

Sample Number	1	01	2	02	3	03	4	04				
Sample Name	Control			Basement			Kitchen			Foyer		
Sample Volume	75.00 liter			75.00 liter			75.00 liter			75.00 liter		
Reporting Limit	13 spores/m ³			13 spores/m ³			13 spores/m ³			13 spores/m ³		
Background	1			2			2			2		
Fragments	13/m ³			ND			13/m ³			13/m ³		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria	3	40	<1%									
Ascospores	176	2347	48.0%	3	40	<1%				1	13	8.3%
Aspergillus Penicillium	4	53	1.1%	320	4267	98.5%	10	133	83.3%	7	93	58.3%
Basidiospores	112	1493	30.5%	1	13	<1%				1	13	8.3%
Bipolaris Drechslera												
Chaetomium												
Cladosporium	48	640	13.1%				1	13	8.3%	3	40	25.0%
Curvularia												
Epicoccum	1	13	<1%	1	13	<1%						
Fusarium												
Memnoniella												
Myxomycetes	19	253	5.2%									
Pithomyces												
Stachybotrys												
Stemphylium												
Torula	1	13	<1%									
Ulocladium												
Cercospora	3	40	<1%									
Dactylosporium							1	13	8.3%			
Total	367	4892	100%	325	4333	100%	12	159	100%	12	159	100%

Water Damage Indicator	Common Allergen	Slightly Higher than Baseline	Significantly Higher than Baseline	Ratio Abnormality
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Collected: Oct 1, 2020

Received: Oct 5, 2020

Reported: Oct 5, 2020

Project Analyst:
Ramesh Poluri, PhD *P. Ramesh*

Date:
10 - 05 - 2020

Reviewed By:
Steve Hayes, BSMT *Stephen N. Hayes*

Date:
10 - 05 - 2020

Sample Number	5 05			6 06			7 07			8 08		
Sample Name	Living Room			West Right Front Facing			East Center Hall			Left Front Facing		
Sample Volume	75.00 liter			75.00 liter			75.00 liter			75.00 liter		
Reporting Limit	13 spores/m ³			13 spores/m ³			13 spores/m ³			13 spores/m ³		
Background	2			2			2			2		
Fragments	ND			ND			ND			13/m ³		
Organism	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total	Raw Count	Count / m ³	% of Total
Alternaria												
Ascospores	1	13	4.8%	2	27	28.6%	1	13	12.5%	7	93	43.8%
Aspergillus Penicillium	20	267	95.2%							3	40	18.8%
Basidiospores										1	13	6.3%
Bipolaris Drechslera												
Chaetomium												
Cladosporium				5	67	71.4%	5	67	62.5%	4	53	25.0%
Curvularia												
Epicoccum										1	13	6.3%
Fusarium												
Memnoniella												
Myxomycetes							1	13	12.5%			
Pithomyces							1	13	12.5%			
Stachybotrys												
Stemphylium												
Torula												
Ulocladium												
Cercospora												
Dactylosporium												
Total	21	280	100%	7	94	100%	8	106	100%	16	212	100%

Water Damage Indicator Common Allergen Slightly Higher than Baseline Significantly Higher than Baseline Ratio Abnormality



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#16	Swab (1.00 cm2)	Organism	Spore Estimate	Mycelial Estimate
16 - East Crawl Space		Aspergillus Penicillium	Very Heavy	Many

Spore Trap Information

Reporting Limit	The Reporting Limit is the lowest number of spores that can be detected based on the total volume of the sample collected and the percentage of the slide that is counted. At Hayes Microbial, 100% of the slide is read so the LOD is based solely on the total volume. Raw spore counts that exceed 500 spores will be estimated.										
Blanks	Results have not been corrected for field or laboratory blanks.										
Background	<p>The Background is the amount of debris that is present in the sample. This debris consists of skin cells, dirt, dust, pollen, drywall dust and other organic and non-organic matter. As the background density increases, the likelihood of spores, especially small spores such as those of Aspergillus and Penicillium may be obscured. The background is rated on a scale of 1 to 5 and each level is determined as follows:</p> <p>NBD: No background detected due to possible pump or cassette malfunction. Recollect sample. (Field Blanks will display NBD)</p> <p>1 : <5% of field occluded. No spores will be uncountable.</p> <p>2 : 5-25% of field occluded.</p> <p>3 : 25-75% of field occluded.</p> <p>4 : 75-90% of field occluded.</p> <p>5 : >90% of field occluded. Suggested recollection of sample.</p>										
Fragments	Fragments are small pieces of fungal mycelium or spores. They are not identifiable as to type and when present in very large numbers, may indicate the presence of mold amplification.										
Control Comparisons	There are no national standards for the numbers of fungal spores that may be present in the indoor environment. As a general rule and guideline that is widely accepted in the indoor air quality field, the numbers and types of spores that are present in the indoor environment should not exceed those that are present outdoors at any given time. There will always be some mold spores present in "normal" indoor environments. The purpose of sampling and counting spores is to help determine whether an abnormal condition exists within the indoor environment and if it does, to help pinpoint the area of contamination. Spore counts should not be used as the sole determining factor of mold contamination. There are many factors that can cause anomalies in the comparison of indoor and outdoor samples due to the dynamic nature of both of those environments.										
<table border="1"> <tr> <td data-bbox="44 985 464 1040">Water Damage Indicator</td> <td data-bbox="493 985 2032 1008">Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.</td> </tr> <tr> <td data-bbox="44 1040 464 1096">Common Allergen</td> <td data-bbox="493 1040 2032 1063">Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.</td> </tr> <tr> <td data-bbox="44 1096 464 1151">Slightly Higher than Baseline</td> <td data-bbox="493 1096 2032 1118">Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.</td> </tr> <tr> <td data-bbox="44 1151 464 1206">Significantly Higher than Baseline</td> <td data-bbox="493 1151 2032 1174">Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.</td> </tr> <tr> <td data-bbox="44 1206 464 1279">Ratio Abnormality</td> <td data-bbox="493 1206 2032 1282">Violet: The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.</td> </tr> </table>	Water Damage Indicator	Blue: These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.	Common Allergen	Green: Although all molds are potential allergens, these are the most common allergens that may be found indoors.	Slightly Higher than Baseline	Orange: The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.	Significantly Higher than Baseline	Red: The spore count is significantly higher than the baseline count and probably indicates a source of contamination.	Ratio Abnormality	Violet: The types of spores found indoors should be similar to the ones that were identified in the baseline sample. Significant increases (more than 25%) in the ratio of a particular spore type may indicate the presence of abnormal levels of mold, even if the total number of spores of that type is lower in the indoor environment than it was outdoors.	
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Color Coding	Fungi that are present in indoor samples at levels lower than 200 per cubic meter are not color coded on the report, unless they are one of the water damage indicators.										

Spore Estimate		Percentages
ND	None Detected	0%
Rare	Less than 10 spores	< 1%
Light	10 - 99 spores	1-10%
Moderate	100 - 999 spores	11-25%
Heavy	1000 - 9999 spores	26-50%
Very Heavy	10000 or greater spores	51-100%

Mycelial Estimate	
ND	None Detected No active growth at site.
Trace	Very small amount of Mycelium Probably no active growth at site.
Few	Some Mycelium Possible active growth at site.
Many	Large amount of Mycelium Probable active growth at site.

Organism Descriptions

Alternaria	Habitat: Commonly found outdoors in soil and decaying plants. Indoors, it is commonly found on window sills and other horizontal surfaces.
	Effects: A common allergen and has been associated with hypersensitivity pneumonitis. Alternaria is capable of producing toxic metabolites which may be associated with disease in humans or animals. Occasionally an agent of onychomycosis, ulcerated cutaneous infection and chronic sinusitis, principally in the immunocompromised patient.

Ascospores	Habitat: A large group consisting of more than 3000 species of fungi. Common plant pathogens and outdoor numbers become very high following rain. Most of the genera are indistinguishable by spore trap analysis and are combined on the report.
	Effects: Health affects are poorly studied, but many are likely to be allergenic.

Aspergillus Penicillium	Habitat: The most common fungi isolated from the environment. Very common in soil and on decaying plant material. Are able to grow well indoors on a wide variety of substrates.
	Effects: This group contains common allergens and many can cause hypersensitivity pneumonitis. They may cause extrinsic asthma, and many are opportunistic pathogens. Many species produce mycotoxins which may be associated with disease in humans and other animals. Toxin production is dependent on the species, the food source, competition with other organisms, and other environmental conditions.

Basidiospores	Habitat: A common group of Fungi that includes the mushrooms and bracket fungi. They are saprophytes and plant pathogens. In wet conditions they can cause structural damage to buildings.
	Effects: Common allergens and are also associated with hypersensitivity pneumonitis.

Cercospora	Habitat: Found on wood and decaying plant matter.
	Effects: Health effects are poorly studied.

Cladosporium	Habitat: One of the most common genera worldwide. Found in soil and plant debris and on the leaf surfaces of living plants. The outdoor numbers are lower in the winter and often relatively high in the summer, especially in high humidity. The outdoor numbers often spike in the late afternoon and evening. Indoors, it can be found growing on textiles, wood, sheetrock, moist window sills and in HVAC supply ducts.
	Effects: A common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.

Dactylosporium

Habitat: Found on wood and decaying plant matter.

Effects: Health effects are poorly studied.

Epicoccum

Habitat: It is found in soil and plant litter and is a plant pathogen. It can grow indoors on a variety of substrates, including paper and textiles and is commonly found on wet drywall.

Effects: It is a common allergen. No cases of infection have been reported in humans.

Myxomycetes

Habitat: Found on decaying plant material and as a plant pathogen.

Effects: Some allergenic properties reported, but generally pose no health concerns to humans.

Pithomyces

Habitat: Common fungus isolated from soil, decaying plant material. Rarely found indoors.

Effects: Allergenic properties are poorly studied. No cases of infection in humans.

Torula

Habitat: Found in soil and on wood and grasses. Occasionally found growing indoors on cellulose containing materials.

Effects: A known allergen. No known cases of human infection.
