



1320 Ellsworth Industrial Blvd NW, B2200
 Atlanta, GA 30318
 404 990-4770 | AirCareLab.com

Legend

- High water activity or water damage indicator
- Potential airborne mycotoxins
- May cause disease in some people
- May cause allergies in some people
- Not common indoors (primarily found outdoors)

Lab Order Number: 17090
 Date Collected: Sep 09, 2024
 Date Received: Sep 23, 2024
 Date Analyzed: Sep 23, 2024
 Date Reported: Sep 23, 2024
 Lab Analyst: Soujanya Gattu

Customer Name: Stephanie Cook
 Customer Email: scook@remgroupinc.com
 Customer Order Number: 101
 Property Name: 5555 Main Street
 Property Email: scook@remgroupinc.com
 Property Address: 5555 Main Street, Atlanta, GA, 30318



Linear Spore Trap / Surface Sample Analysis - Air cassettes analyzed according to SOP LAB-SOP-SPT-001 for the quantification of fungi spores from spore traps, and ASTM standard D7391-17. Tape slides analyzed according to SOP LAB-OP-SUR-001 and ASTM standard D7658-17 for the semi quantification and identification of fungi spores from surface tape slides.

Sample Location		Outdoor				Bedroom				Living Room			
Lab Sample No.		17090-2				17090-1				17090-3			
Volume Serial Sample Type Microscope		75 T112233 AllergencoD				75 T112244 AllergencoD				75 T112255 AllergencoD			
SPORE IDENTIFICATION	NOTATIONS	RAW CT	SPR/M3	% Total	IN/OUT	RAW CT	SPR/M3	% Total	IN/OUT	RAW CT	SPR/M3	% Total	IN/OUT
Chaetomium		-	-	-	-	1	43	0.8	1:0	-	-	-	-
Stachybotrys		-	-	-	-	2	87	1.6	2:0	-	-	-	-
Trichoderma		-	-	-	-	-	-	-	-	-	-	-	-
Ulocladium		-	-	-	-	-	-	-	-	-	-	-	-
Aspergillus/Penicillium group		12	520	11.5	1:1	49	2,123	40.2	4.08:1	20	867	28.6	1.67:1
Cladosporium		17	737	16.3	1:1	36	1,560	29.5	2.12:1	12	520	17.1	0.71:1
Alternaria		6	260	5.8	1:1	-	-	-	-	15	650	21.4	2.5:1
Arthrinium		-	-	-	-	-	-	-	-	-	-	-	-
ascospores		10	433	9.6	1:1	4	173	3.3	0.4:1	-	-	-	-
Curvularia		-	-	-	-	-	-	-	-	-	-	-	-
Epicoccum		1	43	1	1:1	3	130	2.5	3:1	1	43	1.4	1:1
Fusarium		-	-	-	-	-	-	-	-	-	-	-	-
Nigrospora		-	-	-	-	-	-	-	-	-	-	-	-
Pestalotia		-	-	-	-	-	-	-	-	-	-	-	-
Pithomyces		-	-	-	-	-	-	-	-	-	-	-	-
Torula		-	-	-	-	-	-	-	-	-	-	-	-
basidiospores		56	2,427	53.8	1:1	27	1,170	22.1	0.48:1	22	953	31.4	0.39:1
Urediniospore(rusts)		2	87	1.9	1:1	-	-	-	-	-	-	-	-
Total		104	4,507	99.9	-	122	5,287	100	-	70	3,033	99.9	-
Expanded Analytical Uncertainty @95% Confidence Level (K=2)		-	+/- 861 spr/m3	-	-	-	+/- 1,010 spr/m3	-	-	-	+/- 579 spr/m3	-	-
Debris Rating		3				3				2			
Analytical Sensitivity		43				43				43			
Comments													



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Sample Location 2		Hallway Vent			
Lab Sample No.		17090-4			
Serial Sample Type Microscope		T11223366 Tape Lift			
SPORE IDENTIFICATION	NOTATIONS	Metric	Fungal/Mold Growth Present		
Chaetomium		rare	Yes		
Stachybotrys		-	No		
Trichoderma		-	No		
Ulocladium		-	No		
Penicillium/Aspergillus group		Moderate	No		
Cladosporium		low	No		
Alternaria		-	No		
Arthrinium		-	No		
ascospores		-	No		
Curvularia		-	No		
Epicoccum		-	No		
Fusarium		-	No		
Nigrospora		-	No		
Pestalotia		-	No		
Pithomyces		-	No		
Torula		-	No		
basidiospores		-	No		
Urediniospore(rusts)		-	No		
Comments					



gbr1.jpg



outside.jpg



Living.jpg



Hallway Vent2.jpg

Analyzed By: Soujanya Gattu



Lab Manager: Marissa Gorecki




Air Care Laboratories is an AIHA
LAP accredited laboratory.



ANALYSIS NOTATIONS

1. Analytical Sensitivity = number of spores in one m³ per 1 raw count
2. Samples are analyzed at a minimum of 600X for 30% of the trace and a minimum of 300X for 100% of the trace.
3. An asterisk (*) next to a spore type denotes that spore type was counted at a minimum of 300X during a 100% analysis of the trace
4. Trace: area on the medium where spores and debris have been deposited during collection.
5. Measurement Uncertainty also known as the amount of error calculated for an analysis. It is expressed as a quantitative amount +/- from the number reported.
6. In the case of spore trap analysis it is the +/- % of the total spores / m³. The Expanded Measurement of Uncertainty based upon accumulated analyses from the year 2023 is +/- 30.2% spores/m³ @95% confidence (K=2).
7. Physical samples are kept for a maximum of 60 days.
8. The following data has been supplied by the customer: sampling dates and locations, sample location photos (if any), sample volumes and areas sampled, serial numbers and location names associated with serial numbers, and customer name and contact information.
9. The notations by spore type on this report are not opinions or interpretations, but rather are for informational purposes only.

ADDITIONAL INFORMATION FOR SPORE TRAPS

1. **Overloaded trace:**
May obscure fungi spores and provide questionable results. This type of trace is only scanned for spores that may be laying on top of the debris or to the side of the trace. The air should be scrubbed and retested for more reliable results. This amount of particulate background is a respiratory risk.
2. **Trace too Overloaded for Analysis:**
When debris is piled on top of other debris, the trace can not be analyzed. The sample must be rejected as there is no way for the laboratory to provide any sort of reliable analysis. The air should be scrubbed before another sample is submitted for analysis. This amount of debris is considered a dangerous respiratory risk.
3. **No Trace:**
There is no visible deposit of particles on the microscope slide media. This occurs most often with outside samples in cold weather, snow on the ground or during heavy rain. If any of these conditions are present, the outside sample can be gathered by standing in the open doorway to the building or home.
4. **Negative Bias**
Spores may be hidden by debris and therefore produce smaller counts than actually present.
5. Some spores have similar morphologies. ACC uses current and accepted references to classify spores and particles.
6. Due to rounding, totals may not equal 100%.
7. See ACC Fungal Glossary for each specific category, genus or spore type.
8. The results in this report are related to this order and samples only.
9. The results of this analysis pertain only to sample location(s) listed, collected on the stated date and should not be used in the interpretation of any other sample location(s).
10. This report may not be duplicated except in full, without the written consent of Air Care Companies, Inc. (ACC)

DEBRIS RATING AND SEMI-QUANTITATION TABLES

Debris Rating		
Rating	Metric	Description
1	< 5% Minimal	Reported values may be affected by particulate load.
2	5-25 % low	same as above
3	26-75% Moderate	same as above
4	76-90% High	Negative Bias is likely. The degree of bias increases with the present of the trace that is occluded.
5	> 90% Overloaded	Quantification not possible due to large negative bias. New samples should be collected at shorter time interval, or other measures to reduce the particulate load.

Surface Samples	
Rating	Description
None	None Detected
Rare	spores cover < 10% of area analyzed or are scattered on the slide
Low	spores cover 20%-40% of area analyzed
Moderate	spores cover 40% - 50% of area analyzed
High	spores cover > 50% of area analyzed
Fungal/Mold Growth Present	Indicates that sporulating fungal structures and/ or hyphae were present in the sample(s). Fungal structures include: hyphae, basal cells, fragments associated with fungal fruiting structures.

Epicoccum



Grows well on general fungal media, although sporulation may be strain dependent. Colonies typically have orange reverse pigment. Intact spores are distinctive. Young spores or spore fragments may be confused with Ulocladium, Stemphylium or possibly Alternaria. Commonly found in outdoor air. Growth indoors can occur on many different substrates including paper, textiles, and insects.

Allergenic Potential: Type I allergies (hay fever, asthma).

Potential Toxins Produced: Flavipin, epicorazine A & B, indole-3-acetonitrile.

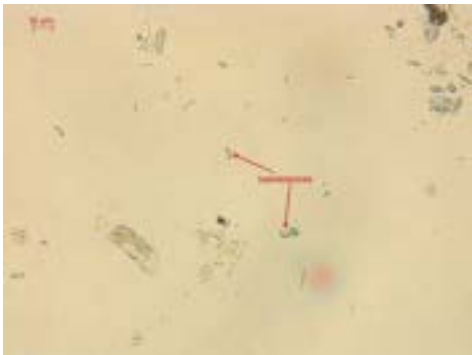
ascospores



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.

Allergenic Potential: Depends on genus and species

basidiospores

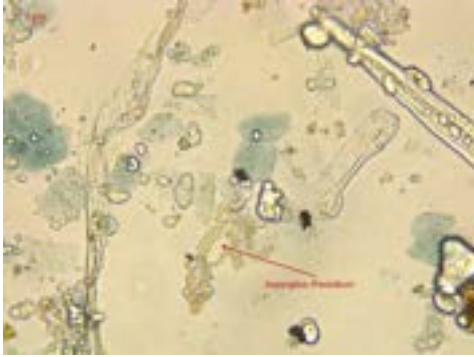


Basidiospores are the result of sexual reproduction and formed on a structure called the basidium. Basidiospores belong to the members of the Phylum Basidiomycota, which includes mushrooms, shelf fungi, rusts, and smuts.

Allergenic Potential: Type I allergies (hay fever, asthma) & Type III (hypersensitivity pneumonitis)

Potential Toxins Produced: Amanitins, monomethyl-hydrazine, muscarine, ibotenic acid, psilocybin.

Penicillium/Aspergillus group



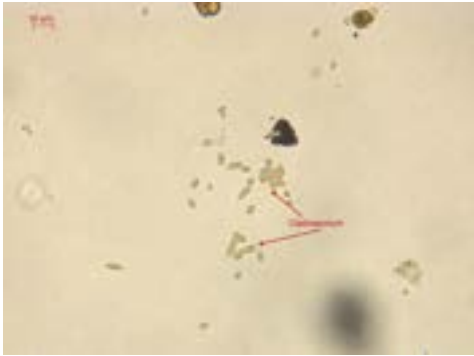
Aspergillus is the second most common opportunistic pathogen following Candida. Penicillium is one of the most common genera of fungi. Free spores of Penicillium are indistinguishable from Aspergillus and other genera with small round to oval colorless or slightly pigmented spores. Widespread. Commonly found in house dust. Grows in water damaged buildings on wallpaper, wallpaper glue, decaying fabrics, moist chipboards, and behind paint. Colonies are usually shades of blue, green, and white.

Allergenic Potential: Allergic bronchopulmonary aspergillosis (ABPA) which is common in asthmatic and cystic fibrosis patients, Aspergillus sinusitis, Invasive aspergillosis in immunocompromised patients Type I (hay fever, asthma), Type III (hypersensitivity)

Potential Toxins Produced: Aspergillus: 3-Nitropropionic acid, 5-metoxystermatocystin, Aflatoxin B1, B2, Aflatoxin G1, G2, Aflatoxin M1, M2, Aflatoxin P1, Aflatoxin Q1, Aflatoxins, Aflatrem (alkaloid), Aflatrem (indole alkaloid), Aflavinin, Ascalidol, Aspergillilic acid, Aspergillomarasmin, Aspertoxin, Asteltoxin, Austamid, Austdiol, Austins, Austocystins, Avenaciolide, Brevianamide A, Candidulin, Citreoviridin, Citrinin, Clavatul, Cyclopiazonic acid, Cyclopiazonic acid, Cytochalasin E, Emodin, Fumagillin, Fumigaclavine A, Fumigatin, Fumitremorgens, Fumitremorgin A, Gliotoxin, Griseofulvin, Helvolic acid, Kojic acid, Kotanin, Malformins, Naphtopyrones, Neoaspergillilic acid, Nidulin, Nidulotoxin, Nigragillin, Ochratoxin A, Ochratoxin B, Ochratoxin C, Ochratoxins β, Ochratoxins α, Ochratoxins (A,B,C,α, β.), Orlandin, Oryzacidin, Paspaline, Patulin, Penicillic acid, Phthioic acid, Secalonic acid A, B, D and F, Sphingofungins, Spinulosin, Sterigmatocystin, Terphenyllin, Terredional, Terreic acid, Terrein, Terretinin, Terretinin, Territrem A, Tryptoquivalines, Verruculogen, Versicolorin A, Viomellein, Viriditoxin, Xanthocillin, Xanthomegnin, β-nitropropionic acid

Penicillium: Citrinin, Citreoviridin, Cyclopiazonic acid, Fumitremorgen B, Grisiofulvin, Janthitrem, Mycophenolic acid, Paxilline, Penitrem A, Penicillic acid, Ochratoxins, Roquefortine C, Secalonic acid D, Verruculogen, Verrucosidin, Viomellein, Viridicatumtoxin, Xanthomegnin,

Cladosporium



Distinctive, with wide variation in size and shape. Spores with dark attachment scars and some olive to brown pigmentation are identified as Cladosporium. Widespread, on many substrates, including textiles, wood, moist window sills. Grows at 0°C, and so is associated with refrigerated foods.

Allergenic Potential: Type I allergies (hay fever, asthma). Type III hypersensitivity pneumonitis: Hot tub lung, Moldy wall hypersensitivity.

Potential Toxins Produced: Cladosporin, Emodin

Alternaria

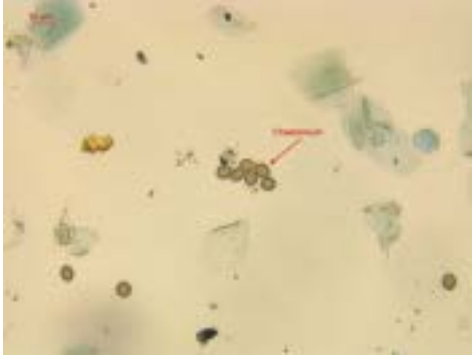


Alternaria spores are one of the most common and potent indoor and outdoor airborne allergens. Additionally, Alternaria sensitization has been determined to be one of the most important factors in the onset of childhood asthma. Synergy with Cladosporium or Ulocladium may increase the severity of symptoms.

Allergenic Potential: Type I allergies (hay fever, asthma) & Type III (hypersensitivity pneumonitis)

Potential Toxins Produced: Alternariol, Alternariol monomethylether, Tenuazonic acid, Altenuene, Altertoxins

Chaetomium

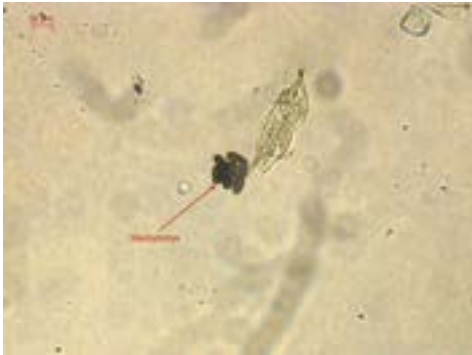


Distinctive. *Chaetomium globosum* has small brown "lemon" or "football-shaped" ascospores. Grows and sporulates on general fungal media, may need 8-20 days for fruiting body production and sporulation. Widespread, cellulolytic, very commonly found on damp sheetrock paper.

Allergenic Potential: Type I allergies (hay fever, asthma)

Potential Toxins Produced: Chaetomin, Chaetoglobosins A,B,D and F are produced by *Chaetomium globosum*, Sterigmatocystin is produced by rare species.

Stachybotrys



Commonly known as "Black Mold" and found indoors on wet materials containing cellulose, such as wallboard, jute, wicker, straw baskets, and other paper materials. *Stachybotrys* is slow growing as compared to *Penicillium* and other common mold genera, and may not compete well in the presence of other fungi. However, when water availability is high for prolonged periods on environmental material, *Stachybotrys* may gradually become the predominating mold, especially on cellulose containing materials.

Allergenic Potential: Type I allergies (hay fever, asthma). Type III hypersensitivity pneumonitis: Hot tub lung, Moldy wall hypersensitivity.

Potential Toxins Produced: Macrocyclic trichothecenes: verrucarins J, roridin E, satratoxin F, G & H, sporidesmin G, trichoverrol; cyclosporins, stachybotryolactone.

Stachybotrys mycotoxicosis is currently the subject of toxin research.

Stachybotrys mycotoxicosis: human toxicosis has been described; may be characterized by dermatitis, cough, rhinitis, itching or burning sensation in mouth, throat, nasal passages and eyes. The best described toxicoses are from domestic animals that have eaten contaminated hay and straw or inhaled infected material from contaminated bedding.

Stachybotrys may play a role in the development of sick building syndrome. The presence of this fungus can be significant due to its ability to produce mycotoxins. Exposure to the toxins can occur through inhalation, ingestion, or skin exposure