

Hayes Microbial Consulting

Indoor Air Quality Microbiology Consulting

Email: IAQ@hayesmicrobial.com www.hayesmicrobial.com

2800 Savage View Drive Midlothian, VA 23112

Ph. 804.562.3435 Fax. 804-562-3435

Mold Analysis Report prepared for

Sample Company, Inc.

123 Main Street

Midlothian, VA 23112

Ph. 804-123-4567

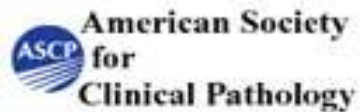
Fax. 804-123-4568

Job Number: 1234-5

Job Name: Jones House

Date Sampled: 2/20/2007

Date Analyzed: 2/21/2007



Certified Clinical
Microbiologist



Member



Certified
Indoor Environmentalist

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Spore Trap Analysis

HMC Report #

71000

Customer Sample Company, Inc. 123 Main Street Midlothian, VA 23112 Ph. 804-123-4567 Fax. 804-123-4568	Job Number: 1234-5 Job Name: Jones House	Collected by: John Smith Email: jsmith@sampleco.com Date Collected: 2/20/2007 Date Received: 2/21/2007 Date Reported: 2/21/2007
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HMC ID Number	71000 - 1		71000 - 2		71000 - 3		71000 - 4	
Sample ID #	123456		123457		123458		123459	
Sample Name	Outside		Basement		Living Room		Bedroom	
Sample Volume	75 Liters		75 Liters		75 Liters		75 Liters	
Limit of Detection	13 spores/M3		13 spores/M3		13 spores/M3		13 spores/M3	
Background	1+		2+		2		2	
Fragments	13 /M3		200 /M3		107 /M3		80 /M3	
Organism	Count / M ³	% of Total	Count / M ³	% of Total	Count / M ³	% of Total	Count / M ³	% of Total
Alternaria	40	1.4	13	0.7				
Ascospores	320	10.9	67	3.4	120	10.1	173	18.3
Aspergillus/Penicillium	400	13.6	1680	85.1	720	60.7	280	29.6
Basidiospores	107	3.6	27	1.4	40	3.4	13	1.4
Bipolaris/Drechslera								
Chaetomium							67	7.0
Cladosporium	2027	68.8	160	8.1	67	5.6	213	22.5
Curvularia	13	0.5						
Epicoccum								
Fusarium								
Memnoniella								
Myxomycetes	40	1.4						
Pithomyces								
Stachybotrys					240	20.2	147	15.5
Stemphylium								
Torula								
Trichothecium								
Ulocladium			27	1.4			53	5.6
Unidentifiable spore								
Total	2947		1973		1187		947	

Water Damage Indicators	Common Allergens	Slightly Higher than Outside Air	Significantly Higher than Outside Air	Ratio Abnormality
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Signature: Stephen N. Hayes

Date: 2/21/2007

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Direct ID Analysis

HMC Report #

71000

Customer Sample Company, Inc. 123 Main Street Midlothian, VA 23112 Ph. 804-123-4567 Fax. 804-123-4568	Job Number: 1234-5 Job Name: Jones House	Collected by: John Smith Email: jsmith@sampleco.com Date Collected: 2/20/2007 Date Recieved: 2/21/2007 Date Reported: 2/21/2007
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HMC ID Number:	71000 - 5	Sample Type:	Bio-Tape
Sample ID #:	B1234	Sample Name:	Window Sill
Organism	Spore Estimate	Mycelial Estimate	Notes
Alternaria	Heavy	Many	

HMC ID Number:	71000 - 6	Sample Type:	Bio-Tape
Sample ID #:	B2356	Sample Name:	Baseboard
Organism	Spore Estimate	Mycelial Estimate	Notes
Ascospores	Rare	ND	
Chaetomium	Moderate	Few	
Stachybotrys	Heavy	Many	

HMC ID Number:	71000 - 7	Sample Type:	Bio-Tape
Sample ID #:	B6566	Sample Name:	Door Frame
Organism	Spore Estimate	Mycelial Estimate	Notes
No Fungi Detected			

Signature: Stephen N. Hayes

Date: 2/21/2007

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Spore Trap Information

Limit of Detection	The Limit of Detection 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.
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 nonorganic matter. As the background density increases, the likelihood of spores, especially small spores such as those of <i>Aspergillus</i> / <i>Penicillium</i> may be obscured. The background is rated on a scale of 1 to 4 and each level is determined as follows.</p> <ul style="list-style-type: none">ND - No background detected. (Pump or cassette malfunction) Recollect sample.1 - Extremely light background. No spores will be uncountable.1+ - Very light background. Less than 1% of small spores may be uncountable.2 - Light background. Less than 3% of small spores may be uncountable.2+ - Moderate background. Less than 5% of small spores may be uncountable.3 - Moderate/Heavy background. 5% to 25% of small spores and less than 5% of large spores may be uncountable.3+ - Heavy background. More than 25% of small spores and more than 5% of large spores may be uncountable.4 - Sample unreadable. Recollect sample.
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.
Indoor / Outdoor 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.
Water Damage Indicators	These molds are commonly seen in conditions of prolonged water intrusion and usually indicate a problem.
Common Allergens	Although all molds are potential allergens, these are the most common allergens that may be found indoors.
Slightly Higher than Outside Air	The spore count is slightly higher than the outside count and may or may not indicate a source of contamination.
Significantly Higher than Outside Air	The spore count is significantly higher than the outdoor count and probably indicates a source of contamination.
Ratio Abnormality	The types of spores found indoors should be similar to the ones that were identified in the outdoor sample. Significant increases (more than 25 or 30%) 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.

Additional Information for Direct Identification Analysis

Spore Estimate	
ND	None Detected
Rare	<10 Spores
Light	10-100 Spores
Moderate	100-1000 Spores
Heavy	>1000 Spores

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 amounts of mycelium	Probable active growth at site.

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Organism Descriptions

Alternaria	Habitat: Outdoors it is commonly found in soil and decaying plants. Indoors it is commonly found on window sills and other horizontal surfaces.
	Health Effects: A common allergen and has been associated with hypersensitivity pneumonitis. <i>Alternaria</i> 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.
	Health 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.
	Health 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 and on the food source for the fungus. Some of these toxins have been found to be carcinogenic.
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.
	Health Effects: Common allergens and are also associated with hypersensitivity pneumonitis.
Chaetomium	Habitat: Ascomycete fungus, commonly isolated from soil and decaying plant materials. It is cellulolytic and grows well indoors on damp sheetrock and other paper substrates. It is often found growing with <i>Stachybotrys</i> .
	Health Effects: It is reported to be allergenic and may produce toxins.
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.
	Health Effects: A very common allergen, producing more than 10 allergenic antigens and a common cause of hypersensitivity pneumonitis.

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Organism Descriptions

Stachybotrys	<p>Habitat: Commonly found in soil and on decaying plant material. It is cellulolytic, and can be found indoors on wet materials containing cellulose, such as wallboard, ceiling tile, and other paper-based materials. It is found outdoors on decaying plant material although it is rarely detected on outdoor air samples.</p> <p>Health Effects: Allergenic properties are poorly studied and no cases of infection have been reported in humans. They do however produce potent tricothecene mycotoxins. The toxins produced by this fungus can suppress the immune system affecting the lymphoid tissue and the bone marrow. The mycotoxin is also reported to be a liver and kidney carcinogen.</p>
Ulocladium	<p>Habitat: Found in soil and on decaying plant material, grasses, paper and textiles. Growth indoors is common on cellulose containing materials with a high water content, including wallboard, paint, and textiles.</p> <p>Health Effects: A major allergen and rare cause of infection in humans. No known toxins are produced.</p>