



Laboratory Analysis Report

Aerobiology

Spore Trap Assay



Client : **Professional Pest Control & Termite Service, Inc**
Jobsite : **Mark Ovard Residence**
Location : **621 S. Loghaven Ct**

PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A**
Zone : **Outdoor Baseline**
Test Site : **N/A**
Diagnostic Tech : **LAB**
SampleType : **Microscopic Particle Assay (SporeTrap), Fungi Only**

Lab Sample# : **70154**
Field Sample# : **1**
Sample Date : **6/16/2010**
Sample Time : **12:35 PM**

Date Lab. Rec'd. : **6/21/2010**
Date Analyzed : **6/24/2010**
Date Issued : **6/24/2010**
Sample Serial # : **15475687**
Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>
Total Fungal Elements/Spores	877	8770	100 %
Aspergillus/Penicillium-Like Spores	514	5140	58.6 %
Fungal Spore Elements	131	1310	14.9 %
Dematiaceous Fungal Spore Elements	85	850	9.69 %
Curvularia species	69	690	7.87 %
Cladosporium species	66	660	7.53 %
Dematiaceous Fungal Hyphal Elements	10	100	1.14 %
Fungal Hyphal Elements	2	20	0.228 %
Total Counts:	877	8,770	100 %

Comments :

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 10 Cts/m³ (Flow rate: 20.00 lpm, Exposure Time: 5.00 minutes, with 31 traverses under 400x Magnification)

*Detection limits may vary with flow rate, exposure time and microscopic fields observed for particle count at a defined magnification.

BDL = Below Detection Limits

N/A = Not Applicable

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Quality Controlled By : _____

Approved By : _____

Rajiv R. Sahay, Ph.D.



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Aerobiology

Spore Trap Assay



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Location : **621 S. Loghaven Ct**

PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A** Lab Sample# : **70155** Date Lab. Rec'd. : **6/21/2010**
Zone : **Upstairs Bathroom** Field Sample# : **2** Date Analyzed : **6/24/2010**
Test Site : **Front Edge of Counter** Sample Date : **6/16/2010** Date Issued : **6/24/2010**
Diagnostic Tech : **LAB** Sample Time : **11:44 AM** Sample Serial # : **15491755**
SampleType : **Microscopic Particle Assay (SporeTrap), Fungi Only** Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>
Total Fungal Elements/Spores	449	4490	100 %
Fungal Spore Elements	195	1950	43.4 %
Aspergillus/Penicillium-Like Spores	161	1610	35.9 %
Dematiaceous Fungal Spore Elements	36	360	8.02 %
Cladosporium species	28	280	6.24 %
Dematiaceous Fungal Hyphal Elements	13	130	2.90 %
Fungal Hyphal Elements	11	110	2.45 %
Curvularia species	5	50	1.11 %
Total Counts:	449	4,490	100 %

Comments :

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 10 Cts/m³ (Flow rate: 20.00 lpm, Exposure Time: 5.00 minutes, with 31 traverses under 400x Magnification)

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Laboratory Analysis Report

Aerobiology

Spore Trap Assay



Client : **Professional Pest Control & Termite Service, Inc**
Jobsite : **Mark Ovard Residence**
Location : **621 S. Loghaven Ct**

PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A**
Zone : **Mstr Bdrm Downstairs**
Test Site : **Top of Dresser**
Diagnostic Tech : **LAB**
SampleType : **Microscopic Particle Assay (SporeTrap), Fungi Only**

Lab Sample# : **70156**
Field Sample# : **3**
Sample Date : **6/16/2010**
Sample Time : **11:53 AM**

Date Lab. Rec'd. : **6/21/2010**
Date Analyzed : **6/24/2010**
Date Issued : **6/24/2010**
Sample Serial # : **15491758**
Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>
Total Fungal Elements/Spores	199	1990	100 %
Aspergillus/Penicillium-Like Spores	64	640	32.2 %
Fungal Spore Elements	61	610	30.7 %
Cladosporium species	36	360	18.1 %
Dematiaceous Fungal Spore Elements	20	200	10.1 %
Dematiaceous Fungal Hyphal Elements	13	130	6.53 %
Curvularia species	3	30	1.51 %
Fungal Hyphal Elements	2	20	1.01 %
Total Counts:	199	1,990	100 %

Comments :

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 10 Cts/m³ (Flow rate: 20.00 lpm, Exposure Time: 5.00 minutes, with 31 traverses under 400x Magnification)

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Laboratory Analysis Report

Aerobiology

Spore Trap Assay



Client : **Professional Pest Control & Termite Service, Inc**
Jobsite : **Mark Ovard Residence**
Location : **621 S. Loghaven Ct**

PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A** Lab Sample# : **70157** Date Lab. Rec'd. : **6/21/2010**
Zone : **Living Rm Downstairs** Field Sample# : **4** Date Analyzed : **6/24/2010**
Test Site : **Top Right Side of Fireplace Hearl** Sample Date : **6/16/2010** Date Issued : **6/24/2010**
Diagnostic Tech : **LAB** Sample Time : **12:22 PM** Sample Serial # : **15475706**
SampleType : **Microscopic Particle Assay (SporeTrap)** Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>
Total Fungal Elements/Spores	109	1090	100 %
Aspergillus/Penicillium-Like Spores	37	370	33.9 %
Fungal Spore Elements	31	310	28.4 %
Dematiaceous Fungal Spore Elements	20	200	18.3 %
Dematiaceous Fungal Hyphal Elements	9	90	8.26 %
Cladosporium species	6	60	5.50 %
Curvularia species	4	40	3.67 %
Fungal Hyphal Elements	2	20	1.83 %
Total Counts:	109	1,090	100 %

Comments :

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 10 Cts/m³ (Flow rate: 20.00 lpm, Exposure Time: 5.00 minutes, with 31 traverses under 400x Magnification)

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Laboratory Analysis Report

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Location : **621 S. Loghaven Ct**

PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A** Lab Sample# : **70158** Date Lab. Rec'd. : **6/21/2010**
Zone : **Kitchen** Field Sample# : **5** Date Analyzed : **6/23/2010**
Test Site : **Counter, Front Right Edge Sink** Sample Date : **6/16/2010** Date Issued : **6/24/2010**
Diagnostic Tech : **LAB** Sample Time : **12:10 PM** Sample Serial # : **15491767**
SampleType : **Microscopic Particle Assay (SporeTrap), Fungi Only** Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>
Total Fungal Elements/Spores	46	460	100 %
Basidiospores	20	200	43.5 %
Ascospores	18	180	39.1 %
Aspergillus/Penicillium-Like Spores	3	30	6.52 %
Curvularia species	3	30	6.52 %
Dematiaceous Fungal Spore Elements	2	20	4.35 %
Total Counts:	46	460	100 %

Comments :

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 10 Cts/m³ (Flow rate: 20.00 lpm, Exposure Time: 5.00 minutes, with 36 traverses under 400x Magnification)

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Laboratory Analysis Report

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Spore Trap Assay



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Location : **621 S. Loghaven Ct**

PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A** Lab Sample# : **70159** Date Lab. Rec'd. : **6/21/2010**
Zone : **Downstairs Bathroom** Field Sample# : **6** Date Analyzed : **6/23/2010**
Test Site : **Counter, Frnt Edge Across From** Sample Date : **6/16/2010** Date Issued : **6/24/2010**
Diagnostic Tech : **LAB** Sample Time : **12:02 PM** Sample Serial # : **15491751**
SampleType : **Microscopic Particle Assay (SporeTrap), Fungi Only** Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>
Total Fungal Elements/Spores	77	770	100 %
Basidiospores	25	250	32.5 %
Ascospores	17	170	22.1 %
Aspergillus/Penicillium-Like Spores	12	120	15.6 %
Dematiaceous Fungal Hyphal Elements	10	100	13.0 %
Cladosporium species	4	40	5.19 %
Dematiaceous Fungal Spore Elements	3	30	3.90 %
Curvularia species	3	30	3.90 %
Fungal Spore Elements	2	20	2.60 %
Exosporium species	1	10	1.30 %
Total Counts:	77	770	100 %

Comments :

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 10 Cts/m³ (Flow rate: 20.00 lpm, Exposure Time: 5.00 minutes, with 36 traverses under 400x Magnification)

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Laboratory Analysis Report

Aerobiology

Spore Trap Assay



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PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A** Lab Sample# : **70161** Date Lab. Rec'd. : **6/21/2010**
Zone : **CrawlSpace** Field Sample# : **8** Date Analyzed : **6/23/2010**
Test Site : **Directly Below #7 Tub Drain** Sample Date : **6/16/2010** Date Issued : **6/24/2010**
Diagnostic Tech : **LAB** Sample Time : **12:53 PM** Sample Serial # : **15491752**
SampleType : **Microscopic Particle Assay (SporeTrap), Fungi Only** Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>
Total Fungal Elements/Spores	1943	19400	100 %
Basidiospores	1152	11500	59.3 %
Aspergillus/Penicillium-Like Spores	411	4110	21.2 %
Ascospores	198	1980	10.2 %
Dematiaceous Fungal Hyphal Elements	65	650	3.35 %
Dematiaceous Fungal Spore Elements	61	610	3.14 %
Fungal Spore Elements	22	220	1.13 %
Fungal Hyphal Elements	9	90	0.464 %
Cladosporium species	9	90	0.464 %
Curvularia species	5	50	0.258 %
Ganoderma species	5	50	0.258 %
Stachybotrys/Memnoniella-Like Spores	4	40	0.206 %
Cercospora species	1	10	0.0515 %
Helminthosporium species	1	10	0.0515 %
Total Counts:	1940	19,400	100 %

Comments :

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 10 Cts/m³ (Flow rate: 20.00 lpm, Exposure Time: 5.00 minutes, with 36 traverses under 400x Magnification)

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Spores / Fungal Elements Identified from Spore Trap Assays

Client : **Professional Pest Control & Termite Service, Inc**
Jobsite : **Mark Ovard Residence**

PACS ID# : **05878**
Work Order # : **011892**

Dematiaceous Fungal Hyphal Elements

Fungal hyphae that are brown to black. No identification to genus level can be made.

Dematiaceous Fungal Spore Elements

Fungal spores that are brown to black. No identification to genus level can be made.

Fungal Hyphal Elements

Fungal hyphae that are hyaline or colorless. No identification to genus level can be made.

Fungal Spore Elements

Fungal spores that are hyaline or colorless. No identification to genus level can be made.

Ascospores

A kind of spore produced by the membranes of ascomycetes. Size and shape (circular to elongated) are greatly variable. May be unicellular or multi-cellular in structure. Development takes place within asci (a type of fruiting body), responsible for sexual propagation. Many of the ascospores can become airborne. This classification comprises a very large group of fungi, some allergenic, some rarely pathogenic, some pathogenic to plants only. A more definitive identification requires culturing and growth of the spores on laboratory media.

Aspergillus/Penicillium-Like Spores

Conidia that are characteristic of the following genera: *Aspergillus*, *Penicillium*, *Paecilomyces*, *Scopulariopsis*, and *Gliocladium*. Identification to genus level can not be made.

Basidiospores

Basidiospores are those produced from the basidium of Basidiomycetes. They are almost always produced as four spores / basidium. The most reliable feature that separates basidiospores from ascospores and deuteromycetes spores is the presence of an off-center apiculus where the spores are attached to the basidium. Apart from that basidiospores may be rough or smooth, darkly pigmented or completely clear, spherical, oval, ellipsoidal or hot-dog shaped. Basidiospores seldom exceed 18µm in length. Some common basidiospore-producing fungi are rusts, smuts, jelly fungi, and puffball mushrooms. Most of the Basidiomycetes fungi are decomposers where some of them are pathogenic to plant and animals or allergenic in nature.

Cercospora species

Cercospora species are weak parasites on dead, dying or physiologically diseased plant tissues with occasional serious injury to healthy plants. They cause round, brown leaf spots on celery, beet, tobacco and other crops. One of the more than 3,800 named species, *Cercospora apii*, is believed to be the cause of one case of cutaneous and subcutaneous lesions.

Cladosporium species

Cladosporium species are found worldwide and are among the most common fungi found in the air, soil, foodstuffs, paint, textiles, bird feathers, and on plants. The hyphae, conidiophores, and conidia are pigmented olivaceous-brown (dematiaceous). Rarely, they can be an opportunist human pathogen causing chromoblastomycosis. They can cause a hypersensitivity pneumonitis known as "hot tub lung disease" and an immediate-type hypersensitivity-type I (IgE-mediated) extrinsic asthma.



Spores / Fungal Elements Identified from Spore Trap Assays

Client : **Professional Pest Control & Termite Service, Inc**
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PACS ID# : **05878**
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Curvularia species

Curvularia species are found worldwide and are very common. The hyphae, conidiophores, and conidia are pigmented olivaceous-brown (dematiaceous). They can be isolated from the air, plants (especially grasses), sand dune soil, and soil. Rarely, they can be an opportunist human pathogen causing allergic reactions, eye (corneal) infections, mycetoma, and infections in immunocompromised patients.

Exosporium species

A type of dematiaceous fungus. Mostly saprophytic in nature. Conidia are pseudoseptate several-celled structure with a prominent scar. Size varies from 28-70 microns. Not reported as aeroallergens.

Ganoderma species

Ganoderma species are found worldwide and are common. They are commonly referred to as a "shelf fungus". They are isolated from the air, dead and decaying wood. There have not been any reports of Ganoderma causing infections.

Helminthosporium species

Helminthosporium species is found worldwide and is very common. It can be isolated from the air, plants, and soil. Rarely, it can be an opportunist human pathogen causing eye (corneal ulcers) infections and subcutaneous or systemic disease.

Stachybotrys/Memnoniella-Like Spores

Spores consistent with Stachybotrys or Memnoniella species were noted. Cultures are necessary to accurately identify the organism to genus and species level.

Stachybotrys species are found worldwide. The hyphae, conidiophores, and conidia are pigmented olivaceous-brown (dematiaceous). They are commonly isolated from soil, desert soil, saline soil, sewage sludge, compost, seawater, fresh water, decaying plant substrates, moldy hay and straw, vegetables and grasses, bird feathers, frescoes of a monastery, wall paper, gypsum board, and wood wall panels. It is capable of decomposing cellulose, chitin, and wool. It produces trichothecene mycotoxins in its mycelium that causes stachybotryotoxicosis in animals and man. Animal stachybotryotoxicosis is caused by the ingestion of mycotoxin contaminated food. In man, stachybotryotoxicosis is caused by the inhalation of the mycotoxin which produces upper respiratory and/or neurologic symptoms, including dermatitis, coughing, rhinitis, irritated throat, fever, headache, feebleness and fatigue.

Memnoniella species are found worldwide and can be isolated from soil, dead plants, paper and textiles. They are morphologically and physiologically closely related to Stachybotrys chartarum and has cytotoxicity similar to S. chartarum. It is unknown if they produce macrocyclic trichothecenes, however, they do produce simple trichothecenes (trichodermol and trichodermin) and phenylspirodrimanones. There have not been any reports of human infections.



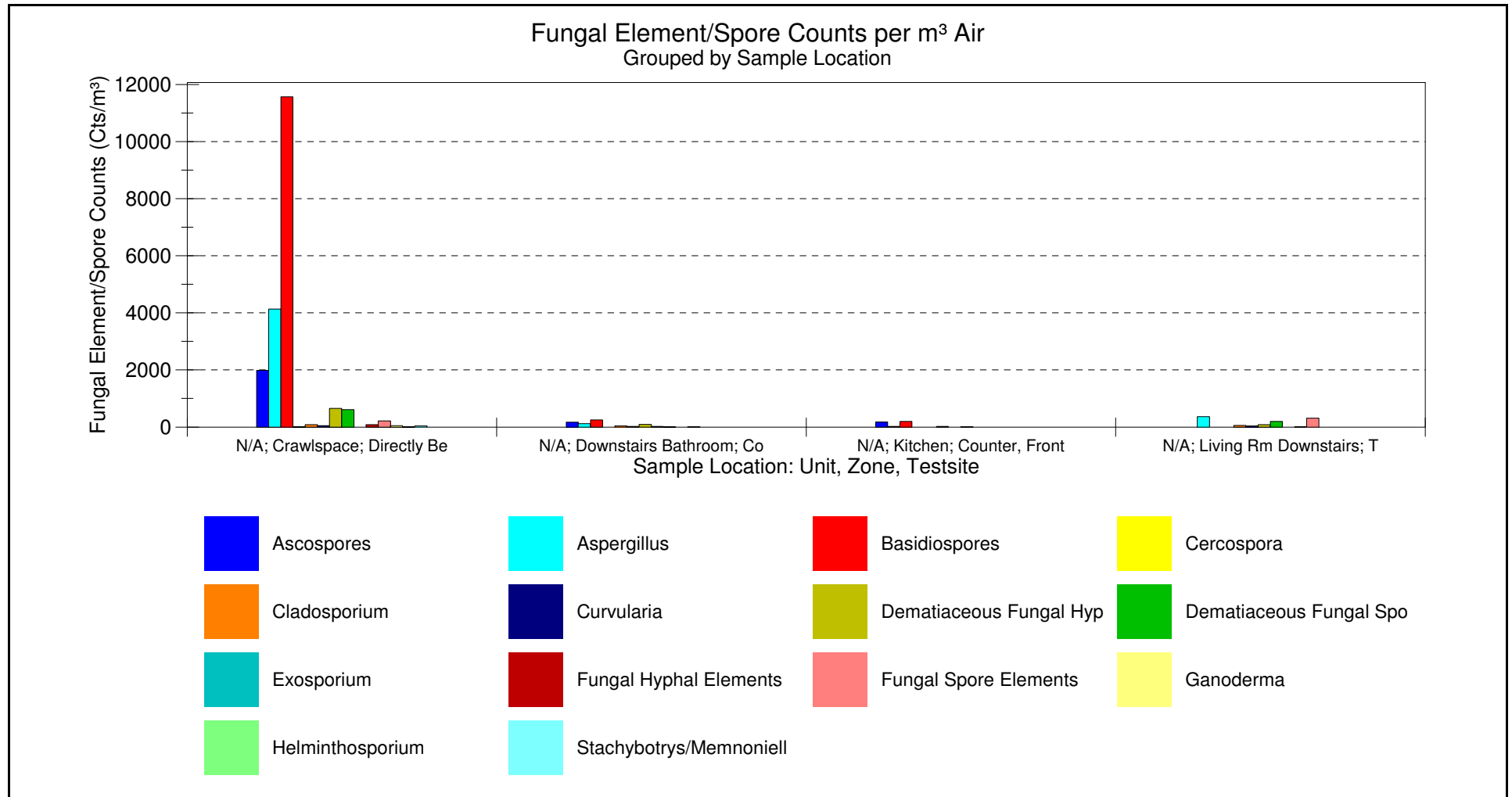
EDLab
Environmental Diagnostics Laboratory
1-800-422-7873, Ext. 301

Laboratory Analysis Chart Aerobiology (Spore Trap Assays) Fungal Elements/Spores



Client: **Professional Pest Control & Termite Service, Inc**
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Location: **621 S. Loghaven Ct**

Work Order: **011892**
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Date Issued: **6/24/2010**





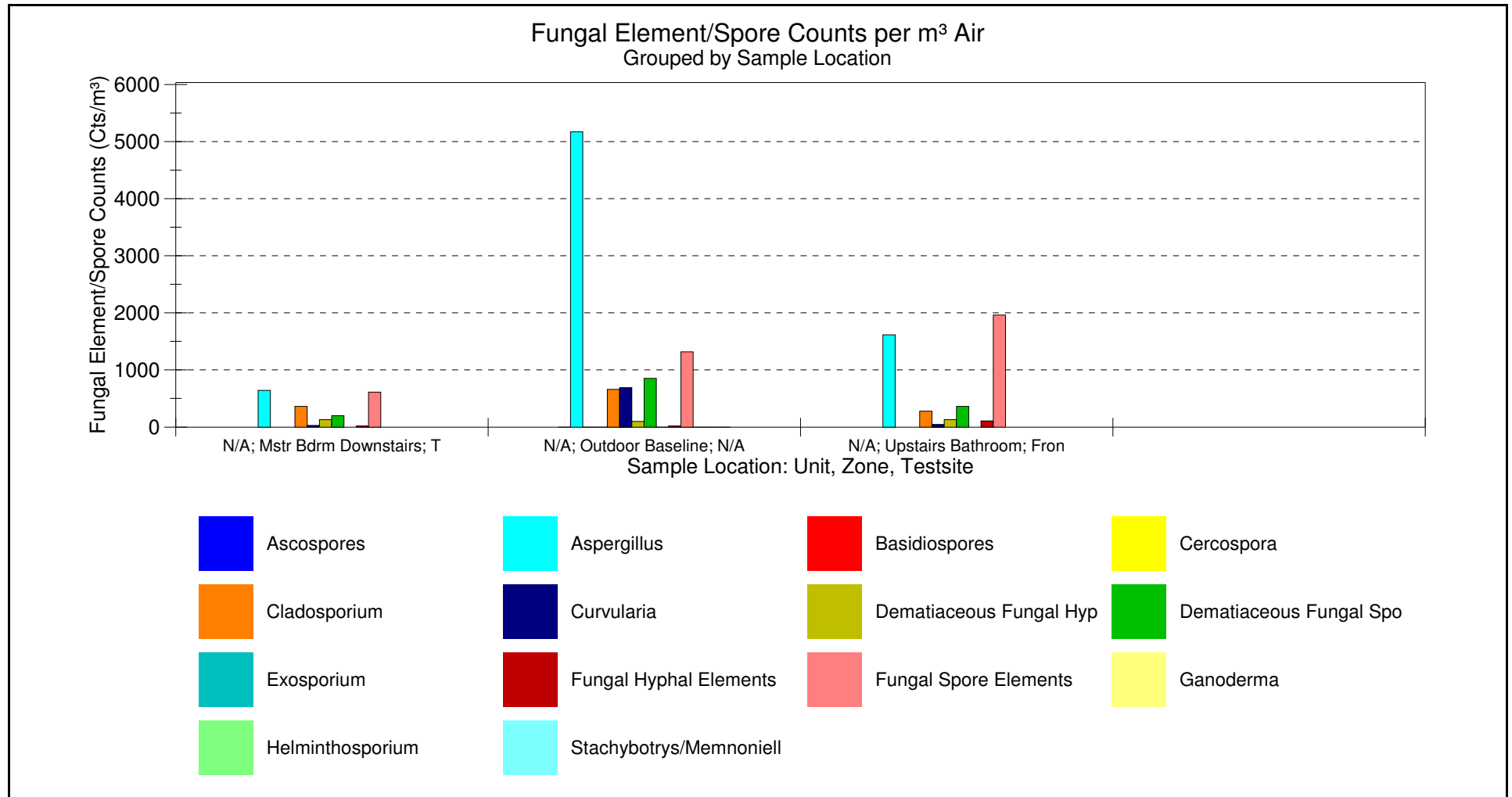
EDLab
Environmental Diagnostics Laboratory
1-800-422-7873, Ext. 301

Laboratory Analysis Chart Aerobiology (Spore Trap Assays) Fungal Elements/Spores



Client: **Professional Pest Control & Termite Service, Inc**
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Work Order: **011892**
PACS ID#: **05878**
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Date Issued: **6/24/2010**



Laboratory Analysis Report

Surface Microscopy

Adhesive Tape Imprint



Client : **Professional Pest Control & Termite Service, Inc**
Jobsite : **Mark Ovard Residence**
Location : **621 S. Loghaven Ct**

PACS ID# : **05878**
Work Order # : **011892**
Project Date : **6/21/2010**

Unit : **N/A**
Zone : **Crawlspace**
Test Site : **Near Tub Drain**
Diagnostic Tech : **LAB**

Lab Sample# : **70160**
Field Sample# : **7**
Sample Date : **6/16/2010**
Sample Time : **12:00 PM**

Date Lab. Rec'd. : **6/21/2010**
Data Entry Date: **6/21/2010**
Date Issued : **06/24/10**

Particles Identification

Count

Total Fungal Elements/Spores

Dematiaceous Fungal Hyphal Elements	Few
Dematiaceous Fungal Spore Elements	1+
Fungal Hyphal Elements	Few
Agrocybe species	3+
Ascospores	Few
Aspergillus/Penicillium-Like Spores	1+

Total "Other"

Myxomycetes	1+
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Comments :

4+ = Greater than 10 objects seen per high power field
3+ = Between 6 - 10 objects seen per high power field
2+ = Between 3 - 5 objects seen per high power field
1+ = One to two objects seen per high power field
Few = Two to three objects seen per slide
Rare = One object seen per slide
BDL = Below Detection Limit: No particles were reported from the microscopically observed area on the specimen slide (at 10x10 or 10x40 magnification).

Method of Analysis: EDLAB SOP-7/09001

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Quality Controlled By :

Approved By :

Rajiv R. Sahay, Ph.D.



EDLab
Environmental Diagnostics Laboratory
1-800-422-7873, Ext. 301

Spores / Fungal Elements Identified from Adhesive Tape Imprint



Client : **Professional Pest Control & Termite Service, Inc**
Jobsite : **Mark Ovard Residence**

PACS ID # : **05878**
Work Order # : **011892**

Dematiaceous Fungal Hyphal Elements

Fungal hyphae that are brown to black. No identification to genus level can be made.

Dematiaceous Fungal Spore Elements

Fungal spores that are brown to black. No identification to genus level can be made.

Fungal Hyphal Elements

Fungal hyphae that are hyaline or colorless. No identification to genus level can be made.

Agrocybe species

Agrocybe species are members of the family of mushrooms. They are widely distributed over the grasslands of the world and also can be found in forests. They fruit during the spring, summer, and fall.

Ascospores

A kind of spore produced by the membranes of ascomycetes. Size and shape (circular to elongated) are greatly variable. May be unicellular or multi-cellular in structure. Development takes place within asci (a type of fruiting body), responsible for sexual propagation. Many of the ascospores can become airborne. This classification comprises a very large group of fungi, some allergenic, some rarely pathogenic, some pathogenic to plants only. A more definitive identification requires culturing and growth of the spores on laboratory media.

Aspergillus/Penicillium-Like Spores

Conidia that are characteristic of the following genera: Aspergillus, Penicillium, Paecilomyces, Scopulariopsis, and Gliocladium. Identification to genus level can not be made.



Professional Pest Control & Termite Service,

Inc

Jobsite: **Mark Ovard Residence**

Location: **621 S. Loghaven Ct**

PACS ID#: **05878**

Work Order #: **011892**

End of Report




Healthy Home / Building Considerations:

Background: The following Healthy Home / Building options should be considered:

A. <u>Baseline Indoor Air Quality Study:</u>	Depending on occupant complaints, perform an independent comprehensive Indoor Air Quality baseline study to determine specificity of indoor pollutants and possible cause / effect relationship of building occupants.
B. <u>Air Conveyance System (ACS):</u>	Inspect for cleanliness. Depending on condition, environmentally clean and treat ACS.
C. <u>Air Handler Unit (AHU):</u>	Inspect for cleanliness. Depending on condition, environmentally clean and treat AHU; reline with closed cell non-porous material.
D. <u>UV Light:</u>	Inspect for application. Typical UV lights (germicidal lamps) mount in the ductwork system or air handling unit and have the ability to control harmful bacteria, mold, viruses, etc. Post cooling coil application is best. UV light should be used in conjunction with high MERV filtration and environmentally clean HVAC systems.
E. <u>AHU Air Filtration:</u>	<p>Depending upon present filtration, upgrade to highest ASHRAE standard Minimum Efficiency Reporting Value (MERV) rating available, while maintaining equipment static pressure requirements. A MERV rating of 16 is the highest.</p> <p>Quick Reference to Various Air Filter MERV Ratings:</p> <ul style="list-style-type: none"> • MERV 1 - MERV 4: Throw-Away Fiberglass Media less than 20% @ 3 - 10 microns • MERV 5: Pleated Media Air Filters 20 - 34.9% @ 3 - 10 microns • MERV 10: Pleated Media Air Filters 85% @ 3 - 10 microns • MERV 14: Pleated Media Air Filters 85% - 94.9% @ .3 - 1.0 microns • MERV 16: Pleated Media Air Filters at 95% @ .3 - 1.0 microns <p>Note: The average Particle Size Particulate Efficiency (PSE) rating varies from MERV 1 - 16.</p>
F. <u>HEPA Vacuum Cleaner:</u>	Review housekeeping protocols. Depending on present vacuum product, upgrade vacuum cleaner to HEPA fitted at 99.97% efficient at .3 microns.
G. <u>Polytac Prefilter at Return Grills:</u>	Install filters to arrest large particulates prior to entering the Return Air Duct System.
H. <u>Unit Ventilation System (UVS):</u>	UVS's are typically whole house air filtration and ventilators that circulate fresh air into the home every 2-4 hours, while removing potential stale air to the outside.

NOTE: Any remedial activities should be accomplished using strict environmental remediation protocols and performed by a qualified professional.

Please contact  at 1-800-422-7873 for further information.