected	None Detected	Equal To Background
Polythrincium	None Detected	40	Less than Background
Spegazzinia	None Detected	None Detected	Equal To Background
Zygophiala/Schizothyrium	None Detected	20	Less than Background
Total Fungi	**867**	**16484**	**Less than Background**
Other			
Hyphal Fragment	None Detected	None Detected	Equal To Background
Insect Fragment	None Detected	None Detected	Equal To Background
Pollen	None Detected	7*	Less than Background

Analytical Sensitivity 600x:	21	counts/cubic meter
Analytical Sensitivity 300x *:	7*	counts/cubic meter
Skin Fragments:	1	1 to 4 (low to high)
Fibrous Particulate:	1	1 to 4 (low to high)
Background:	1	1 to 4 (low to high); 5 (overloaded)

++ Includes other spores with similar morphology; see EMSL's fungal glossary for each specific category.

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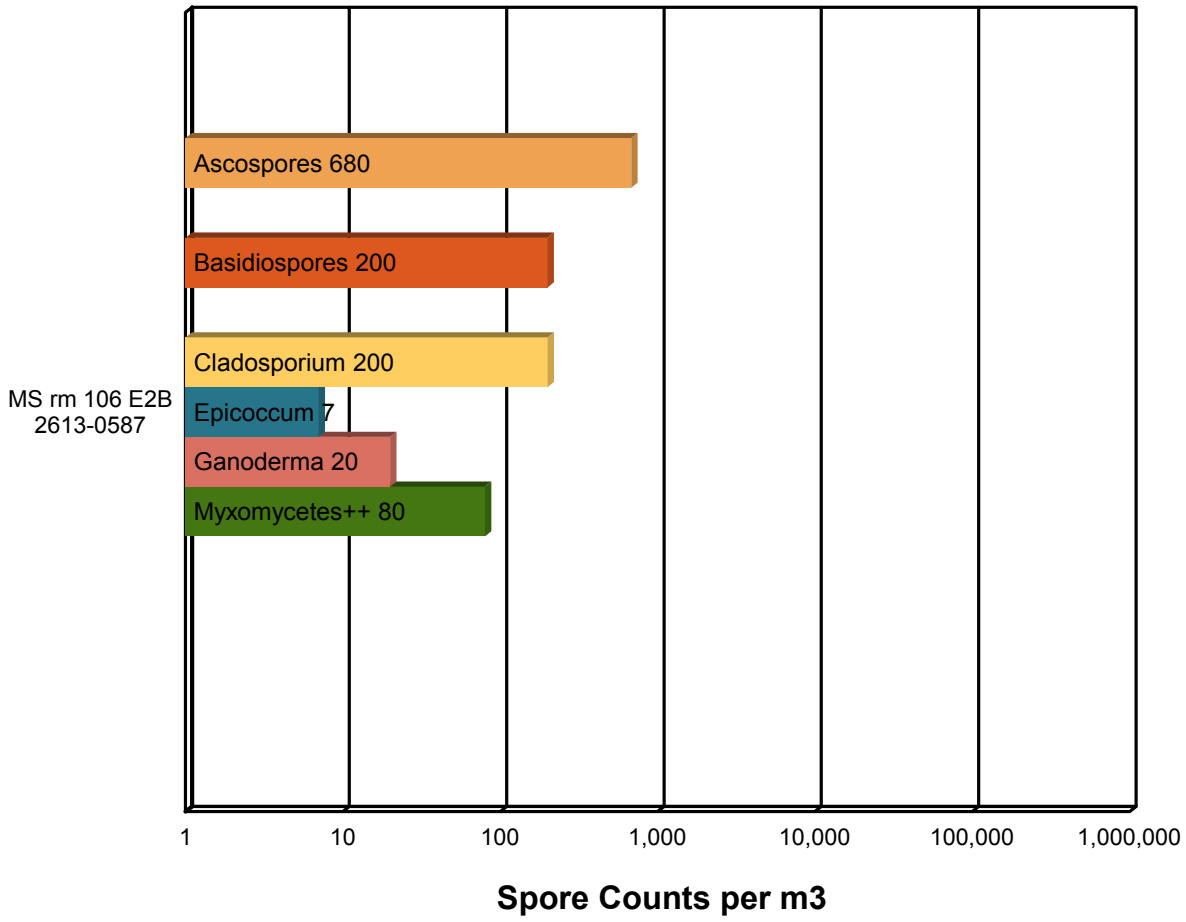
Spore Trap Report: Total Counts



Alternaria (Ulocladium)
Ascospores
Aspergillus/Penicillium
Basidiospores
Botrytis
Cladosporium
Epicoccum
Ganoderma
Myxomycetes++
Pithomyces++
Polythrincium
Spegazzinia
Zygophiala/Schizothyrium

* The chart is displayed using a logarithmic scale. Bar size is not directly proportional to the number of spores.

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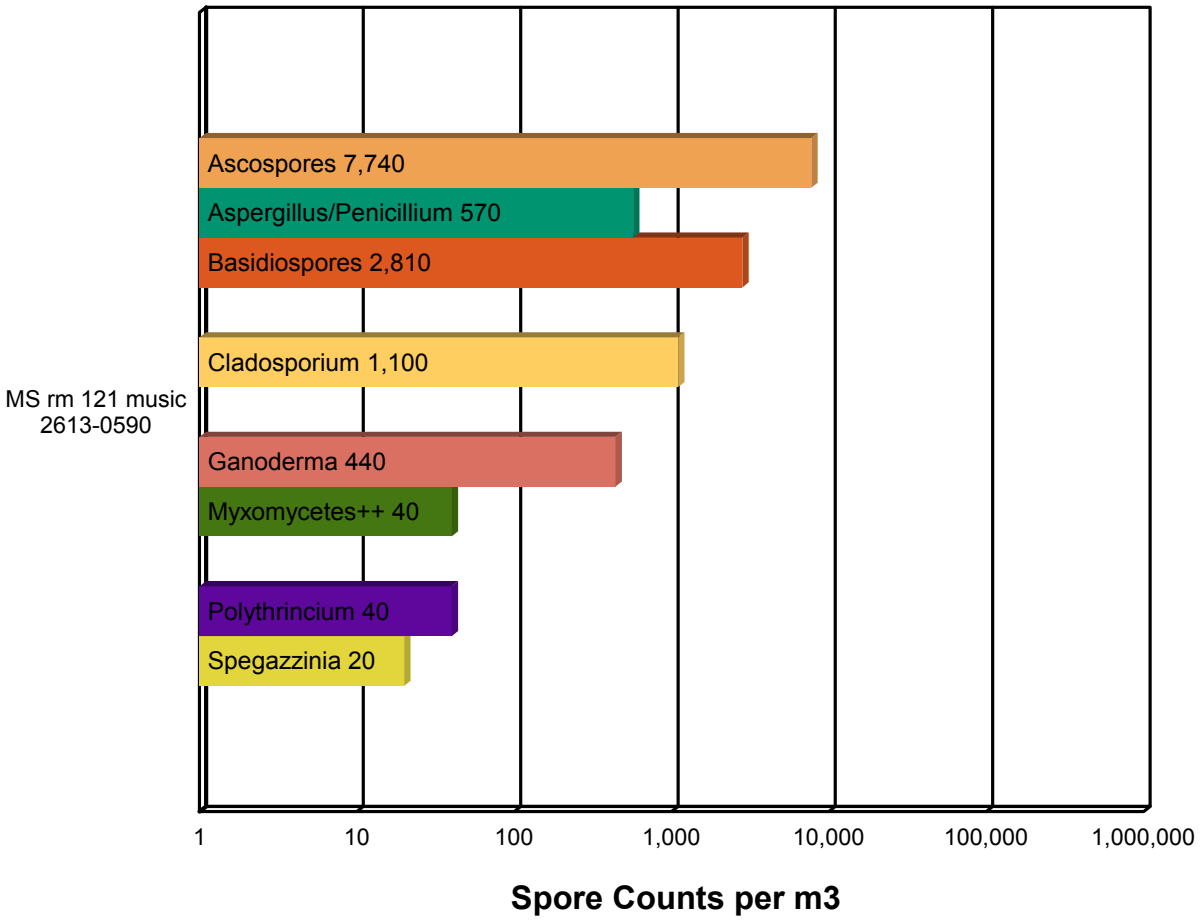

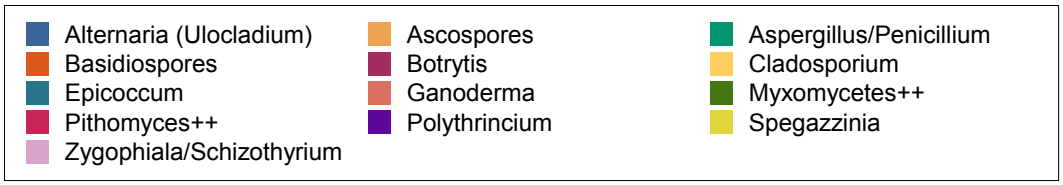

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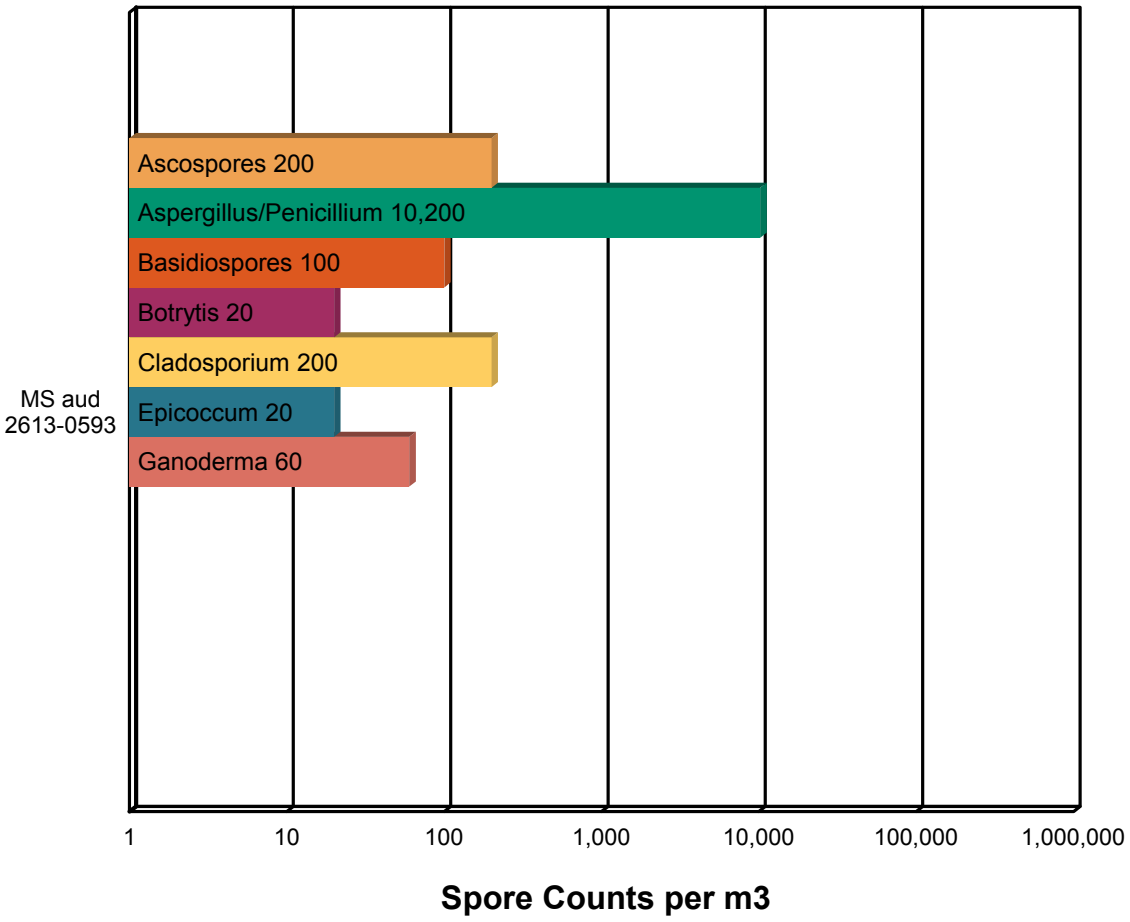

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Basidiospores
Botrytis
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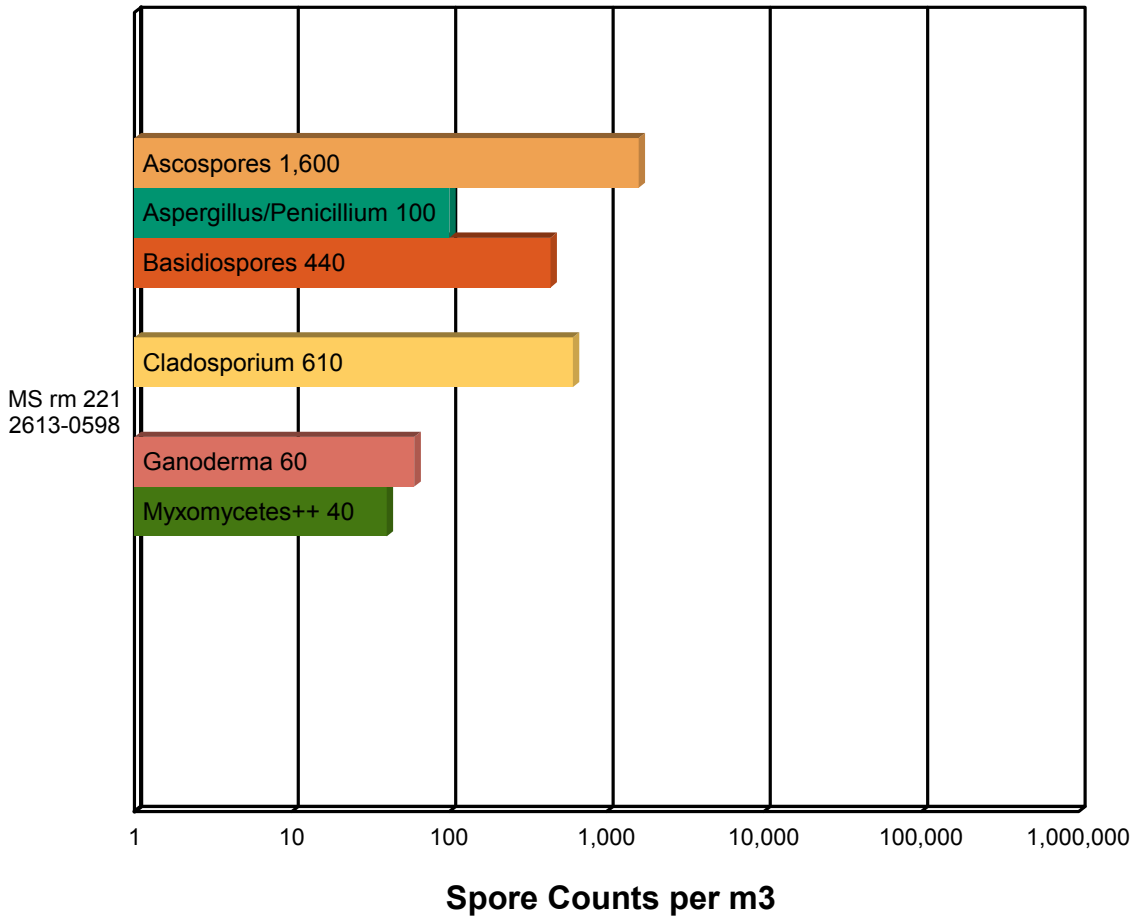

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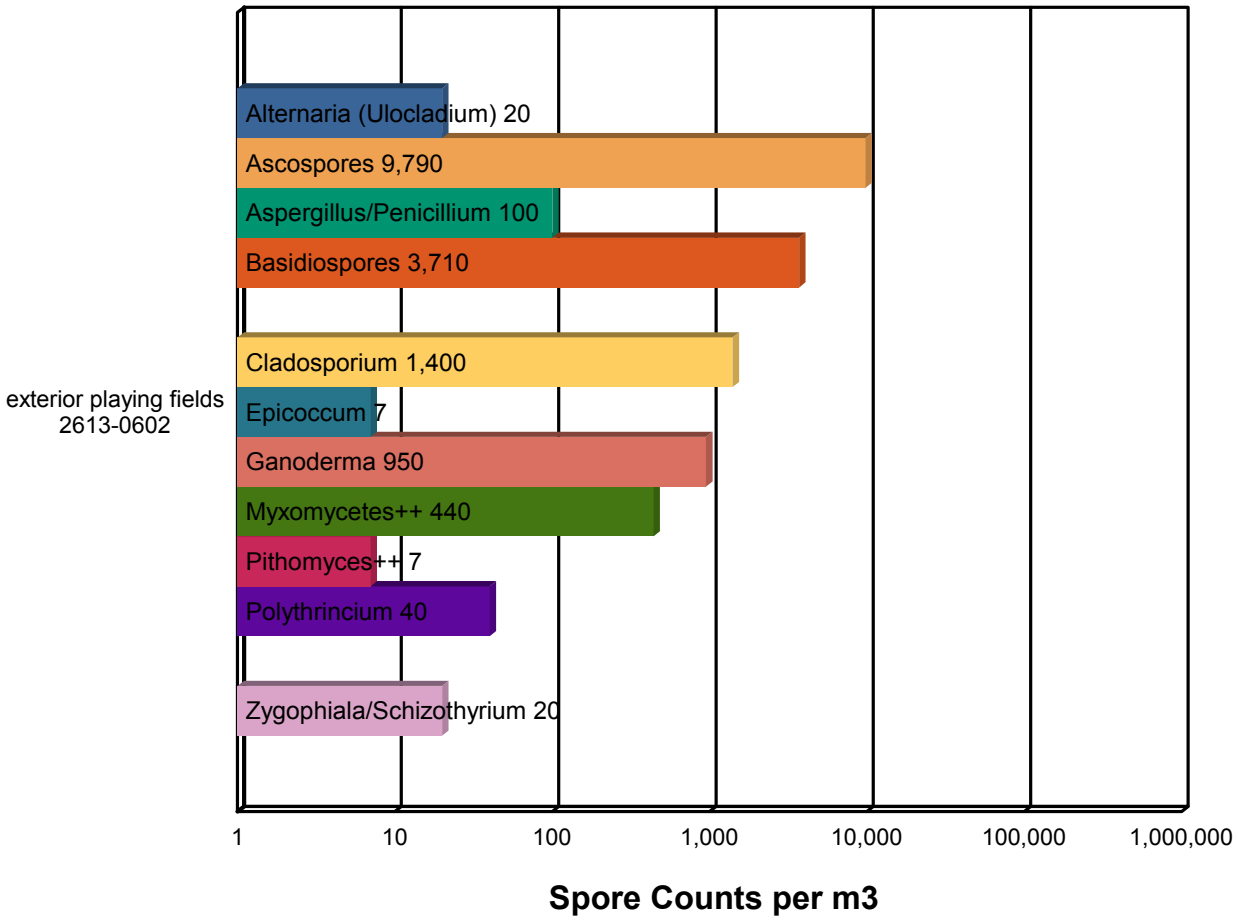

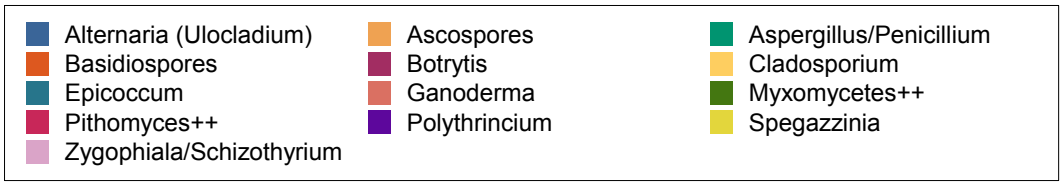

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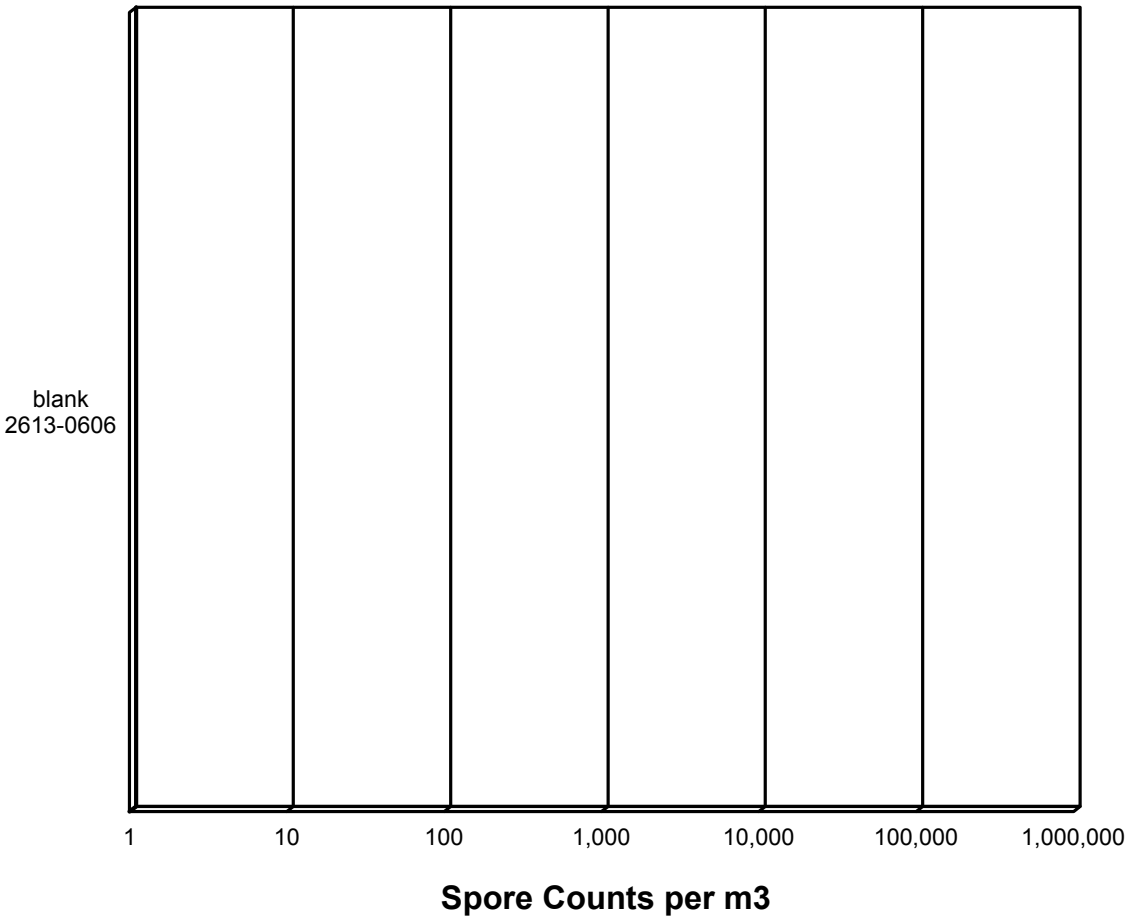

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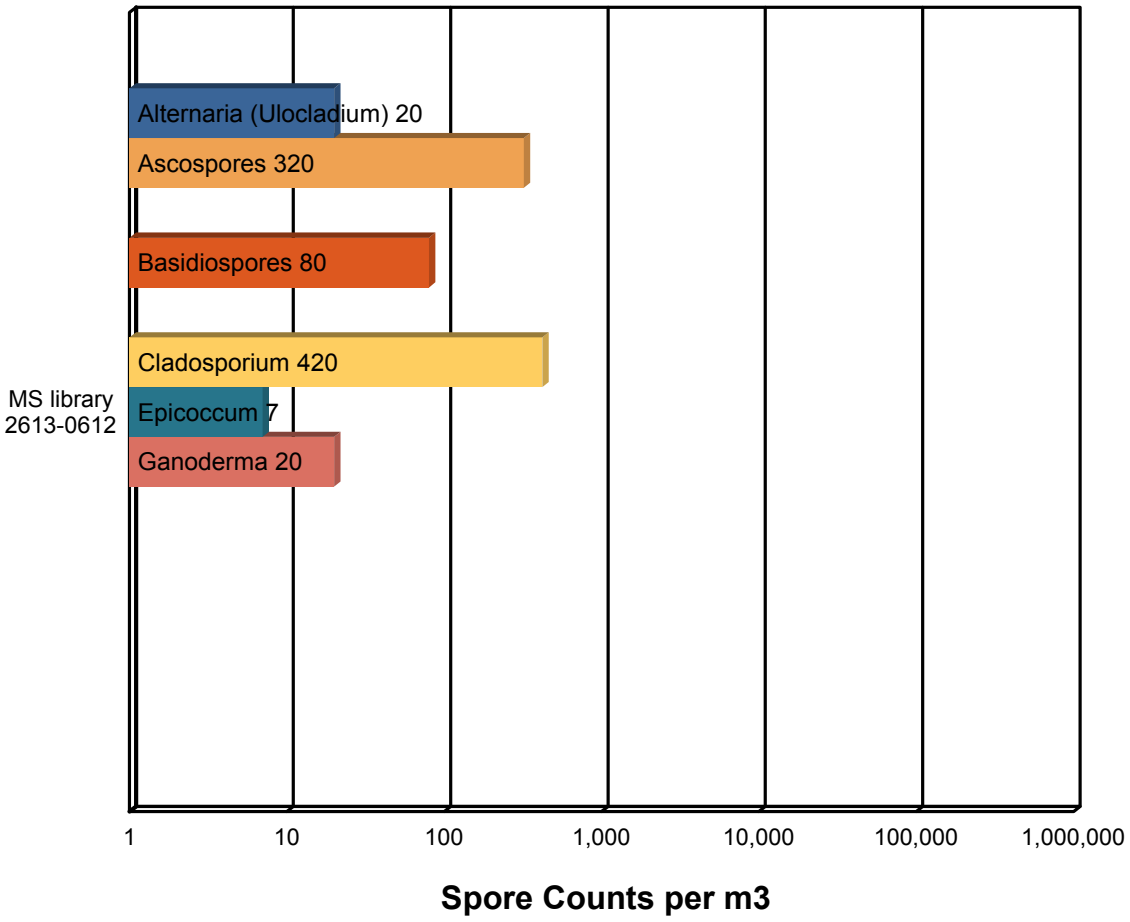

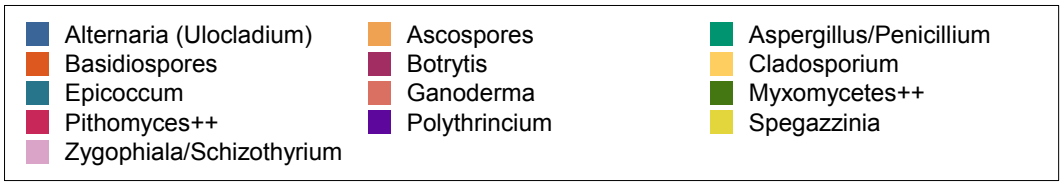

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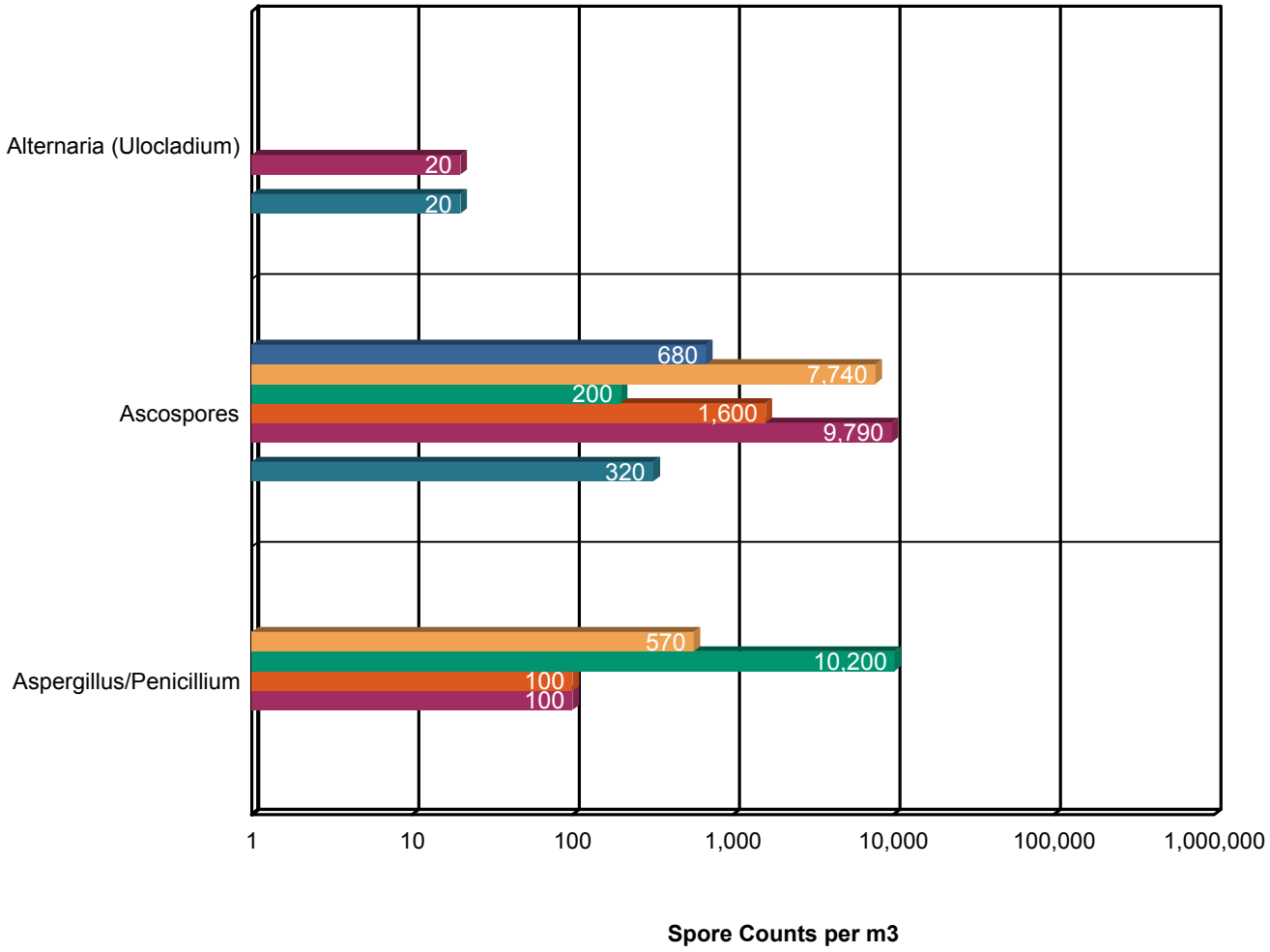
Background Comparison Chart



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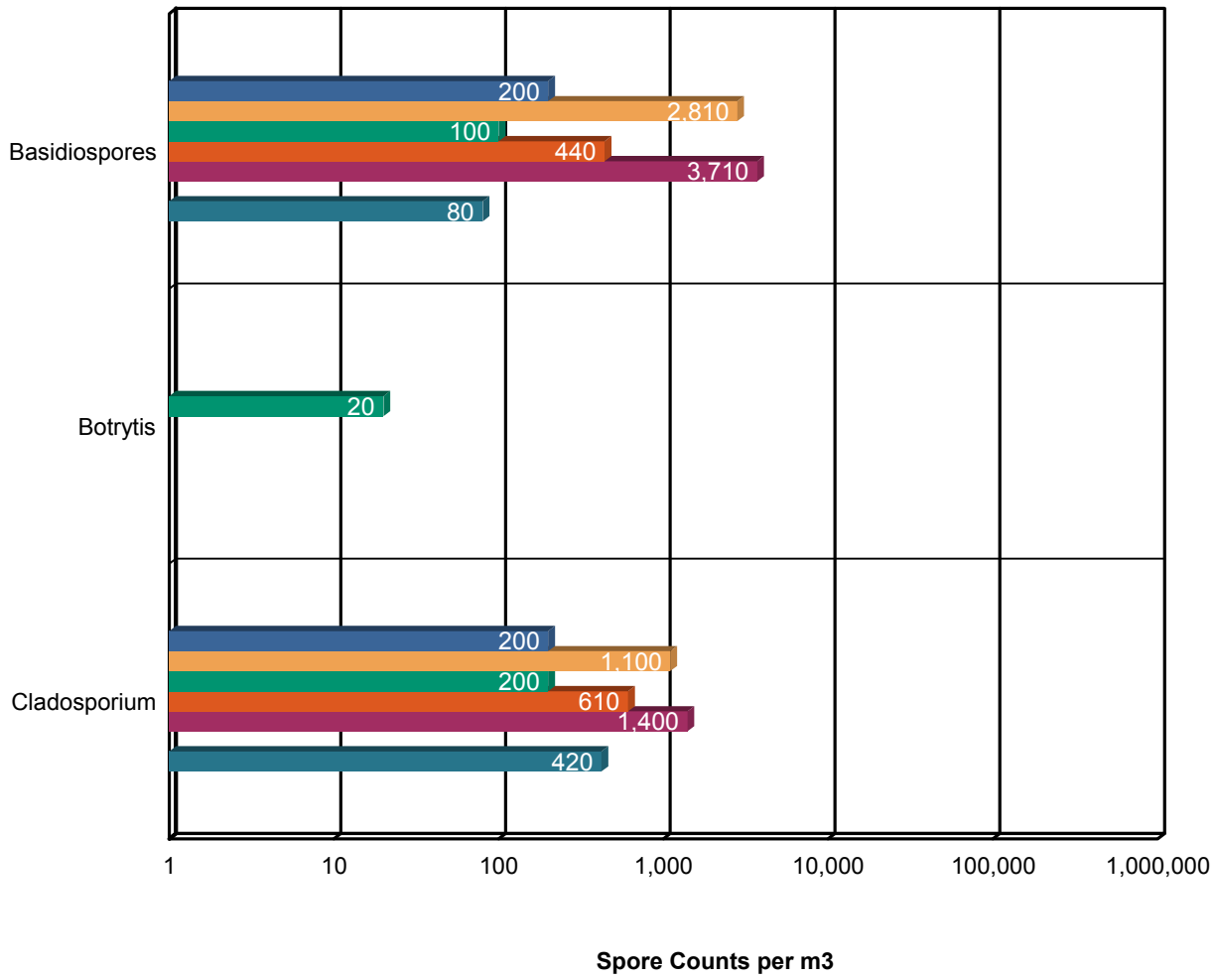

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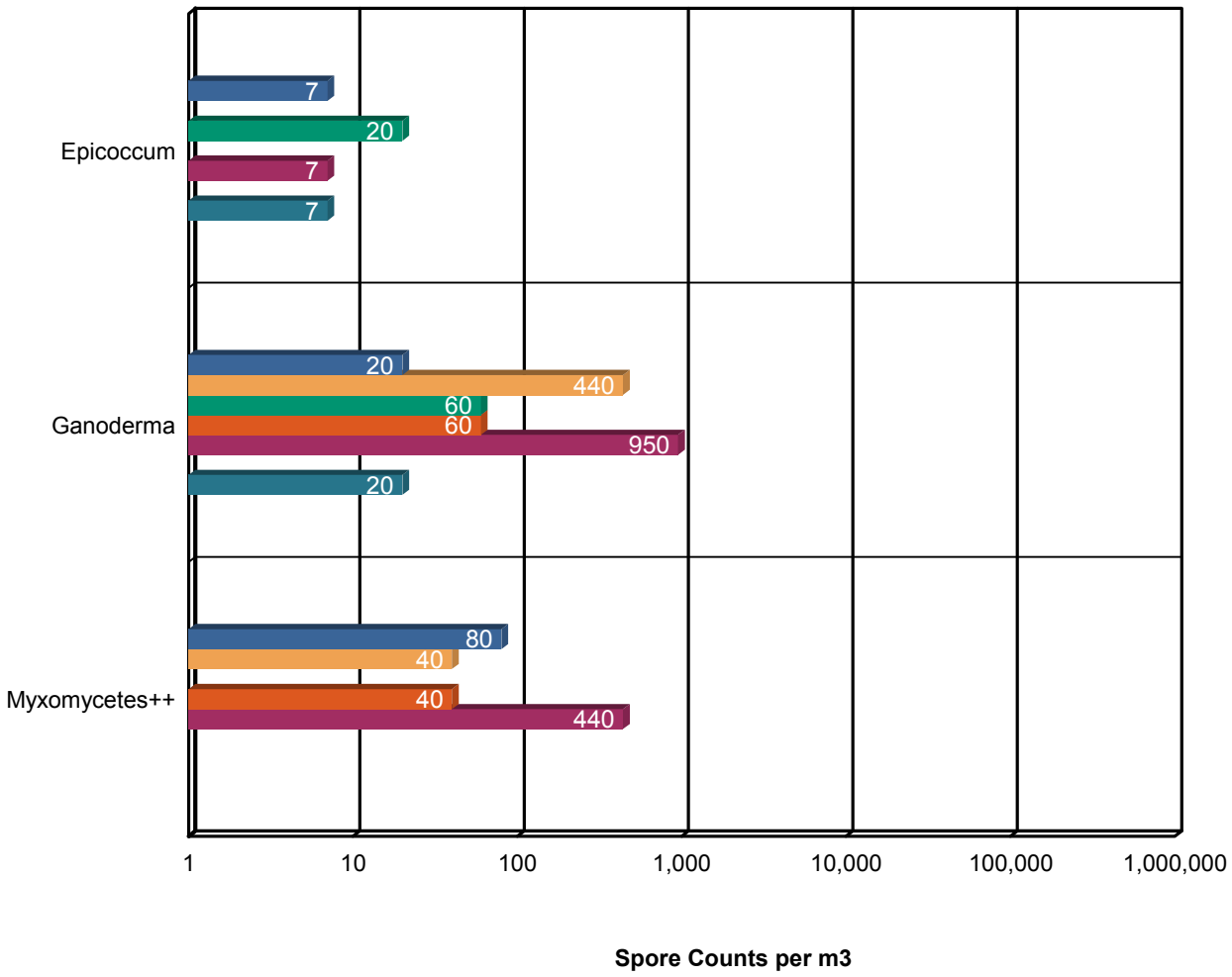

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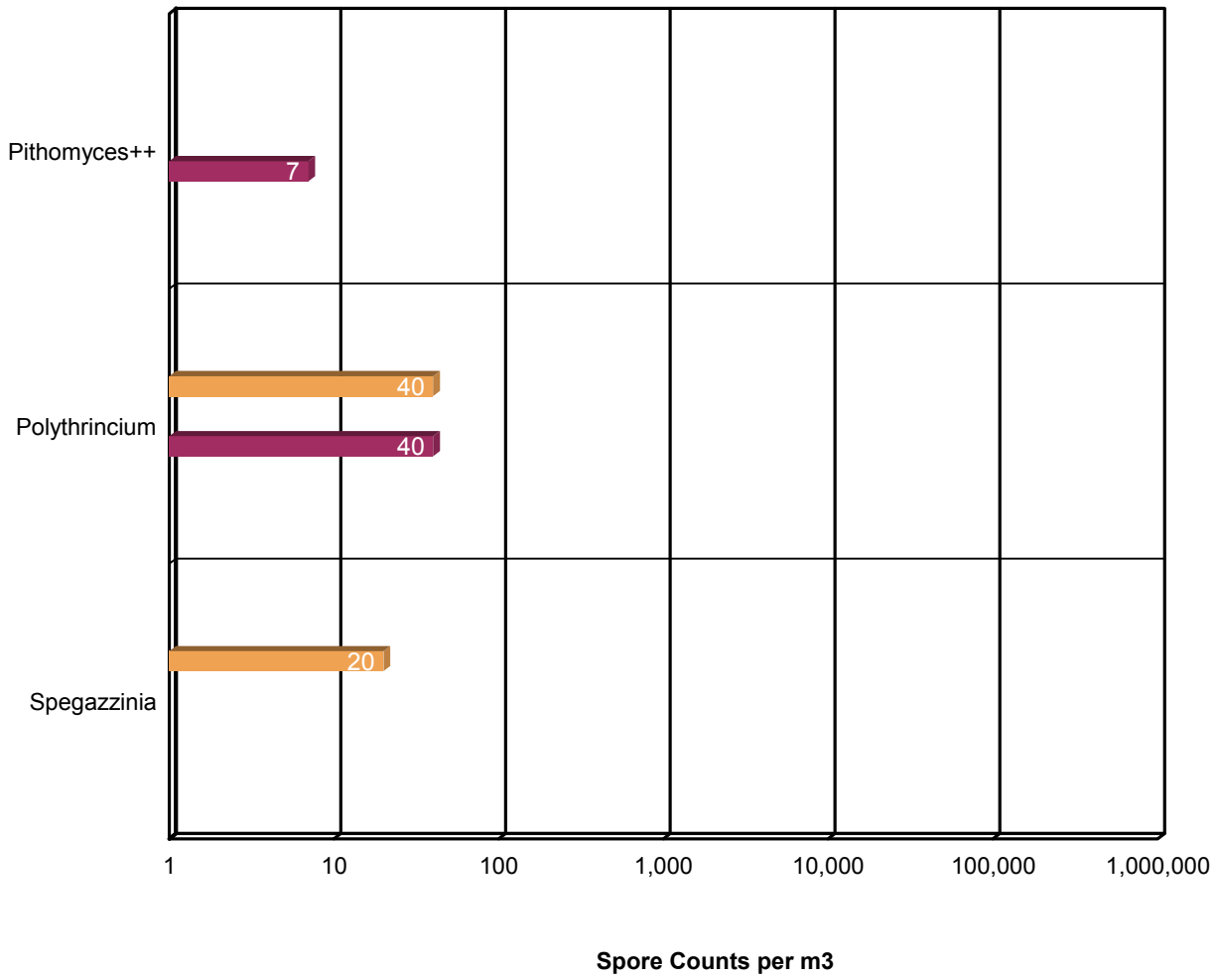

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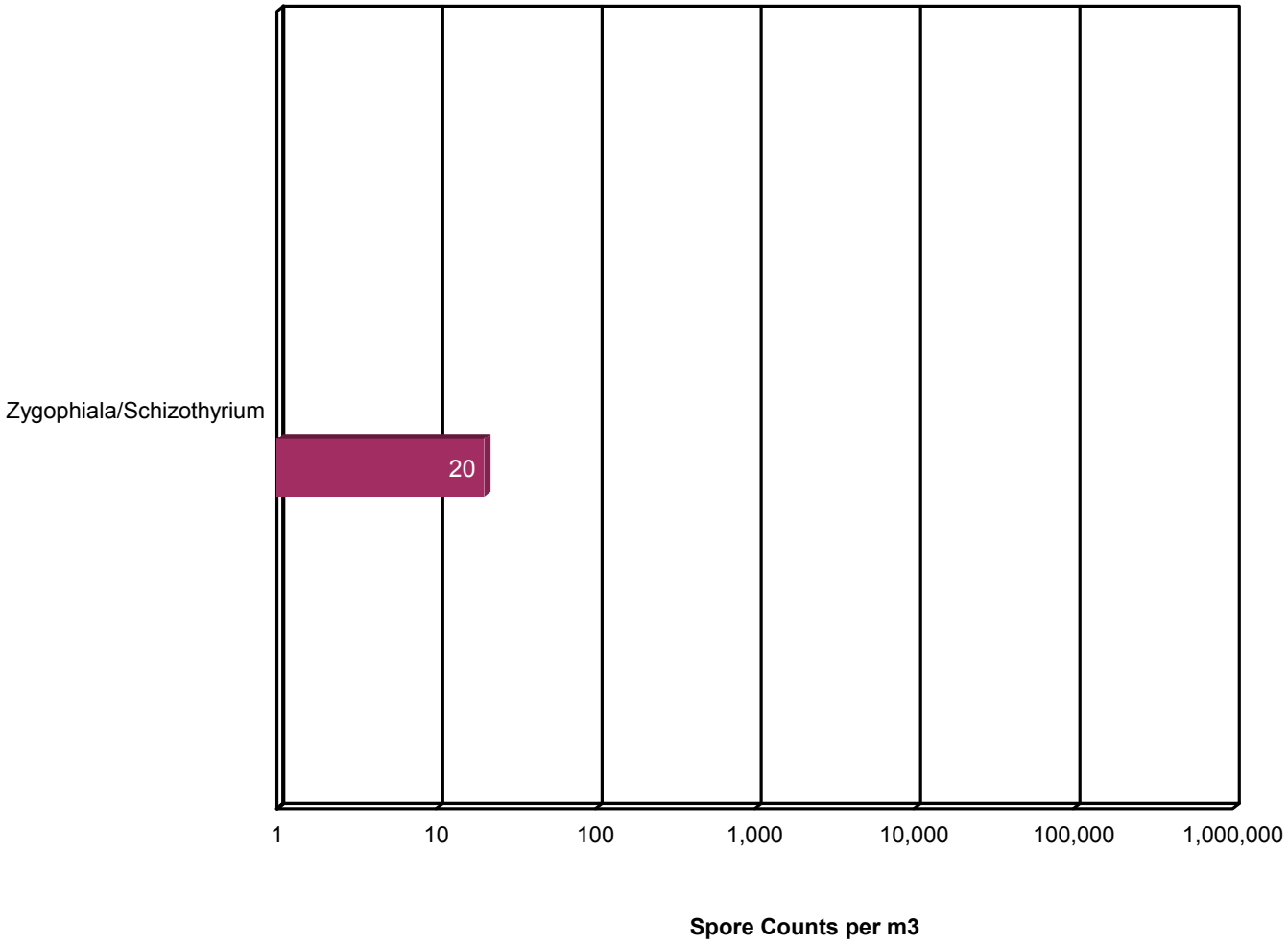

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3. Understanding the Results

EMSL Analytical, Inc. is an independent laboratory, providing unbiased and scientifically valid results. These data represent only a portion of an overall IAQ investigation. Visual information and environmental conditions measured during the site assessment (humidity, moisture readings, etc.) are crucial to any final interpretation of the results. Many factors impact the final results; therefore, result interpretation should only be conducted by qualified individuals. The American Conference of Governmental Industrial Hygienists (ACGIH) has published a good reference book covering sampling and data interpretation. It is entitled, Bioaerosols: Assessment and Control, 1999.

Fungal spores are found everywhere. Whether or not symptoms develop in people exposed to fungi depends on the nature of the fungal material (e.g., allergenic, toxic, or infectious), the exposure level, and the susceptibility of exposed persons. Susceptibility varies with the genetic predisposition (e.g., allergic reactions do not always occur in all individuals), age, pre-existing medical conditions (e.g., diabetes, cancer, or chronic lung conditions), use of immunosuppressive drugs, and concurrent exposures. These reasons make it difficult to identify dose/response relationships that are required to establish “safe” or “unsafe” levels (i.e., permissible exposure limits).

It is generally accepted in the industry that indoor fungal growth is undesirable and inappropriate, necessitating removal or other appropriate remedial actions. The New York City guidelines and EPA guidelines for mold remediation in schools and commercial buildings define the conditions warranting mold remediation. Always remember that water is the key. Preventing water damage or water condensation will prevent mold growth.

This report is not intended to provide medical advice or advice concerning the relative safety of an occupied space. Always consult an occupational or environmental health physician who has experience addressing indoor air contaminants if you have any questions.

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4. Glossary of Fungi

ALTERNARIA(ULOCLADIUM)	
Allergic Potential	Type I allergies (hay fever, asthma), Type III (hypersensitivity pneumonitis)
Industrial Uses	Biocontrol of weed plants ·Biocontrol fungal plant pathogens.
Mode of Dissemination	Wind
Natural Habitat	Common saprobe and pathogen of plants. Typically found on plant tissue, decaying wood, and foods. Soil . Air outdoors.
Other Comments	Many species of Ulocladium have been renamed as Alternaria. Alternaria spores are one of the most common and potent indoor and outdoor airborne allergens. Additionally, Alternaria sensitization has been determined to be one of the most important factors in the onset of childhood asthma. Synergy with Cladosporium or Ulocladium may increase the severity of symptoms
Potential or Opportunistic Pathogens	Phaeohyphomycosis {causing cystic granulomas in the skin and subcutaneous tissue}. In immunocompetent patients, Alternaria colonizes the paranasal sinuses, leading to chronic hypertrophic sinusitis
Potential Toxins Produced	Alternariol (AOH) . Alternariol monomethylether (AME). Tenuazonic acid (TeA). Altenuene (ALT). Altertoxins (ATX)
References	Alternaria redefined. J. Woudenberg et al., Studies in Mycology. Volume 75, June 2013, Pages 171-212
Suitable Substrates in the Indoor Environment	Indoors near condensation (window frames, showers), House dust (in carpets, and air). Also colonizes building supplies, computer disks, cosmetics, leather, optical instruments, paper, sewage, stone monuments, textiles, wood pulp, and jet fuel
Water Activity	Aw =0.85-0.88 (water damage indicator)

ASCOSPORES	
Allergic Potential	Depends on genus and species.
Industrial Uses	
Mode of Dissemination	Forcible ejection or passive release and dissemination by wind or insects.
Natural Habitat	Everywhere in nature.
Other Comments	Ascospores are the result of sexual reproduction and produced in a saclike structure called an ascus. All ascospores belong to members of the Phylum Ascomycota, which encompasses a plethora of genera worldwide.
Potential or Opportunistic Pathogens	Depends on genus and species.
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	
Water Activity	

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ASPERGILLUS/PENICILLIUM	
Allergic Potential	Type I (hay fever, asthma) ·Type III (hypersensitivity)
Industrial Uses	Many depending on the species
Mode of Dissemination	Wind ·Insects
Natural Habitat	Plant debris ·Seed ·Cereal crops
Other Comments	Spores of Aspergillus and Penicillium (including others such as Acremonium, Talaromyces, and Paecilomyces) are small and spherical with few distinguishing characteristics. They cannot be differentiated or speciated by non-viable impaction sampling methods. Some species with very small spores may be undercounted in samples with high background debris.
Potential or Opportunistic Pathogens	Possible depending on the species.
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	Grows on a wide range of substrates indoors ·Prevalent in water damaged buildings ·Foods (blue mold on cereals, fruits, vegetables, dried foods) ·House dust ·Fabrics ·Leather ·Wallpaper ·Wallpaper glue
Water Activity	Aw=0.75-0.94

BASIDIOSPORES	
Allergic Potential	Type I allergies (hay fever, asthma) . Type III (hypersensitivity pneumonitis)
Industrial Uses	Edible mushrooms are used in the food industry.
Mode of Dissemination	Forcible ejection. Wind currents.
Natural Habitat	Forest floors. Lawns .Plants (saprobes or pathogens depending on genus)
Other Comments	Basidiospores are the result of sexual reproduction and formed on a structure called the basidium. Basidiospores belong to the members of the Phylum Basidiomycota, which includes mushrooms, shelf fungi, rusts, and smuts.
Potential or Opportunistic Pathogens	Depends on genus.
Potential Toxins Produced	Amanitins. monomethyl-hydrazine. muscarine. ibotenic acid. psilocybin.
Suitable Substrates in the Indoor Environment	Depends on genus. Wood products
Water Activity	Unknown.

BOTRYTIS	
Allergic Potential	Type 1 (Hayfever and asthma); Type 2 (hypersensitivity pneumonitis)
Mode of Dissemination	Wind, rain
Natural Habitat	Plant pathogen responsible for causing gray mold (B. cinerea) on raspberries, blackberries, lettuce, cabbage.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Houseplants, fruits, vegetables
Water Activity	Aw 0.93-0.95

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CLADOSPORIUM	
Allergic Potential	Type I (asthma and hay fever).
Industrial Uses	Produces 10 antigens.
Mode of Dissemination	Air
Natural Habitat	Dead plant matter. Straw. Soil. Woody plants
Potential or Opportunistic Pathogens	Edema. keratitis. onychomycosis. pulmonary infections. Sinusitis.
Potential Toxins Produced	Cladosporin and Emodin.
Suitable Substrates in the Indoor Environment	Fiberglass duct liner. Paint. Textiles. Found in high concentration in water-damaged building materials.
Water Activity	Aw 0.84-0.88

EPICOCCUM	
Allergic Potential	Hay fever, asthma
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Paper, textiles
Water Activity	0.86-0.90

GANODERMA	
Allergic Potential	Ganoderma species are known to cause allergies in people on a worldwide scale.
Industrial Uses	Biopulping of wood for the paper industry. Potential medicinal use due to: 1. Inhibition of Ras dependent cell transformation, 2. Antifibrotic activity, 3. Immunomodulating activity, 4. Free-radicle scavenging
Mode of Dissemination	Wind.
Natural Habitat	Grows on conifers and hardwoods worldwide, causing white rot, root rot, and stem rot.
Other Comments	Used in traditional Chinese medicine as an herbal supplement. It is also known as a "shelf fungus" because the fruiting body forms a stalk-less shelf on the sides of trees and logs. It is sometimes called “artists conk” because when you scratch the white pores of the fruiting body, the white rubs away and exposes the brown hyphae underneath. Thus, pictures can be produced on the fruiting body.
Potential or Opportunistic Pathogens	Unknown.
Potential Toxins Produced	
Reference	References: Craig, R.L., Levetin, E. 2000. Multi-year study of Ganoderma aerobiology. Aerobiologia 16: 75-81. http://www.pfc.forestry.ca/diseases/CTD/Group/Heart/heart6_e.html
Suitable Substrates in the Indoor Environment	Unknown.
Water Activity	

EMSL Analytical, Inc.
490 Rowley Road Depew, NY 14043
Phone: (716) 651-0030 Fax: (716) 651-0394 Web: http://www.EMSL.com Email:buffalolab@emsl.com

Attn: Cathy Fabiatos
Holland CSD
103 Canada St.
Holland, NY 14080

EMSL Order: 141805069
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Analyzed: 9/20/2018

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MYXOMYCETES++	
Allergic Potential	Type I
Free moisture required for mold growth	Unknown
Industrial Uses	
Mode of Dissemination	Insects, Water, Wind
Natural Habitat	Decaying logs, Dead leaves , Dung , Lawns , Mulched flower beds, Lawns
Other Comments	Includes Myxomycetes, Smut, and Periconia.
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	Rotting lumber

PITHOMYCES	
Allergic Potential	Unknown
Mode of Dissemination	Wind
Natural Habitat	A worldwide saprophytic fungi, being isolated from dead plant material and soil.
Other Comments	Pithomyces++ includes spores of Pithomyces and Pseudopithomyces.
Potential or Opportunistic Pathogens	Mycosis in immunocompromised patients
Suitable Substrates in the Indoor Environment	Paper
Water Activity	Requires high moisture for spore germination

POLYTHRINCIUM	
Allergic Potential	Allergenic potential in this genus is not well understood, and is currently being studied.
Natural Habitat	Leaves
Potential Opportunist or Pathogen	Unknown
Potential Toxins Produced	
Suitable Substrates in the Indoor Environment	

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SPEGAZZINIA	
Allergic Potential	Unknown
Mode of Dissemination	
Natural Habitat	Plants, Soils
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	
Water Activity	

ZYGOPHIALA/SCHIZOTHYRIUM	
Allergic Potential	Unknown
Mode of Dissemination	Wind, Rain
Natural Habitat	Plants, on leaves, twings and fruits of numerous trees and shrubs (one sp. causes flyspeck disease in Apple).
Potential or Opportunistic Pathogens	Unknown
Suitable Substrates in the Indoor Environment	
Water Activity	

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5. References and Informational Links

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Books

- Bioaerosols: Assessment and Control. Janet Macher, Ed., American Conference of Governmental Industrial Hygienists, Cincinnati, OH 1999.
- Exposure Guidelines for Residential Indoor Air Quality. Environmental Health Directorate, Health Protection Branch, Health Canada, Ottawa, Ontario, 1989.
- Fungal Contamination in Public Buildings: Health Effects and Investigation Methods. Health Canada, Ottawa, Ontario, 2004.
- IICRC: S500 Standard and Reference Guide for Professional Water Damage Restoration. 3rd Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2006

  IICRC: S520 Standard and Reference Guide for Professional Mold Remediation. 1st Edition, Institute of Inspection, Cleaning, and Restoration Certification, Vancouver, WA, 2004
- Field Guide for the Determination of Biological Contaminants in Environmental Samples. 2nd Edition, American Industrial Hygiene Association, 2005.

Consumer Links

Read the full text of AIHA's "The Facts About Mold" consumer brochure.
<http://www.aiha.org/get-involved/VolunteerGroups/Documents/BiosafetyVG-FactsAbout%20MoldDecember2011.pdf>

The Occupational Safety and Health Administration (OSHA)
http://www.osha.gov/SLTC/molds/index.html

CDC Mold Facts
http://www.cdc.gov/mold/faqs.htm

CDC Stachybotrys - Questions and answers on Stachybotrys chartarum and other molds
http://www.cdc.gov/mold/stachy.htm

IOM, NAS: Clearing the Air: Asthma and Indoor Air Exposures
http://www.iom.edu/Reports/2000/Clearing-the-Air-Asthma-and-Indoor-Air-Exposures.aspx

National Library of Medicine-Mold website
http://www.nlm.nih.gov/medlineplus/molds.html

California Department of Health Services (CADOHS)

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http://www.cal-iaq.org/separator/mold-and-dampness/about-mold

Minnesota Department of Health
http://www.health.state.mn.us/divs/eh/indoorair/mold/index.html

New York City Department of Health and Mental Hygiene
<http://conyers.house.gov/index.cfm/issues?p=toxic-mold>

H.R.: The United States Toxic Mold Safety and Protection Act
<http://conyers.house.gov/index.cfm/issues?p=toxic-mold>

EPA

"Should You Have the Air Ducts in Your Home Cleaned?"
<http://www.epa.gov/iaq/pubs/airduct.html>

General information about molds and actions that can be taken to clean up or prevent a mold problem.
<http://www.epa.gov/asthma/molds.html>

“A Brief Guide to Mold, Moisture, and Your Home” - Includes basic information on mold, cleanup guidelines, and moisture and mold prevention
http://www.epa.gov/mold/moldguide.html

“Mold Remediation in Schools and Commercial Buildings” - Information on remediation in schools and commercial property, references for potential mold and moisture remediators.
http://www.epa.gov/mold/mold_remediation.html

FEMA

“Homes That Were Flooded May Harbor Mold Problems” - Information and tips for cleaning mold.
http://www.fema.gov/news-release/homes-were-flooded-may-harbor-mold-problems

“Dealing With Mold & Mildew in Your Flood Damaged Home.
http://www.fema.gov/pdf/rebuild/recover/fema_mold_brochure_english.pdf

“Prompt Flood Cleanup Can Help Prevent Health Problems” - How to clean up in-house mold problems (not large or serious exposures).
http://www.fema.gov/news-release/prompt-flood-cleanup-can-help-prevent-health-problems

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6. Important Terms, Conditions, and Limitations

A. Sample Retention

Samples analyzed by EMSL will be retained for 60 days after analysis date Storage beyond this period is available for a fee with written request prior to the initial 30 day period. Samples containing hazardous/toxic substances which require special handling will be returned to the client immediately. EMSLreserves the right to charge a sample disposal fee or return samples to the client.

B. Change Orders and Cancellation

All changes in the scope of work or turnaround time requested by the client after sample acceptance must be made in writing and confirmed in writing by EMSL. If requested changes result in a change in cost the client must accept payment responsibility. In the event work is cancelled by a client, EMSL will complete work in progress and invoice for work completed to the point of cancellation notice. EMSL is not responsible for. holding times that are exceeded due to such changes.

C. Warranty

EMSL warrants to its clients that all services provided hereunder shall be performed in accordance with established and recognized analytical testing procedures and with reasonable care in accordance with applicable federal, state and local laws. The foregoing express warranty is exclusive and is given in lieu of all other warranties, expressed or implied. EMSL disclaims any other warranties, express or implied, including a warranty of fitness for particular purpose and warranty of merchantability.

D. Limits of Liability

In no event shall EMSL be liable for indirect, special, consequential, or incidental damages, including, but not limited to, damages for loss of profit or goodwill regardless of the negligence (either sole or concurrent) of EMSL and whether EMSL has been informed of the possibility of such damages, arising out of or in connection with EMSL's services thereunder or the delivery, use, reliance upon or interpretation of test results by client or any third party. We accept no legal responsibility for the purposes for which the client uses the test results. EMSL will not be held responsible for the improper selection of sampling devices even if we supply the device to the user. The user of the sampling device has the sole responsibility to select the proper sampler and sampling conditions to insure that a valid sample is taken for analysis. Any resampling performed will be at the sole discretion of EMSL, the cost of which shall be limited to the reasonable value of the original sample delivery group (SDG) samples. In no event shall EMSL be liable to a client or any third party, whether based upon theories

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of tort, contract or any other legal or equitable theory, in excess of the amount paid to EMSL by client thereunder.

E. Indemnification

Client shall indemnify EMSL and its officers, directors and employees and hold each of them harmless for any liability, expense or cost, including reasonable attorney's fees, incurred by reason of any third party claim in connection with EMSL services, the test result data or its use by client