



## ***Air Analytical Report***


**Prepared For:** Chris Pinheiro  
Alpha Environmental - Beaverton, OR  
11080 SW Allen Blvd, Ste 100  
Beaverton, OR 97005  
(503) 515-8305

**AEML Batch:** 312643

**Project/Site:**

**38880 N Main St 21-38729**



  
**Authorized for release by:**  
Joshua Krinsky  
Technical Director

**TEXAS**  
**Department of**  
**State Health**  
**Services**  
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## ***Project Narrative***

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### **Receipt**

The sample(s) contained in this report were collected on March 23, 2021 and received by AEML, Inc. Microbiology Laboratories on March 25, 2021. All samples were received in good condition unless otherwise noted in the results section of this report or on the accompanying Chain of Custody.

### **Sample Analysis**

Analyses were performed in accordance to AEML, Inc.'s Standard Operating Procedures and Quality Assurance Program. No deviations were made to these procedures unless noted in the results section of this report. Any additional information that the laboratory believes relevant will be noted as Data Qualifiers accompanying the sample results.

### **Quality Assurance**

AEML, Inc. has developed and implemented policies and procedures that adhere to the General Requirements for the Competence of Testing and Calibration Laboratories, ISO/IEC 17025:2017. These procedures have been reviewed by an independent outside organization and the laboratory has been accredited by the American Association for Laboratory Accreditation for Biological Testing (A2LA Testing Cert #2572.01). AEML, Inc. is also licensed by the Texas Department of State Health Services (Lab#1020). AEML, Inc. is an active participant in the AIHA EMPAT Proficiency Testing Program.

The laboratory is staffed by highly trained and experienced professionals. AEML, Inc. utilizes state of the art equipment that is of the most recent technology available for fungal spore identification and quantification. AEML, Inc. has the most up to date data systems available with capabilities to provide standard reports in hardcopy and electronic data deliverables.



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## Sample Summary

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<b>Lab Sample ID</b>	<b>Client Sample ID</b>	<b>Media</b>	<b>Collected</b>	<b>Received</b>
312643-01	4019408 G	Allergenco D	3/23/2021	3/25/2021
312643-02	4019399 SB	Allergenco D	3/23/2021	3/25/2021
312643-03	4019398 B	Allergenco D	3/23/2021	3/25/2021
312643-04	4019394 S	Allergenco D	3/23/2021	3/25/2021
312643-05	4019393 O	Allergenco D	3/23/2021	3/25/2021



## Detection Summary

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Lab Sample ID	Client Sample ID	Spore Type	Result / Count/m <sup>3</sup>
312643-01	4019408 G	Ascospores	76
		Aspergillus/Penicillium-Like	10
		Basidiospores	48
312643-03	4019398 B	Ascospores	10
		Cladosporium	10
		Hyphal Fragments	19
312643-04	4019394 S	Ascospores	10
		Aspergillus/Penicillium-Like	10
		Cladosporium	57
312643-05	4019393 O	Nigrospora	19
		Ascospores	10
		Basidiospores	76
		Smut/Myxomyces/Periconia	10
		Hyphal Fragments	10
Pollen	19		

Chris Pinheiro  
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**AEML, Inc.**  
 601 E. Atlantic Blvd.  
 Pompano Beach, FL 33060  
 Phone: (954) 333-8149  
 Fax: (954) 333-8151  
 email: customerservice@aemlinc.com

**Project:** 38880 N Main St 21-38729

**Batch:** 312643

**Sampled:** 3/23/2021  
**Received:** 3/25/2021  
**Analysis Date:** 3/25/2021  
**Report Date:** 3/25/2021

**AEML Test: A001 Spore Trap Analysis**

Sample ID:	312643-01	312643-02	312643-03	312643-04
Client Sample ID:	4019408 G	4019399 SB	4019398 B	4019394 S
Volume Sampled (L):	105	105	105	105
Media:	Allergenco D	Allergenco D	Allergenco D	Allergenco D
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%	Raw Count	Count/m <sup>3</sup>	%
Alternaria	—	—	—	—	—	—	—	—	—	—	—	—
Arthrinium	—	—	—	—	—	—	—	—	—	—	—	—
Ascospores	8	76	57	—	—	—	1	10	50	1	10	10
Aspergillus/Penicillium-Like	1	10	7	—	—	—	—	—	—	1	10	10
Basidiospores	5	48	36	—	—	—	—	—	—	—	—	—
Bipolaris/Dreschlera	—	—	—	—	—	—	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—	—	—	—	—	—	—
Cladosporium	—	—	—	—	—	—	1	10	50	6	57	60
Curvularia	—	—	—	—	—	—	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—	—	—	—	2	19	20
Oidium/Peronospora	—	—	—	—	—	—	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—	—	—	—	—	—	—
Rust	—	—	—	—	—	—	—	—	—	—	—	—
Smut/Myxomyces/Periconia	—	—	—	—	—	—	—	—	—	—	—	—
Stachybotrys	—	—	—	—	—	—	—	—	—	—	—	—
Torula	—	—	—	—	—	—	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—	—	—	—	—	—	—
<b>Total Spores</b>	<b>14</b>	<b>133</b>		<b>0</b>	<b>0</b>		<b>2</b>	<b>19</b>		<b>10</b>	<b>95</b>	
Hyphal Fragments	—	—	—	—	—	—	2	19	—	—	—	—
Pollen	—	—	—	—	—	—	—	—	—	—	—	—
Debris Rating	2			2			3			3		
Detection Limit	10			10			10			10		

*Joshua Krinsky*  
 Joshua Krinsky  
 Technical Director

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 Phone: (954) 333-8149  
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**Project:** 38880 N Main St 21-38729


**Batch:** 312643

**Sampled:** 3/23/2021  
**Received:** 3/25/2021  
**Analysis Date:** 3/25/2021  
**Report Date:** 3/25/2021

**AEML Test: A001 Spore Trap Analysis**

<b>Sample ID:</b>	312643-05
<b>Client Sample ID:</b>	4019393 O
<b>Volume Sampled (L):</b>	105
<b>Media:</b>	Allergenco D
<b>Percent of Trace Analyzed:</b>	100% at 600X Magnification

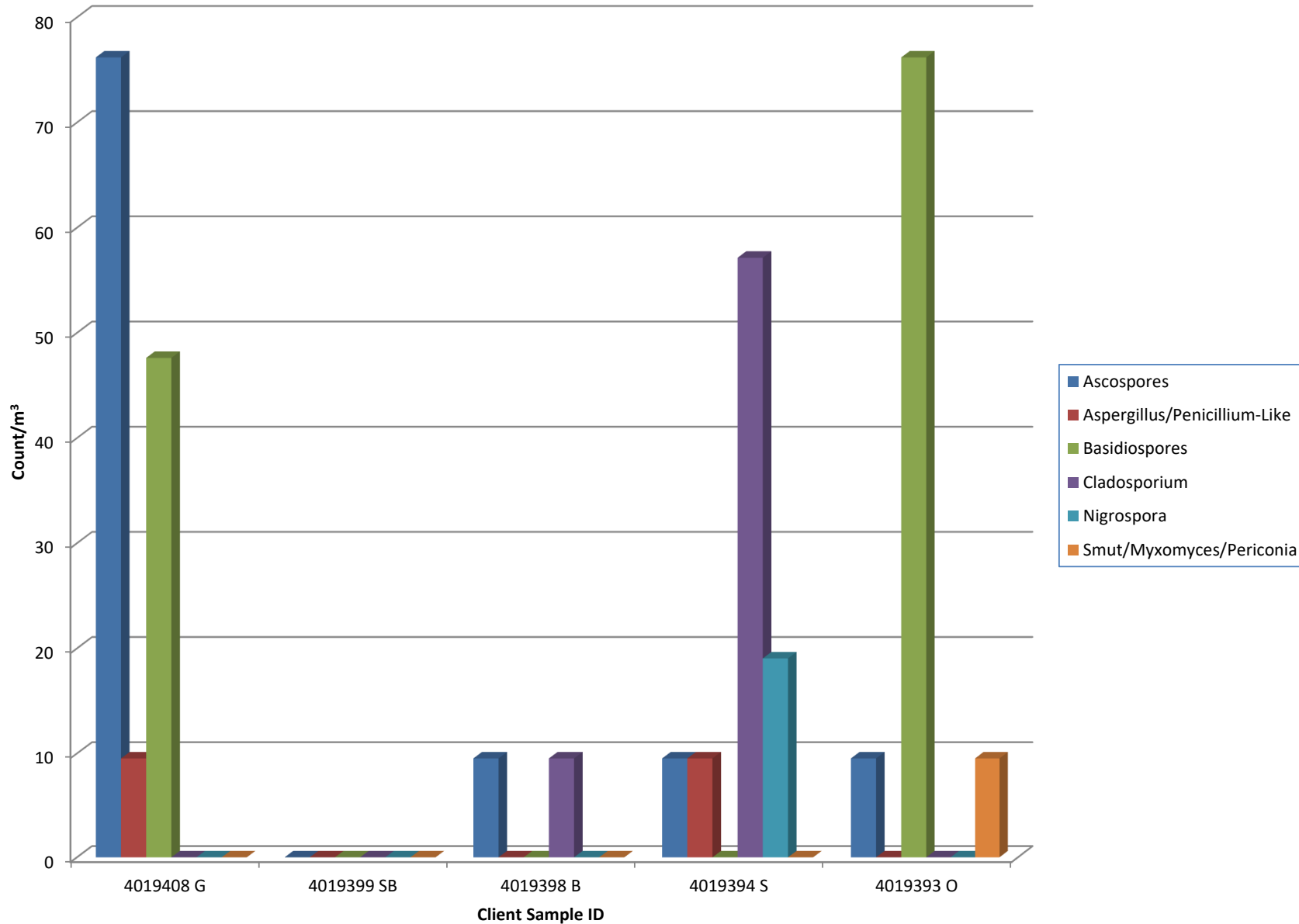
Spore Types	Raw Count	Count/m <sup>3</sup>	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	1	10	10
Aspergillus/Penicillium-Like	—	—	—
Basidiospores	8	76	80
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	—	—	—
Cladosporium	—	—	—
Curvularia	—	—	—
Epicoccum	—	—	—
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	1	10	10
Stachybotrys	—	—	—
Torula	—	—	—
Ulocladium	—	—	—
Unidentified Spores	—	—	—
<b>Total Spores</b>	<b>10</b>	<b>95</b>	
Hyphal Fragments	1	10	
Pollen	2	19	
Debris Rating		3	
Detection Limit		10	

  
 Joshua Krinsky  
 Technical Director

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### Project: 38880 N Main St 21-38729



Note: Graph may understate the importance of certain genre of spores.



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## ***Definitions and Glossary***

### **Definitions**

**Mold** - A fungus that grows in the form of multicellular filaments called hyphae. Molds cause biodegradation of natural materials, which is necessary in nature but can become unwanted when it causes food spoilage or damage to property. Some diseases of animals and humans can be caused by certain molds. These diseases may result from allergic sensitivity to mold spores, from growth of pathogenic molds within the body, or from the effects of ingested or inhaled toxic compounds (mycotoxins) produced by molds.

**Fungi** - A Kingdom composed of eukaryotic organisms that include unicellular microorganisms such as molds, yeasts, smuts, and mushrooms. Fungi receive nutrients by absorbing dissolved molecules and are referred to as nature's decomposers.

**Spores** - Produced by molds and fungi as units of reproduction that have adapted for dispersal. Spores can disperse through the air, by insects, animals, or humans and remain dormant on a surface for years until favorable conditions for growth occur.

**Mycotoxin** - A toxic secondary metabolite produced by mold. The term 'mycotoxin' is usually reserved for the toxic chemical products produced by fungi that readily colonize crops. One mold species may produce many different mycotoxins, and the same mycotoxin may be produced by several species.

### **Glossary**

**Sample ID** - A unique internal identification assigned to the sample by the laboratory for traceability of the sample.

**Client Sample ID** - An identification given to the sample and provided to the laboratory by the person who collected the sample. This is typically the location the sample was collected.

**Volume Sampled** - The volume of air that was sampled displayed in liters. This is based on the flow rate of the sampling pump in Liters per minute and the time, in minutes, that the sample was collected.

**Media** - The device used for collection of the sample.

**Percent of Trace Analyzed** - The percent of the trace that was analyzed by the laboratory. When 100% of the trace is analyzed at 600X magnification, the entire impaction area of the sample is analyzed at a high level of magnification and provides the highest quality analysis.

**Raw Count** - Spore count present in the sample received by the laboratory.

**Count/m<sup>3</sup>** - An extrapolated count of spores that would be present in a cubic meter of air. This calculation is based on the volume of air sampled and the raw count.

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## ***Definitions and Glossary***

### **Glossary**

**Percent (%)** - Percent composition of the sample. This is a breakdown of the percentage of the total spore count of the sample that each spore comprises.

**Debris Rating** - Background debris can interfere with the analyst's ability to analyze and accurately report the counts for each analyte. Therefore, a Debris Level system of 0-5 will be reported for each sample to aid clients in their interpretation of the data.

**Debris Level: 0** - No non-microbial particulates were observed in the impaction area. Since most air samples contain at least some debris, this indicates that the sample is either a blank sample submitted to the lab as a control, that there was an error sampling, or that a defective spore trap cassette was used.

**Debris Level: 1** - A minimal amount of background particulates are present. The background debris has no effect on the reported results.

**Debris Level: 2** - Non-microbial particulates are covering up to 25% of the trace.

**Debris Level: 3** - Non-microbial particulates are covering 26% to 75% of the trace.

**Debris Level: 4** - Non-microbial particulates are covering 76% to 90% of the trace.

**Debris Level: 5** - Non-microbial particulates are covering greater than 90% of the trace. An accurate count is not possible. A range of spores is reported based on the number of spores observed in and around the borders of the trace.

Debris Levels of 2, 3, or 4 contain background debris that could mask the presence of an analyte. The higher the level of debris, the greater the chance that this could occur.

**Detection Limit** - Also known as Method Detection Limit. This is the minimum number of spores that would need to be present in one cubic meter of air in order for one spore to be detected by this analysis. This calculation is based on the volume of air sampled and the percent of the trace analyzed.

### **Remediation**

**Remediation** - The process correcting, or remedying, any issues in the building that were identified by a mold assessor. This may include cleaning or removing any contaminated material, as well as, identifying and correcting any conditions that may be favorable for mold growth.

AEML, Inc. makes no claims pertaining to the necessity of remediation. The results contained in this report should be used in conjunction with a physical inspection of the property to determine what, if any, actions are necessary.

## Fungal Glossary



Typically found growing outdoors.







Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Alternaria	
Description	Characteristics
<p>These are a common plant pathogen involved in the decomposition of plants. In the indoor environment they are found growing on a variety of substrates including sheetrock and other building materials. They are common allergens causing hay fever or hypersensitivity reactions.</p>	
Arthrimum	
Description	Characteristics
<p>These are a plant pathogen found in soil and decomposing plant material. Not typically found growing indoors. One species has been determined to be an allergen.</p>	
Ascospores	
Description	Characteristics
<p>These are a very large group of spores that are found everywhere in nature. They are commonly found outdoors and associated with rain and moisture. Some species grow well indoors on damp materials. Ascospores have allergenic potential, however, it is species dependent.</p>	 

## Fungal Glossary



Typically found growing outdoors.






Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Aspergillus/Penicillium-Like	
Description	Characteristics
<p>These are two of the most common genera in the world. They can be found everywhere in nature, both indoors and outdoors. Indoors they can be found on water damaged wallpaper, carpet, and other organic materials. They can also grow well in conditions of high humidity. Many species are allergens and a common cause of respiratory irritation. Some species are human and animal pathogens and can cause infection.</p>	
Basidiospores	
Description	Characteristics
<p>These are primarily comprised of mushrooms and shelf fungi. They are typically found outdoors. Occasionally they are found indoors growing on any organic matter causing dry rot. Some species can be an allergen to sensitive individuals.</p>	
Bipolaris/Dreschlera	
Description	Characteristics
<p>These are a plant pathogen typically found outdoors on grasses, grains, and decaying food. Indoors they can be found on plants and building materials. They are an allergen that can affect the nose, skin, eyes and upper respiratory track.</p>	

## Fungal Glossary



Typically found growing outdoors.









Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Botrytis	
Description	Characteristics
<p>These are a plant pathogen typically found growing on vegetation particularly in temperate and subtropical climates. Indoors they can be found growing on plants. They are a potential allergen causing hay fever and asthma effects.</p>	 
Chaetomium	
Description	Characteristics
<p>These are typically found indoors on water damaged cellulose containing materials such as paper, sheetrock, and wallpaper. Not well studied but possible allergen with hay fever and asthma effects.</p>	  
Cladosporium	
Description	Characteristics
<p>One of the most common genera in both the indoor and outdoor environments. Indoors they grow well in damp environments and areas where condensation builds. They are often found on textiles, window sills, in bathrooms, and A/C systems. They are a common allergen when airborne.</p>	

## Fungal Glossary



Typically found growing outdoors.









Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Curvularia	
Description	Characteristics
<p>Primarily found outdoors on plants and soil especially in subtropical and tropical environments. Indoors they grow on a variety of building materials. They are a common allergen causing hay fever, asthma, and allergic fungal sinusitis.</p>	 
Epicoccum	
Description	Characteristics
<p>Outdoors they are found in the soil, air, and rotting vegetation. Indoors they grow well on a variety of building materials such as paper and textiles. They are a potential allergen with hay fever, asthma, and skin allergy effects.</p>	
Fusarium	
Description	Characteristics
<p>Indoors they are typically found under very wet conditions. Some places they can be found are dust in carpet and mattresses, damp walls, wallpaper, and duct liner. They are a potential allergen causing hay fever and asthma effects.</p>	  

## Fungal Glossary



Typically found growing outdoors.









Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Ganoderma	
Description	Characteristics
<p>These are shelf mushrooms that are typically found growing outdoors on wood causing white rot, root rot, and stem rot. They are a possible allergen at high concentrations.</p>	 
Memmoniella	
Description	Characteristics
<p>These are mycotoxin producing spores related to and often found in conjunction with Stachybotrys. These grow well on water damaged cellulose containing building materials such as sheetrock, paper, wallpaper, and textiles.</p>	 
Nigrospora	
Description	Characteristics
<p>These are typically found on decaying plant material and soil and are usually not found growing indoors. They are a potential allergen causing hay fever and asthma effects.</p>	 

## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.


### Oidium/Peronospora

Description	Characteristics
<p>These are plant pathogens that are common obligate parasites on leaves, stems, flowers, and fruits of higher living plants.</p>	

### Pithomyces

Description	Characteristics
<p>These are typically found on dead leaves and stems of plants. Rarely found growing indoors; however, they grow well on paper indoors given the right conditions.</p>	

### Rust

Description	Characteristics
<p>These are parasitic plant pathogens that grow on plants, grass, and trees. They are rarely found growing indoors since they require a living host, and therefore typically not found on cellulose containing building materials. They are a potential allergen causing hay fever and asthma effects.</p>	



## Fungal Glossary



Typically found growing outdoors.



Potential allergen.




Considered water damage indicator.




Potential to produce mycotoxins.


### Smut/Myxomyces/Periconia

Description	Characteristics
<p>This is a grouping of several genera organized together in a general category that are mostly associated with living and decaying plants, wood, soil, grass, cereal crops, weeds, and flowering plants. These are rarely found growing indoors. They are a potential allergen causing hay fever and asthma effects.</p>	

### Stachybotrys

Description	Characteristics
<p>These are typically found indoors growing on water damaged cellulose containing building materials such as sheetrock, paper, and ceiling tiles. They are often referred to as "toxic black mold." They have the ability to produce mycotoxins which may cause a burning sensation in the mouth, throat, and nasal passages. Chronic exposure has been known to cause headaches, diarrhea, memory loss, and brain damage.</p>	

### Torula

Description	Characteristics
<p>These are typically found growing outdoors on leaves, roots, wood, and soil. Indoors they can be found growing on water damaged cellulose, paper, wicker, straw baskets and ceiling tiles. They are a potential allergen causing hay fever and asthma effects.</p>	

## Fungal Glossary



Typically found growing outdoors.




Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Ulocladium	
Description	Characteristics
<p>Requires very wet conditions and can commonly be found indoors in damp or wet areas such as bathrooms, kitchens, basements, and around windows. These grow well on cellulose containing materials such as paper and straw and on water damaged building material such as sheetrock. They are a common allergen causing hay fever and asthma effects.</p>	
Unidentified Spores	
Description	Characteristics
<p>This is a grouping of spores that are unable to be categorized due to a variety of reasons. They may be weathered, disfigured, or otherwise lacking the morphological structures necessary to identify the genus.</p>	
Hyphal Fragments	
Description	Characteristics
<p>These are branched filamentous structures with cell walls. Hyphae are somewhat analogous to stems or roots in plants whereas the spores would be analogous to the seeds. Large quantities present may indicate an active fungal colony or active fungal growth in the structure.</p>	

## Fungal Glossary



Typically found growing outdoors.




Potential allergen.



Considered water damage indicator.



Potential to produce mycotoxins.

Pollen	
Description	Characteristics
<p>These are a fine to coarse powdery substance produced by the anthers of seed-bearing plants, trees, grasses, flowers, and weeds. They are an allergen that causes hay fever effects.</p>	

The information provided in this report is not intended to provide medical advice. This report is designed to be used for building diagnostic purposes only. Any determination of exposure or potential for exposure should be formed using the results in this report in conjunction with a physical inspection of the property. A medical professional must be consulted for any medical or health related information.



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## ***References and Links***

Environmental Protection Agency (EPA) - [www.epa.gov/mold/](http://www.epa.gov/mold/)

A Brief Guide to Mold, Moisture, and Your Home - [www2.epa.gov/mold/brief-guide-mold-moisture-and-your-home](http://www2.epa.gov/mold/brief-guide-mold-moisture-and-your-home)

Should You Have the Air Ducts in Your Home Cleaned? - [www2.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned](http://www2.epa.gov/indoor-air-quality-iaq/should-you-have-air-ducts-your-home-cleaned)

Flood Cleanup - Avoiding Indoor Air Quality Problems - [www2.epa.gov/indoor-air-quality-iaq/flood-cleanup-protect-indoor-air-quality](http://www2.epa.gov/indoor-air-quality-iaq/flood-cleanup-protect-indoor-air-quality)

Center for Disease Control and Prevention (CDC) - [www.cdc.gov/mold/](http://www.cdc.gov/mold/)

General Information - [www.cdc.gov/mold/basics.htm](http://www.cdc.gov/mold/basics.htm)

Cleanup and Remediation - [www.cdc.gov/mold/cleanup.htm](http://www.cdc.gov/mold/cleanup.htm)

Occupational Safety & Health Administration (OSHA) - [www.osha.gov/SLTC/molds](http://www.osha.gov/SLTC/molds)

American Academy of Allergy, Asthma & Immunology (AAAAI) - [www.aaaai.org](http://www.aaaai.org)

Institute of Inspection, Cleaning and Restoration Certification (IICRC) - [www.iicrc.org](http://www.iicrc.org)

Information and recommendations about mold can vary based on location and climate. More information can be found through your local state's and county's Indoor Air Quality programs. Links for your state's environmental agencies can be found through the EPA's website at:

<http://www2.epa.gov/indoor-air-quality-iaq/find-regional-and-state-indoor-air-quality-contact-information>