SanAir Technologies Laboratory

The Identification Specialists

Analysis Report prepared for Environmental Solutions, Inc

Report Date: 4/18/2019

Project Name: Margaret Brent

Project #: 5816 Lamont

SanAir ID#: 19017895

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SanAir Technologies Laboratory

Name: Environmental Solutions, Inc
Address: 534-A Deale Road
Deale, MD 20751
Phone: 410-867-6262

Project Number: 5816 Lamont
P.O. Number: VJG
Project Name: Margaret Brent
Collected Date: 4/15/2019
Received Date: 4/16/2019 9:40:00 AM

SanAir ID Number
19017895
FINAL REPORT
4/18/2019 10:07:12 AM

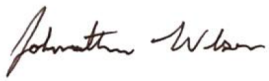
Analyst: Goodwin, Aaron

Air Cassette Analysis

ND = None Detected. Blank spaces indicate no spores detected.

SanAir ID Number	19017895-001			19017895-002		
Analysis Using STL	107C			107C		
Sample Number	2374480			2374471		
Sample Identification	Room 9 Entrance			Room 9 Near Crawlspace		
Sample Type	Air Cassette - Micro-5			Air Cassette - Micro-5		
Volume	25 Liters			25 Liters		
Analytical Sensitivity	40 Count/M^3			40 Count/M^3		
Background Density	1+			1+		
Other	**Raw Count**	**Count/M^3**	**%**	**Raw Count**	**Count/M^3**	**%**
Dander	43	1720	n/a	41	1640	n/a
Fibers	4	160	n/a	1	40	n/a
Mycelial Fragments	1	40	n/a			
Pollen	1	40	n/a			
Fungal Identification	**Raw Count**	**Count/M^3**	**%**	**Raw Count**	**Count/M^3**	**%**
Ascospores	4	160	9	5	200	14
Aspergillus/Penicillium	17	680	37	4	160	11
Basidiospores	15	600	33	19	760	54
Cladosporium species	10	400	22	7	280	20
TOTAL	**46**	**1840**		**35**	**1400**	

Signature:  Date: 4/18/2019

Reviewed:  Date: 4/18/2019

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Organism Descriptions

The descriptions of the organisms presented are derived from various reference materials. The laboratory report is based on the data derived from the samples submitted and no interpretation of the data, as to potential, or actual, health effects resulting from exposure to the numbers of organisms found, can be made by laboratory personnel. Any interpretation of the potential health effects of the presence of this organism must be made by qualified professional personnel with first hand knowledge of the sample site, and the problems associated with that site.

Dander - Comprised of human and/or animal skin cells. Counts may be higher in carpeted rooms and in rooms with more traffic.
Health Effects: May cause allergies.

Fibers - This category can include clothing, carpet, and insulation fibers.

Mycelial Fragments - A mycelium (plural = mycelia) is the "body" of a fungus. It is a collective term for hyphae (singular = hypha), which are the tubular units of the mycelium usually composed of chitin. The terms hyphae and mycelial fragments are used interchangeably. [This information was referenced from the mycology text "The Fifth Kingdom"]In some cases a fungal identification cannot be obtained due to lack of sporulation. Only the mycelial fragments are present, and cannot be identified without the distinguishing characteristics of the spores or the structures they grow from.
Health Effects: Allergic reactions may occur in the presence of spores (conidia) or mycelial/hyphal fragments.

Pollen - Produced by trees, flowers, weeds and grasses. The level of pollen production can depend on water availability, precipitation, temperature, and light. Pollen is usually dispersed by either insects or the wind.
Health Effects: Mostly effects the respiratory tract with hay fever symptoms but has also been shown to trigger asthma in some people.

Ascospores - From the fungal Subphylum Ascomycotina. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascospores can be identified by spore morphology, however; some care should be excercised with regard to specific identification. They are identified on tape lifts and non-viable analysis by the fact that they have no attachment scars and are sometimes enclosed in sheaths with or without sacs. Ascomycetes may develop both sexual and asexual stages. Rain and high humidity may help asci to release, and dispurse ascospores, which is why during these weather conditions there is a great increase in counts.
Health Effects: This group contains possible allergens.

Aspergillus/Penicillium - These spores are easily aerosolized. Only through the visualization of reproductive structures can the genera be distinguished. Also included in this group are the spores of the genera Acremonium, Phialophora, Verticillium, Paecilomyces, etc. Small, round spores of this group lack the necessary distinguishing characteristics when seen on non-viable examination.
Health Effects: Can cause a variety of symptoms including allergic reactions. Most symptoms occur if the individual is immunocompromised in some way (HIV, cancer, etc). Both Penicillium and Aspergillus spores share similar morphology on non-viable analysis and therefore are lumped together into the same group.

Basidiospores - From the Subphylum Basidiomycotina which contains the mushrooms, shelf fungi, and a variety of other macrofungi. They are saprophytes, ectomycorrhizal fungi or agents of wood rot, which may destroy the structure wood of buildings. It is extremely difficult to identify a specific genera of mushrooms by using standard culture plate techniques. Some basidiomycete spores can be identified by spore morphology; however, some care should be exercised with regard to specific identification. The release of basidiospores is dependant upon moisture, and they are dispersed by wind.
Health Effects: Many have the potential to produce a variety of toxins. Members of this group may trigger Type I and III fungal hypersensitivity reactions. Rarely reported as opportunistic pathogens.

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Cladosporium species - The most commonly identified outdoor fungus. The outdoor numbers are reduced in the winter and are often high in the summer. Often found indoors in numbers less than outdoor numbers. It is commonly found on the surface of fiberglass duct liner in the interior of supply ducts. A wide variety of plants are food sources for this fungus. It is found on dead plants, woody plants, food, straw, soil, paint and textiles. Often found in dirty refrigerators and especially in reservoirs where condensation is collected, on moist window frames it can easily be seen covering the whole painted area with a velvety olive green layer.
Health Effects: It is a common allergen. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchiospasms, chronic cases may develop pulmonary emphysema. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.
References: Flannigan, Brian, Robert A. Samson, and J. David Miller, eds. Microorganisms in Home and Indoor Work Environments: Diversity, Health Impacts, Investigation, and Control. London and New York: Taylor & Francis,2001.