



SanAir Technologies Laboratory, Inc.

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SanAir ID Number

06003097

FINAL REPORT

Name: Professional Environmental Solutions
Address: 2415 ILA Road
Commerce, GA 30530

Customer Job ID: 1
Customer P.O.:
Customer Job Name: Shan's House

Collected Date: 5/27/2006
Received Date: 5/31/2006 10:15:05 AM
Report Date: 5/31/2006 3:17:47 PM
Analyst: Macdonald, Claire

Direct Identification Analysis

SanAir ID: 06003097-001 Sample #: #1 ID: Red Pins

D3-Direct ID Analysis on Tape Quantitative Direct ID

Fungi	Estimated Amount	
Ascospores	Heavy	80,000 spores/cm sq.
Aspergillus species	Light	16,000 spores/cm sq.

SanAir ID: 06003097-002 Sample #: #2 ID: Yellow Pins

D3-Direct ID Analysis on Tape Quantitative Direct ID

Fungi	Estimated Amount	
Ascospores	Light	20,000 spores/cm sq.
Basidiospores	Rare	2 spores/cm sq.
Cladosporium species	Rare	1 spore/cm sq.
Geotrichum species	Light	50 spores/cm sq.
Penicillium species	Light	60,000 spores/cm sq.

SanAir ID: 06003097-003 Sample #: #3 ID: Green Pins

D3-Direct ID Analysis on Tape Quantitative Direct ID

Fungi	Estimated Amount	
Ascospores	Rare	40 spores/cm sq.
Cladosporium species	Moderate	36,000 spores/cm sq.
Penicillium species	Light	120 spores/cm sq.

Certification

Signature: *L. Claire Macdonald*
Date: 5/31/2006

Reviewed: *Stephen N. Hoys*
Date: 5/31/2006



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ORGANISM DESCRIPTIONS

ASCOSPORES - One of the major classes of fungal organisms. Ascospores are ubiquitous in nature and are commonly found in the outdoor environment. This class contains the "sac fungi" and yeasts. Some ascomycete spores can be identified by spore morphology, however; some care should be exercised 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. Some fungi that belong to the ascomycete family are the sexual forms of *Penicillium/Aspergillus*, *Chaetomium sp.* and *Pleospora sp.* This group contains possible allergens, mycotoxin producers and opportunistic human pathogens. Rain and high humidity may rupture the ascus, dispersing the spores, which is why during these weather conditions there is a great increase in counts.

ASPERGILLUS SPECIES - A genus of fungi containing approximately 150 recognized species, which can produce type I and III fungal hypersensitivities. Members of this genus have been recovered from a variety of habitats, but are especially common as saprophytes on decaying vegetation, soils, stored food, and feed products in tropical and subtropical regions. Some species are parasitic on insects, plants and animals, including man. All of the species contained in this genus should be considered allergenic. Various *Aspergillus* species are a common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms. Chronic cases may develop pulmonary emphysema. Members of this genus are reported to cause a variety of opportunistic infections of the ears and eyes. Severe pulmonary infections may also occur. Many species produce mycotoxins, which may be associated with disease in humans and other animals. Toxin production is dependent on the species or a strain within a species and on the food source for the fungus. Some of these toxins have been found to be carcinogenic in animal species. Several toxins are considered potential human carcinogens. *Aspergillus* species can produce a variety of symptoms and disease for an affected individual. There have been over 15 different species of *Aspergillus* implicated in either producing mycotoxins or other deleterious health effects. Both *Penicillium* and *Aspergillus* spores share similar morphology on non-viable analysis and therefore are lumped together into the same group. Only through the visualization of reproductive structures can the genera be distinguished.

BASIDIOSPORES - One of the major classes of fungal organisms. This class contains the mushrooms, shelf fungi, puffballs, and a variety of other macrofungi. They are agents of wood rot, which may destroy the structure wood of buildings, and have the potential to produce a variety of toxins. Members of this family produce type I and III fungal hypersensitivity reactions. 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. Spores disseminate during rain or in times of high humidity. Rarely reported as opportunistic pathogens.

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 a common allergen. 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. It can cause mycosis. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. Some species produce a mycotoxin, epicladosporic acid, that acts in an immunosuppressive manner. Illnesses caused by this genus can include phaeohyphomycosis, chromoblastomycosis, hay fever and common allergies.

GEOTRICHUM SPECIES - *Geotrichum* is commonly found in dairy products and the soil. It causes geotrichosis, which can produce lesions in the mouth, intestines and other areas. Typically, these infections only occur in the immunocompromised host. *Geotrichum* species also has the potential to be an allergen.

PENICILLIUM SPECIES - *Penicillium* spores are ubiquitous in the environment. A wide number of organisms have been placed in this genera. Identification to species is difficult. Often found in aerosol samples. Commonly found in soil, food, cellulose, and grains. It is also found in paint and compost piles. Commonly found in carpet, wallpaper, and in interior fiberglass duct insulation. It may cause hypersensitivity pneumonitis and allergic alveolitis in susceptible individuals. It is reported to be allergenic (skin). *Penicillium* species also produce a wide variety of mycotoxins including but not limited to ochratoxin, patulin, and citrinin. Common cause of extrinsic asthma (immediate-type hypersensitivity: type I). Acute symptoms include edema and bronchospasms, chronic cases may develop pulmonary emphysema. Both *Penicillium* and



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D3 Analysis Information

Results for direct identification analyses (D3) are quantitative. Estimates of mycelial growth as rare, light, moderate, or heavy are provided in addition to the counts, to provide a better overall picture of the sampled area. These estimates apply only to Quantitative Direct Analysis (D3).

Rare.....No signs of active growth. No mycelial fragments seen.

Light.....Possible active growth. Some mycelial fragments seen.

Moderate.....Probable active growth. Mycelial fragments throughout.

Heavy.....Significant active growth. Mycelial fragments throughout.