



January 11, 2016

Jane Example
0 Any Street
100
P.O. BOX 12345
Clearwater, FL 12345



Laboratory Advisory Board

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- Arun Kapoor, MD
Occupational Medicine

Re: **Ms. Jane Example Residence, Example Residence
Laboratory Analysis Report
Work Authorization # 00099- 000999**

Dear Jane Example,

We appreciate the opportunity to provide you with our professional indoor environmental laboratory services. The following environmental assays were performed on the samples submitted by you:

- **Microbiological Assays (Bulk, Swab, Water, Vacuumed)** - culturable fungal and bacteria analyses
- **Aerobiology (Spore Trap Assays)** - airborne fungal elements, insect biodetritus, pollen, fibers, skin cell fragments, etc.
- **Surface Microscopy (Tape Prep Assays)** - precipitated fungal elements, insect biodetritus, pollen, fibers, skin cell fragments, etc.

Please call me at 1-800-422-7873, ext. 301, should you have any questions. We look forward in assisting you to create a healthy indoor environment for you and your organization.

Sincerely,

Dr. Rajiv Sahay, CIAQP, FIAS
EDL Laboratory Director

Corporate Office

4911 Creekside Drive • Suite C • Clearwater, FL 33760 • (727) 572-4550 • Toll Free 1-800-422-7873 • Fax: (727) 572-5859
Email: laboratory@pureaircontrols.com • Website: www.pureaircontrols.com

Laboratory Analysis Report Bacteria / Fungi Identified From Culture

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID # : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**
Date Issued : **1/11/2016**

Location of Test	Sample Information	Isolated Organisms			
Unit: 1 Zone: Bedroom Test Site: Carpet Run #: 1 Sample Type: Bulk	Field Sample #: 6 Lab Sample #: 7771115 Sample Date: 1/11/2016 Sample Time: 12:00 Date Lab Rec'd.: 1/11/2016 Date Analyzed: 1/16/2016	<u>Identification</u> Bacteria Total Bacteria	<u>Raw Count</u> N/A	<u>CFU/gm</u> N/A	<u>% of Total</u> -
		<u>Fungi</u> Cladosporium cladosporioides Penicillium brevicompactum Sterile Fungi Total Fungi	12 9 2 23	472 354 79 905	52.2 % 39.1 % 8.73 % 100 %
	Field Sample #: 7 Lab Sample #: 7771116 Sample Date: 1/11/2016 Sample Time: 12:00 Date Lab Rec'd.: 1/11/2016 Date Analyzed: 1/16/2016	<u>Bacteria</u> Streptococcus species Bacillus cereus Staphylococcus aureus Total Bacteria	7 4 3 14	70 40 30 140	50.0 % 28.6 % 21.4 % 100 %
		<u>Fungi</u> Total Fungi	N/A	N/A	-
	B:F Ratio : 00.15 : 1	Total Microorganisms :	14	1,050	100 %

Method of Analysis: Bacteria: EDLAB SOP-7/07001, Fungi: EDLAB SOP-7/08001

CFU = Colony Forming Units
 CFU/gm = Colony Forming Units per gram of sample
 CFU/ml = Colony Forming Units per milliliter of sample
 CFU/cm² = Colony Forming Units per square centimeter of sample
 BDL = Below Detectable Limit: **Detection Limit = 1 CFU**
 N/A = Not Applicable

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Quality Controlled By : 
 Approved By : 
Rajiv R. Sahay, Ph.D.

Bacteria Identified from Environmental Specimens

Client : **Jane Example**

PACS ID # : **00099**

Jobsite : **Ms. Jane Example Residence**

Work Order # : **000999**

Bacillus cereus

A large aerobic, gram-positive or gram-variable bacillus that produces endospores and appears in chains. Colonies appearing on agar medium may be smooth, or may have hair-like outgrowths from the edge. It is ubiquitous in nature being found in soil, dust, water, plants, humans and animals. It can cause food poisoning in humans and animals. Usually considered nonpathogenic for humans, but may occasionally be an opportunistic pathogen.

Staphylococcus aureus

An aerobic gram-positive coccus that produces smooth colonies. Pigmentation of the colonies may range from gray, gray-white, yellow, yellow-orange or orange. It produces both free and bound coagulases and hemolysins (exotoxins). Some isolates produce an epidermolytic toxin that is responsible for the staphylococcal scalded skin syndrome. Some isolates produce endotoxins which when ingested are responsible for staphylococcal food poisoning. It can be part of the normal flora of the skin, skin glands, anterior nares, mucous membranes, gastrointestinal tract, and genital tract of humans, warm-blooded animals, and birds. It is an opportunistic pathogen causing a wide range of infections including: furuncles (boils), carbuncles, impetigo, epidermal necrolysis, osteomyelitis, meningitis, endocarditis, pneumonia, mastitis, bacteremia, enterocolitis, staphylococcal food poisoning and toxic shock syndrome.

Streptococcus species

A Gram-positive bacterium that comprises of spherical or ovoid cells; these can occur in pairs or chains. Sometimes they are elongated in the axis of the chain to form a lanceolate shape. The colony variants differed in colony size (large, medium, and small) and their morphological appearance, such as mucoid, etc., on microbiological media under laboratory conditions. It is non-motile, non-sporing, catalase negative bacterium. Some species are encapsulated and facultatively anaerobic. The growth is usually restricted to a temperature of 25-45 degrees Celsius with optimal growth at 37 degrees Celsius. It can enter the environment mainly from vertebrates, where they inhabit the mouth and upper respiratory tract.

Some species of this bacterium are pathogenic for humans and animals.

Fungi Identified from Environmental Specimens

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID # : **00099**
Work Order # : **000999**

Cladosporium cladosporioides

A slow growing fungus that produces a velvety, dark greenish-brown to blackish colony with an olivaceous-black reverse, when incubated at 25C (77F) in 5-10 days. The hyphae, conidiophores, and conidia are pigmented olivaceous-brown (dematiaceous). It is found worldwide and is the most common fungus isolated from the air, soil, water, sewage and activated sludge, compost beds, stored woods, bird feathers, food products, and on plants. Rarely, it can be an opportunist human pathogen but it can cause an immediate-type hypersensitivity-type I (IgE-mediated) extrinsic asthma.

Penicillium brevicompactum

A slow growing fungus that produces a grayish-green colony with an uncolored or brownish reverse, within fourteen days, when incubated at 25 Degree Celsius (77 Fahrenheit). *Penicillium brevicompactum* is a cosmopolitan species, especially in soil, but never particularly frequent. It is common under humid mixed hardwood, various coniferous forests, grassland and salt marshes. This species is also known as a frequent contaminant of water-damaged building materials such as gypsum wallboard (Scott, 1999 a). Rarely, it can be an opportunistic human pathogen.

Sterile Fungi

A group of fungi that produce only mycelium on the isolation media. Because they do not produce spores on this media, they cannot be identified.



Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : N/A	Lab Sample# : 102	Date Lab. Rec'd. : 1/11/2016
Zone : Outdoors	Field Sample# : 1	Date Analyzed : 1/11/2016
Test Site : Control	Sample Date : 1/11/2016	Date Issued : 1/11/2016
Diagnostic Tech : RRS	Sample Time : 10:00 AM	Sample Serial # : 14035601
SampleType : Microscopic Particle Assay (SporeTrap), Fungi Only, 24 hr.		Sampling Device: AirOCell

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Total Fungal Elements/Spores	122	4880	100 %	
Aspergillus/Penicillium-Like Spores	55	2200	45.1 %	
Ascospores	25	1000	20.5 %	
Dematiaceous Fungal Spore Elements	15	600	12.3 %	
Fusarium species	12	480	9.84 %	
Phoma eupyrena	10	400	8.20 %	
Curvularia species	5	200	4.10 %	
 Total Counts:	 122	 4,880	 100 %	

Comments : Air-O-Cell #14035601 (Fungi Only)

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
 * Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 40 Cts/m³ (Flow rate: 5.00 lpm, Exposure Time: 5.00 minutes, with 33 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.



Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : 1	Lab Sample# : 103	Date Lab. Rec'd. : 1/11/2016
Zone : Bathroom	Field Sample# : 2	Date Analyzed : 1/11/2016
Test Site : N/A	Sample Date : 1/11/2016	Date Issued : 1/11/2016
Diagnostic Tech : RRS	Sample Time : 10:05 AM	Sample Serial # : 14035602
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>	<u>Remarks</u>
Total Fungal Elements/Spores	82	976	100 %	LOW
Aspergillus/Penicillium-Like Spores	30	357	36.6 %	
Ascospores	25	298	30.5 %	
Dematiaceous Fungal Spore Elements	12	143	14.7 %	
Dematiaceous Fungal Hyphal Elements	10	119	12.2 %	
Epicoccum species	5	59	6.05 %	
Total Counts:	82	976	100 %	

Comments : Air-O-Cell #14035602 (Fungi Only)

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
 * Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 11 Cts/m³ (Flow rate: 28.00 lpm, Exposure Time: 3.00 minutes, with 36 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.



Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : **1** Lab Sample# : **104**
 Zone : **Bedroom** Field Sample# : **3**
 Test Site : **N/A** Sample Date : **1/11/2016**
 Diagnostic Tech : **RRS** Sample Time : **10:10 AM**
 SampleType : **Microscopic Particle Assay (SporeTrap), Fungi Only**

Date Lab. Rec'd. : **1/11/2016**
 Date Analyzed : **1/11/2016**
 Date Issued : **1/11/2016**
 Sample Serial # : **14035602**
 Sampling Device: **AirOCell**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/m³)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	66	880	27.5 %	LOW
Skin Cell Fragments	55	733	22.9 %	LOW
Insect Biodetritus	1	13	0.406 %	LOW
Total Fibers	2	26	0.813 %	LOW
Manmade Fibers	2	26	0.813 %	
Total Pollen	2	26	0.813 %	MODERATE
Pinaceae (Pine) Species	2	26	0.813 %	
Total Fungal Elements/Spores	65	865	27.0 %	LOW
Curvularia species	22	293	9.16 %	
Aspergillus/Penicillium-Like Spores	15	200	6.25 %	
Chaetomium species	13	173	5.41 %	
Dematiaceous Fungal Spore Elements	10	133	4.16 %	
Epicoccum species	5	66	2.06 %	
Total "Other"	49	653	20.4 %	LOW
Opaque Particles	27	360	11.3 %	
Blank Particle - Air-O-Cell #14035602	22	293	9.16 %	
Total Counts:	240	3,200	100 %	

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
 * Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 13 Cts/m³ (Flow rate: 15.00 lpm, Exposure Time: 5.00 minutes, with 25 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.



Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : 1	Lab Sample# : 105	Date Lab. Rec'd. : 1/11/2016
Zone : Kitchen	Field Sample# : 4	Date Analyzed : 1/11/2016
Test Site : N/A	Sample Date : 1/11/2016	Date Issued : 1/11/2016
Diagnostic Tech : RRS	Sample Time : 10:15 AM	Sample Serial # : 14035604
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>	<u>Remarks</u>
Opaque Particles	108	1440	40.8 %	LOW
Skin Cell Fragments	28	373	10.6 %	LOW
Insect Biodetritus	2	26	0.737 %	LOW
Total Fibers	BDL	BDL	N/A	LOW
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	82	1093	31.0 %	MODERATE
Curvularia species	30	400	11.3 %	
Fungal Hyphal Elements	15	200	5.67 %	
Ascospores	15	200	5.67 %	
Dematiaceous Fungal Spore Elements	12	160	4.53 %	
Dematiaceous Fungal Hyphal Elements	10	133	3.77 %	
Total "Other"	45	599	17.0 %	LOW
OpaqueParticles	31	413	11.7 %	
Reddish-Brown Particles	12	160	4.53 %	
Black Particles	2	26	0.737 %	
Comments : Air-O-Cell #14035604				
Total Counts:	265	3,530	100.0 %	

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
 * Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 13 Cts/m³ (Flow rate: 15.00 lpm, Exposure Time: 5.00 minutes, with 25 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

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By :
 Approved By :
Rajiv R. Sahay, Ph.D.



Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : 1	Lab Sample# : 106	Date Lab. Rec'd. : 1/11/2016
Zone : Living Room	Field Sample# : 5	Date Analyzed : 1/11/2016
Test Site : N/A	Sample Date : 1/11/2016	Date Issued : 1/11/2016
Diagnostic Tech : RRS	Sample Time : 10:20 AM	Sample Serial # : 14035605
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>	<u>Remarks</u>
Total Fungal Elements/Spores	78	1040	100 %	MODERATE
Aspergillus/Penicillium-Like Spores	29	387	37.2 %	
Curvularia species	22	293	28.2 %	
Dematiaceous Fungal Spore Elements	17	227	21.8 %	
Dematiaceous Fungal Hyphal Elements	10	133	12.8 %	
Total Counts:	78	1,040	100 %	

Comments : Air-O-Cell #14035605 (Fungi Only)

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
 * Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 13 Cts/m³ (Flow rate: 15.00 lpm, Exposure Time: 5.00 minutes, with 25 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.

Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : **1** Lab Sample# : **107** Date Lab. Rec'd. : **1/11/2016**
 Zone : **Air Handler** Field Sample# : **6** Date Analyzed : **1/11/2016**
 Test Site : **Cooling Tower** Sample Date : **1/11/2016** Date Issued : **1/11/2016**
 Diagnostic Tech : **RRS** Sample Time : **10:00 AM** Sample Serial # : **14035606**
 SampleType : **Microscopic Particle Assay (SporeTrap)** Sampling Device : **AirOCell**

Particle Identification	Raw Count	Total Count (Cts/m ³)	Percent of Total Count	Remarks
Opaque Particles	12	267	6.68 %	LOW
Skin Cell Fragments	35	778	19.5 %	LOW
Insect Biodetritus	2	44	1.10 %	LOW
Total Fibers	78	1730	43.3 %	HIGH
Manmade Fibers	78	1730	43.3 %	
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	8	178	4.45 %	LOW
Fusarium species	8	178	4.45 %	
Total "Other"	45	1000	25.0 %	LOW
Black Particles	45	1000	25.0 %	
Total Counts:	180	4,000	100 %	

Comments :

Remarks: **LOW** =At or Below Guidelines* **MODERATE** =Moderately Above Guidelines* **HIGH** =Significantly Above Guidelines*
 * Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 22 Cts/m³ (Flow rate: 15.00 lpm, Exposure Time: 3.00 minutes, with 25 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.



Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : N/A	Lab Sample# : 108	Date Lab. Rec'd. : 1/11/2016
Zone : Living Room	Field Sample# : 7	Date Analyzed : 1/11/2016
Test Site : Top of Clock	Sample Date : 1/11/2016	Date Issued : 1/11/2016
Diagnostic Tech : RRS	Sample Time : 10:00 AM	Sample Serial # : 14035608
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>	<u>Remarks</u>
Opaque Particles	78	1730	27.6 %	LOW
Skin Cell Fragments	41	911	14.6 %	LOW
Insect Biodetritus	BDL	BDL	N/A	LOW
Total Fibers	12	267	4.27 %	
Fiberglass Fibers	12	267	4.27 %	HIGH
Total Pollen	2	44	0.703 %	HIGH
Pinaceae (Pine) Species	2	44	0.703 %	
Total Fungal Elements/Spores	94	2090	33.4 %	HIGH
Erysiphaceae (Powdery Mildews)	89	1980	31.6 %	
Cladophialophora species	5	111	1.77 %	
Total "Other"	55	1220	19.5 %	LOW
Reddish-Brown Particles	32	711	11.4 %	
"Talc-Like" Particles	23	511	8.16 %	
Total Counts:	282	6,260	100.0 %	
Comments :				

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
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Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 22 Cts/m³ (Flow rate: 15.00 lpm, Exposure Time: 3.00 minutes, with 25 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.



Laboratory Analysis Report

Aerobiology

Spore Trap Assay

Client : **Jane Example**
 Jobsite : **Ms. Jane Example Residence**
 Location : **Example Residence**

PACS ID# : **00099**
 Work Order # : **000999**
 Project Date : **1/1/2006**

Unit : N/A	Lab Sample# : 109	Date Lab. Rec'd. : 1/11/2016
Zone : Master Bedroom	Field Sample# : 8	Date Analyzed : 1/11/2016
Test Site : Top of T.V.	Sample Date : 1/11/2016	Date Issued : 1/11/2016
Diagnostic Tech : RRS	Sample Time : 10:00 AM	Sample Serial # : 14035608
SampleType : Microscopic Particle Assay (SporeTrap)		Sampling Device: AirOCell

Particle Identification	Raw Count	Total Count (Cts/m ³)	Percent of Total Count	Remarks
Opaque Particles	66	1470	29.2 %	LOW
Skin Cell Fragments	56	1240	24.6 %	LOW
Insect Biodetritus	BDL	BDL	N/A	LOW
Total Fibers	34	755	15.0 %	MODERATE
Hair, Animal	30	667	13.2 %	
Plant Fibers	4	88	1.75 %	
Total Pollen	5	111	2.20 %	HIGH
Ambrosia (Ragweed) Species	5	111	2.20 %	
Total Fungal Elements/Spores	28	622	12.3 %	LOW
Aspergillus flavus	23	511	10.1 %	
Penicillium species	5	111	2.20 %	
Total "Other"	38	844	16.7 %	LOW
Reddish-Brown Particles	33	733	14.5 %	
Black Particles	5	111	2.20 %	
Comments :				
Total Counts:	227	5,040	100.0 %	

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
 * Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

Method of Analysis: EDLAB SOP-7/05001

Detection Limits* : 22 Cts/m³ (Flow rate: 15.00 lpm, Exposure Time: 3.00 minutes, with 25 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

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By :
 Approved By :
Rajiv R. Sahay, Ph.D.

Opaque Particles Identified from Spore Trap Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Opaque Particles

These particles may originate from inorganic or organic sources in nature. However, it appears opaque when observed under light microscopy. It has various shape and sizes. It may be regular or irregular in shape. On an average it can be measured less than one micron to well over fifty microns with some exceptions. Commonly these particles include but are not limited to dust & debris, paint, combustions, emission, ash, silica and others.

These particulates are significant from a health/allergy point of view especially in case of respiratory disorder.

Fibers Identified from Spore Trap Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Fiberglass Fibers

Fiberglass is a material made from extremely fine fibers of glass. In indoor environments, it is used as an insulating material for HVAC systems. It appears as a smooth-walled, elongated, tube-like structure under the microscope with varying size ranges (avg. range 1-micron to over 1000-microns).

It is listed as an irritant.

Hair, Animal

Plant Fibers

Technically, Plant fibers are known as Plant Trichomes. A Plant Trichome is the hairy out growth from the aerial part of the plant. Not all plants can produce plant trichomes. Plant trichomes vary greatly in their size and shape. On an average, these structures measure from a few microns to well over a few millimeters. It may be a simple unicellular elongated structure or a complex multi-cellular structure. Sometimes also filled with various biochemicals.

Plant trichomes are significant from an allergenic/disease point of view especially eczema and other dermal allergies.

Manmade Fibers

Man-made fibers may come from natural raw materials like cellulose or from synthetic chemicals like rayon, nylon, etc. In indoor environments, some important sources of man made fiber include carpet, cellulose based building materials, clothing, paper and paper products, etc. Size of these fibers varies from a few microns to a several centimeters; however, an average size range may be 1 micron to over 500 microns.

Health implications of these particles are not well described, however some of the man-made fibers are important from an allergy point of view especially for dermal allergy.

Pollen Species Identified from Spore Trap Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Ambrosia (Ragweed) Species

Every state in the United States except Alaska and Hawaii, has at least one species of Ambrosia. The pollens are extremely difficult to distinguish from each other and are usually reported as Ambrosia or ragweed pollen. The pollen is shed from July through November, however, some species may shed year round in Florida and the Southwest. In North America, Ambrosia is the most important cause of producing pollinosis [an allergic reaction (hay fever) resulting in a type I antibody-mediated hypersensitivity].

Pinaceae (Pine) Species

There are six genera of evergreens that are found primarily in North America: fir (*Abies*); larch, tamarack (*Larix*); spruce (*Picea*); pine (*Pinus*); Douglas fir (*Pseudotsuga*); and hemlock (*Tsuga*). Abundant pollen is produced in the spring and early summer. The large pollen have air bladders which permit them to travel great distances. Rarely does it cause pollinosis [an allergic reaction (hay fever) resulting in a type I antibody-mediated hypersensitivity].

Spores / Fungal Elements Identified from Spore Trap Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

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.

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 flavus

Aspergillus flavus is very common worldwide especially in the subtropical and tropical regions. It can be isolated from soil, mangrove swamp, sewage sludge, foodstuffs including ground black pepper, bird feathers, gastrointestinal tract of man and animals, wood pulp, insects, cotton fabric, leather, and frescoes of a monastery. It produces aflatoxins which are very toxic to man, animals, fish, insects, and birds. Production of aflatoxins is dependent upon the substrate present and the growth conditions (temperature, relative humidity, etc.). Aflatoxins are toxic to the liver. They are teratogenic, mutagenic, and a known animal and suspected human carcinogen. Exposure to the aflatoxins occurs primarily when contaminated food is ingested. Occasionally it produces pulmonary infections when inhaled, eye (corneal) infections, ear infections, nasal and sinus infections, and may cause allergic disease.

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.

Chaetomium species

Chaetomium species are found worldwide and may produce an earthy odor. They are an important cause of decay of cotton and other cellulose materials; causes soft rot in wood and fruit rot; and is an important component in the decomposition of plant material in composts. They can be isolated from dung, straw, bird feathers, soil and plants. They may be associated with allergic disease.

Spores / Fungal Elements Identified from Spore Trap Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Cladophialophora species

Cladophialophora is a genus black, yeast-like fungus. The natural habitat of these fungi is soil and disintegrating plant materials, especially in tropical and sub-tropical regions. Some species of these fungi are discovered originating from soft drinks, alkylbenzene-polluted soil and infected patients. Under laboratory conditions, it can be cultured on microbiological media such as Malt Extract Agar (MEA), Potato Dextrose Agar (PDA), etc., with an optimum incubating temperature at 25°C; however, it can grow at temperatures as high as 42-43°C with a few exceptions in which the growth is restricted beyond 35-36°C. Colony color is variable from olivaceous green to black from the front and black from the reverse. Hyphae are brown and septate while conidiophores are not differentiated from the vegetative hyphae. Conidia are pale to dark brown and frequently arranged in a chain.

Some members of this genus are known human pathogens. They may cause phaeohyphomycosis, chromoblastomycosis and mycetoma.

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.

Epicoccum species

Epicoccum species are found worldwide and are very common. The hyphae, conidiophores, and conidia are pigmented olivaceous-brown (dematiaceous). They can be isolated from air, plants, grains, textiles, animals, foodstuffs, and paper products. They can cause allergic disease in humans.

Erysiphaceae (Powdery Mildews)

Members of the family Erysiphaceae cause a group of plant diseases known as powdery mildews. The infected plant material appears as a white, powdery coating. They infect western hackberry, apple, grape, roses, gooseberries, lilac, cucurbits and many other plants.

Fusarium species

Fusarium species are found worldwide and are commonly isolated from plants, soil, caves, salt marshes, mangrove mud, insects, gerbils, bird feathers, water, wooden furniture, and wood pulp. Some isolates produce the mycotoxin trichothecene which can cause disease in humans and animals. Trichothecene targets the circulatory, alimentary, skin, and nervous systems. Some isolates produce the mycotoxin vomitoxin on cereal grains which produce disease by either ingestion or inhalation of the contaminated grains. It can be an opportunist human pathogen causing allergic disease, eye, skin, and nail infections.

Penicillium species

Penicillium species are a common fungus isolated worldwide and can be isolated from air, soil, plants, sand dunes, sewage, swamps, mangrove swamps, salt marshes, caves, fresh and salt water, compost, cotton, cellulose, textiles, caterpillars, bird feathers, animal dung, leather, wooden furniture, bees and beehives, flour-based foodstuffs, optical lenses, paints, fruits, and fruit juices. Some species produce a mycotoxin. Rarely an opportunist human pathogen in corneal infections and systemic infections. They also cause hypersensitivity pneumonitis in cheese workers, humidifier lung disease, woodman's lung disease, and cork worker's (suberosis) disease.

Spores / Fungal Elements Identified from Spore Trap Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Phoma eupyrena

Phoma eupyrena is found worldwide and has been isolated from soil, sandy soil, activated sludge, plants, and wood. Rarely, it can be an opportunist human pathogen causing infections of the hands, feet, ear and nose (phaeohydromycosis), allergenic reactions and a hypersensitivity pneumonitis known as "shower curtain" disease.

Other Material Identified from Spore Trap Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID # : **00099**
Work Order # : **000999**

"Talc-Like" Particles

These are thin disk-like particles of variable size range (10 to 50 micron). It may be organic or inorganic in nature. In indoor environment these particles mainly come from cornmeal, other grain flour, talcum powder etc. Some of these particles may adversely influence the health of dweller (example talcum powder).

Black Particles

These microscopic particles may originate from an organic source material. They greatly vary in their shape and sizes depending on their origin. However, an average size ranges between 1-micron to 5-micron with some exceptions. It may be regular or irregular in shape. In the indoor environment some important source/cause of these particles includes but are not limited to combustion, burning of oil & candles, chimney shoot, automobile exhaust, neoprene (rubber compound that applied to the inside surface of fiber glass duct liner), and other organic materials emitted by copier machines, printers, abraded paints etc.

These particles may influence health and hygienic condition of dwellers.

Opaque Particles

These particles may originate from inorganic or organic sources in nature. However, it appears opaque when observed under light microscopy. It has various shape and sizes. It may be regular or irregular in shape. On an average it can be measured less than one micron to well over fifty microns with some exceptions. Commonly these particles include but are not limited to dust & debris, Paint, combustions, emission, ash, silica and others.

These particulates are significant from a health/allergy point of view especially in case of respiratory disorder.

Reddish-Brown Particles

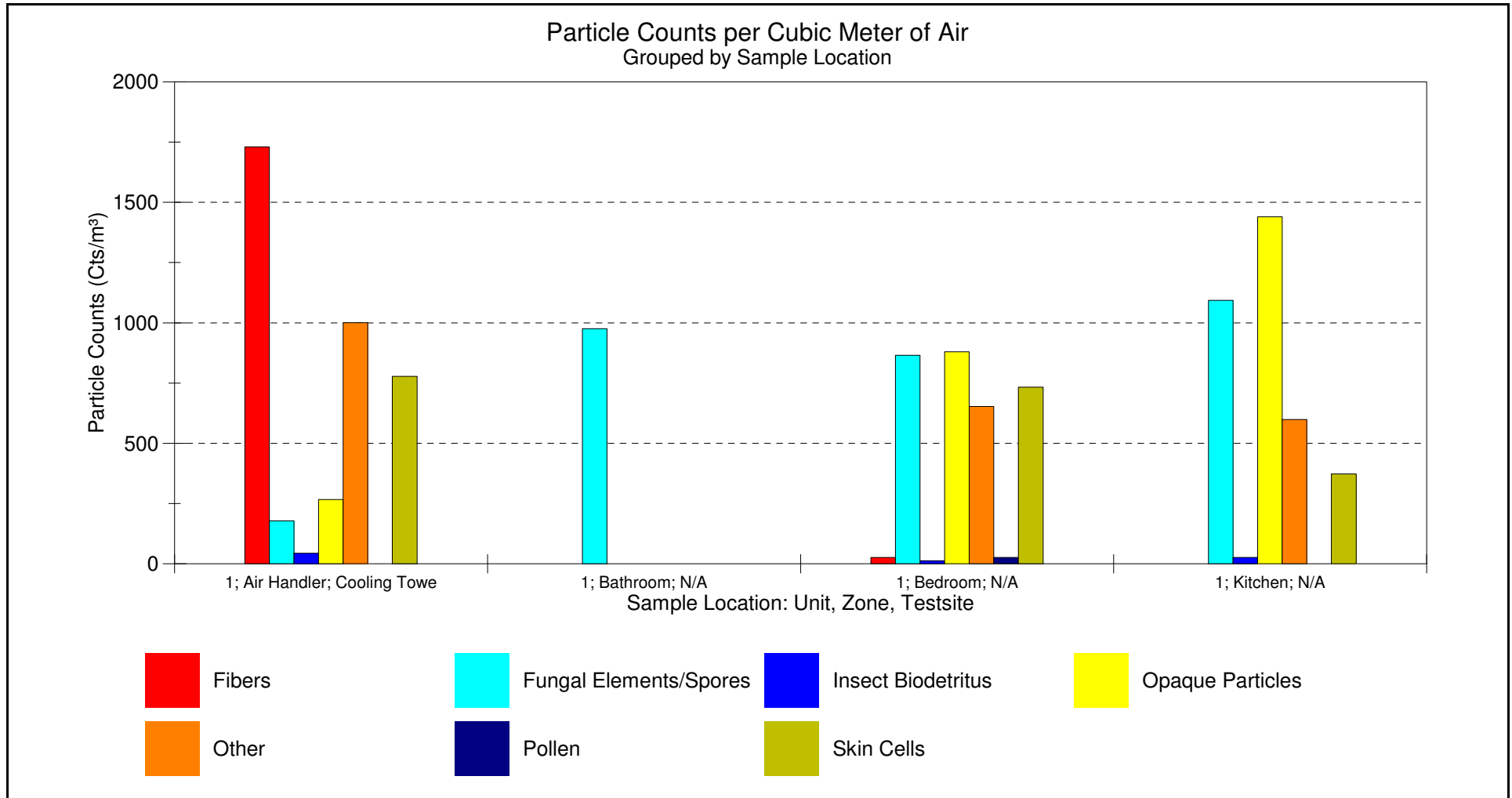
These microscopic particles may originate from in-organic or organic source materials. In indoor environments these particles mainly come by rusting, coarse, weathering of materials etc. They may also be released into the environment due to deterioration of wood or wood products, art and sculpture work etc. These particles greatly vary in their shape and sizes. It can be measured from a few micron to over 100-microns. This particle may be the indicator of moisture problem in indoor environment.

The health implications of this material are not well established however; it may be significant from a health and hygiene point of view.

Laboratory Analysis Chart Aerobiology (Spore Trap Assays)

Client: **Jane Example**
 Jobsite: **Ms. Jane Example Residence**
 Location: **Example Residence**

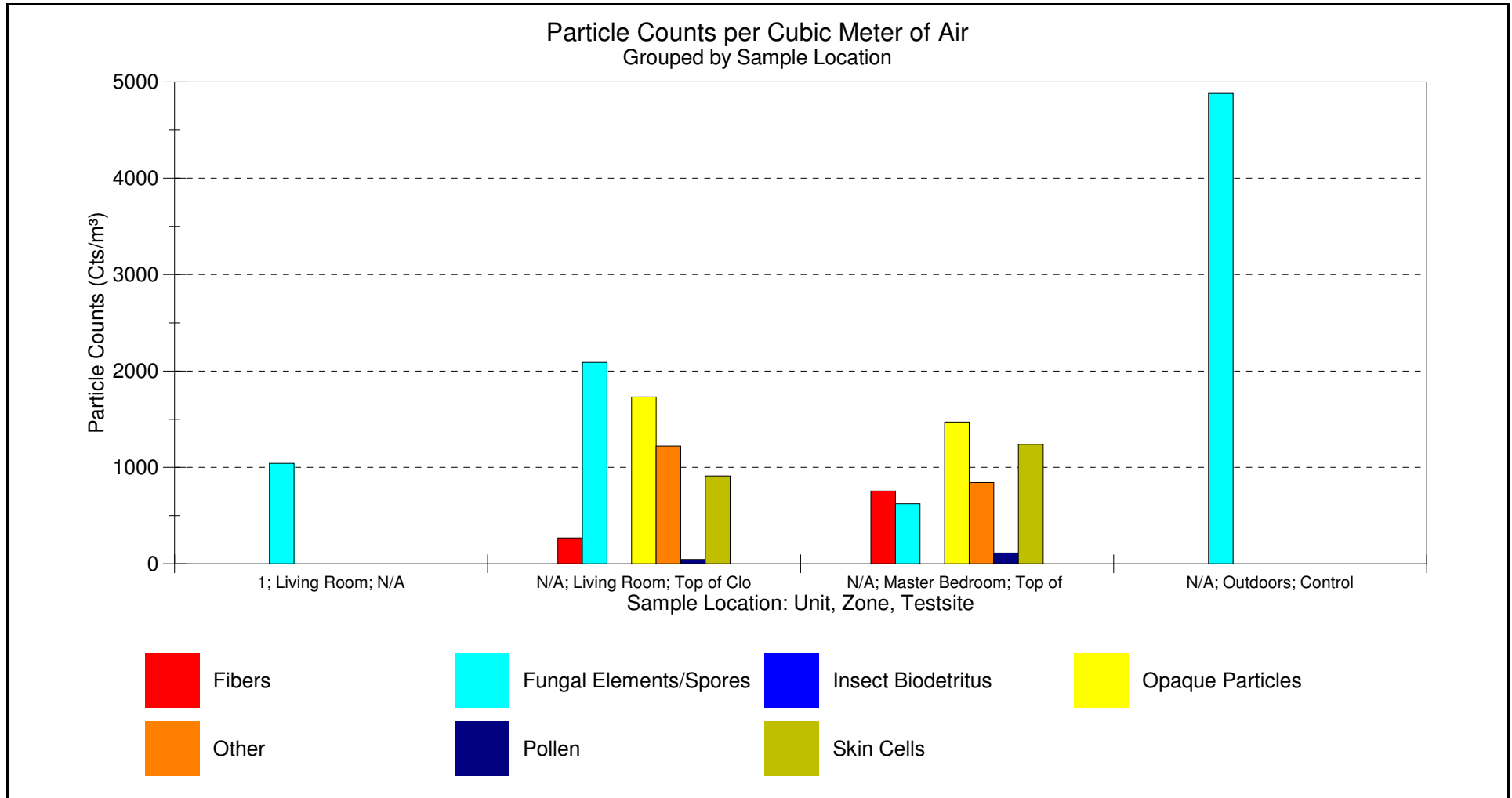
Work Order: **000999**
 PACS ID#: **00099**
 Project Date: **1/1/2006**
 Date Issued: **1/11/2016**



Laboratory Analysis Chart Aerobiology (Spore Trap Assays)

Client: **Jane Example**
 Jobsite: **Ms. Jane Example Residence**
 Location: **Example Residence**

Work Order: **000999**
 PACS ID#: **00099**
 Project Date: **1/1/2006**
 Date Issued: **1/11/2016**



Laboratory Analysis Report Surface Microscopy Tape Prep Assay

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID# : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**

Unit : **1**
Zone : **Kitchen**
Test Site : **Top of Stove**
Diagnostic Tech : **RRS**
Sample Type: **TapePrep Assay**

Lab Sample# : **109**
Field Sample# : **9**
Sample Date: **1/11/2016**
Sample Time: **10:45 AM**

Date Lab. Rec'd. : **1/11/2016**
Date Analyzed: **1/11/2016**
Date Issued : **01/11/16**
Sample Serial #: **10009**


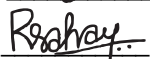
<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/cm²)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	139	556	45.2 %	LOW
Skin Cell Fragments	2	8	0.650 %	LOW
Insect Biodetritus	BDL	BDL	N/A	LOW
Total Fibers	11	44	3.58 %	LOW
Manmade Fibers	11	44	3.58 %	
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	BDL	BDL	N/A	LOW
Epicoccum species	5	20	1.63 %	
Curvularia species	14	56	4.55 %	
Fungal Spore Elements	23	92	7.48 %	
Fungal Hyphal Elements	33	132	10.7 %	
Total "Other"	81	324	26.3 %	LOW
Reddish-Brown Particles	3	12	0.98 %	
Black Particles	78	312	25.37 %	
Total Counts:	308	1,230	99.8 %	

Method of Analysis: EDLAB SOP-7/13001

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
* Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

BDL = Below Detection Limit: No particles were reported from the microscopically observed area on the specimen slide (at 10x10 or 10x40 magnification).

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By : 
Approved By : 
Rajiv R. Sahay, Ph.D.

Laboratory Analysis Report Surface Microscopy Tape Prep Assay

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID# : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**

Unit : **1**
Zone : **Living Room**
Test Site : **Computer Monitor**
Diagnostic Tech : **RRS**
Sample Type: **TapePrep Assay**

Lab Sample# : **110**
Field Sample# : **10**
Sample Date: **1/11/2016**
Sample Time: **10:50 AM**

Date Lab. Rec'd. : **1/11/2016**
Date Analyzed: **1/11/2016**
Date Issued : **01/11/16**
Sample Serial #: **10009**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/cm²)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	89	356	36.8 %	LOW
Skin Cell Fragments	8	32	3.31 %	LOW
Insect Biodetritus	2	8	0.826 %	MODERATE
Total Fibers	22	88	9.09 %	LOW
Hair, Animal	22	88	9.09 %	
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	116	464	47.9 %	HIGH
Dematiaceous Fungal Hyphal Elements	13	52	5.37 %	
Dematiaceous Fungal Spore Elements	19	76	7.85 %	
Alternaria species	22	88	9.09 %	
Cercospora species	29	116	12.0 %	
Chaetomium species	33	132	13.6 %	
Total "Other"	5	20	2.07 %	LOW
"Talc-Like" Particles	5	20	2.07 %	
Total Counts:	242	968	100 %	


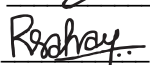
Comments : Tape Prep #10009 (Fungi Only)

Method of Analysis: EDLAB SOP-7/13001

Remarks: **LOW** =At or Below Guidelines* **MODERATE** =Moderately Above Guidelines* **HIGH** =Significantly Above Guidelines*
* Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

BDL = Below Detection Limit: No particles were reported from the microscopically observed area on the specimen slide (at 10x10 or 10x40 magnification).

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By : 
Approved By : 
Rajiv R. Sahay, Ph.D.

Laboratory Analysis Report Surface Microscopy Tape Prep Assay

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID# : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**

Unit : **1**
Zone : **Living Room**
Test Site : **Floor Tile**
Diagnostic Tech : **RRS**
Sample Type: **TapePrep Assay**

Lab Sample# : **111**
Field Sample# : **11**
Sample Date: **1/11/2016**
Sample Time: **10:55 AM**

Date Lab. Rec'd. : **1/11/2016**
Date Analyzed: **1/11/2016**
Date Issued : **01/11/16**
Sample Serial #: **10010**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/cm²)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	77	308	23.7 %	LOW
Skin Cell Fragments	78	312	24.0 %	LOW
Insect Biodetritus	BDL	BDL	N/A	LOW
Total Fibers	41	164	12.6 %	MODERATE
Manmade Fibers	41	164	12.6 %	
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	130	520	40.0 %	HIGH
Aspergillus/Penicillium-Like Spores	13	52	4.00 %	
Alternaria species	14	56	4.31 %	
Chaetomium species	22	88	6.77 %	
Dematiaceous Fungal Hyphal Elements	39	156	12.0 %	
Dematiaceous Fungal Spore Elements	42	168	12.9 %	
Total "Other"	BDL	BDL	N/A	LOW
Total Counts:	326	1,300	99.7 %	


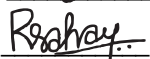
Comments : Tape Prep #10010 (Fungi Only)

Method of Analysis: EDLAB SOP-7/13001

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
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The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By : 
Approved By : 
Rajiv R. Sahay, Ph.D.

Laboratory Analysis Report Surface Microscopy Tape Prep Assay

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID# : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**

Unit : **1**
Zone : **Living Room**
Test Site : **Top of TV**
Diagnostic Tech : **RRS**
Sample Type: **TapePrep Assay**

Lab Sample# : **112**
Field Sample# : **12**
Sample Date: **1/11/2016**
Sample Time: **12:00 PM**

Date Lab. Rec'd. : **1/11/2016**
Date Analyzed: **1/11/2016**
Date Issued : **01/11/16**
Sample Serial #: **10011**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/cm²)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	11	44	5.37 %	LOW
Skin Cell Fragments	11	44	5.37 %	LOW
Insect Biodetritus	BDL	BDL	N/A	LOW
Total Fibers	BDL	BDL	N/A	LOW
Total Pollen	12	48	5.85 %	HIGH
Quercus (Oak) Species	12	48	5.85 %	
Total Fungal Elements/Spores	118	472	57.6 %	HIGH
Alternaria species	14	56	6.83 %	
Dematiaceous Fungal Hyphal Elements	27	108	13.2 %	
Dematiaceous Fungal Spore Elements	32	128	15.6 %	
Aspergillus/Penicillium-Like Spores	45	180	22.0 %	
Total "Other"	53	212	25.9 %	LOW
Reddish-Brown Particles	53	212	25.85 %	
Total Counts:	205	820	100 %	


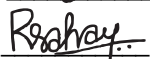
Comments : Tape Prep #10011 (Fungi Only)

Method of Analysis: EDLAB SOP-7/13001

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
* Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

BDL = Below Detection Limit: No particles were reported from the microscopically observed area on the specimen slide (at 10x10 or 10x40 magnification).

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By : 
Approved By : 
Rajiv R. Sahay, Ph.D.

Laboratory Analysis Report Surface Microscopy Tape Prep Assay

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID# : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**

Unit : **1**
Zone : **Living Room**
Test Site : **N/A**
Diagnostic Tech : **RRS**
Sample Type: **TapePrep Assay**

Lab Sample# : **115**
Field Sample# : **15**
Sample Date: **1/11/2016**
Sample Time: **10:45 AM**

Date Lab. Rec'd. : **1/11/2016**
Date Analyzed: **1/11/2016**
Date Issued : **01/11/16**
Sample Serial #: **10012**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/cm²)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	55	220	23.5 %	LOW
Skin Cell Fragments	112	448	47.9 %	LOW
Insect Biodetritus	2	8	0.855 %	MODERATE
Total Fibers	5	20	2.14 %	LOW
Manmade Fibers	5	20	2.14 %	
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	47	188	20.1 %	HIGH
Curvularia species	47	188	20.1 %	
Total "Other"	13	52	5.56 %	LOW
Black Particles	13	52	5.56 %	
Total Counts:	234	936	100 %	

Method of Analysis: EDLAB SOP-7/13001

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
* Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

BDL = Below Detection Limit: No particles were reported from the microscopically observed area on the specimen slide (at 10x10 or 10x40 magnification).

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By : 
Approved By : 
Rajiv R. Sahay, Ph.D.

Laboratory Analysis Report Surface Microscopy Tape Prep Assay

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID# : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**

Unit : **1**
Zone : **Bedroom**
Test Site : **Top of Lamp**
Diagnostic Tech : **RRS**
Sample Type: **TapePrep Assay**

Lab Sample# : **13474**
Field Sample# : **13**
Sample Date: **1/11/2016**
Sample Time: **10:40 AM**

Date Lab. Rec'd. : **1/11/2016**
Date Analyzed: **1/11/2016**
Date Issued : **01/11/16**
Sample Serial #: **10003**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/cm²)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	11	44	22.0 %	LOW
Skin Cell Fragments	14	56	28.0 %	LOW
Insect Biodetritus	3	12	6.00 %	HIGH
Total Fibers	22	88	44.0 %	
Fiber Glass	22	88	44.0 %	HIGH
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	BDL	BDL	N/A	LOW
Total "Other"	BDL	BDL	N/A	LOW
Total Counts:	50	200	100 %	


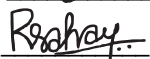
Comments : Tape Prep #10003 (Fiberglass Only)

Method of Analysis: EDLAB SOP-7/13001

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
* Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

BDL = Below Detection Limit: No particles were reported from the microscopically observed area on the specimen slide (at 10x10 or 10x40 magnification).

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By : 
Approved By : 
Rajiv R. Sahay, Ph.D.

Laboratory Analysis Report Surface Microscopy Tape Prep Assay

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**
Location : **Example Residence**

PACS ID# : **00099**
Work Order # : **000999**
Project Date : **1/1/2006**

Unit : **1**
Zone : **Bathroom**
Test Site : **Top of Sink**
Diagnostic Tech : **RRS**
Sample Type: **TapePrep Assay**

Lab Sample# : **72301**
Field Sample# : **14**
Sample Date: **1/11/2016**
Sample Time: **10:35 AM**

Date Lab. Rec'd. : **1/11/2016**
Date Analyzed: **1/11/2016**
Date Issued : **01/11/16**
Sample Serial #: **10002**

<u>Particle Identification</u>	<u>Raw Count</u>	<u>Total Count (Cts/cm²)</u>	<u>Percent of Total Count</u>	<u>Remarks</u>
Opaque Particles	44	176	4.90 %	LOW
Skin Cell Fragments	565	2,260	63.0 %	HIGH
Insect Biodetritus	BDL	BDL	N/A	LOW
Total Fibers	BDL	BDL	N/A	LOW
Total Pollen	BDL	BDL	N/A	LOW
Total Fungal Elements/Spores	235	940	26.2 %	HIGH
Trichoderma species				
Fungal Hyphal Elements	10	40	1.11 %	
Alternaria species	25	100	2.79 %	
Aspergillus/Penicillium-Like Spores	50	200	5.57 %	
Curvularia species	50	200	5.57 %	
Dematiaceous Fungal Hyphal Elements	100	400	11.1 %	
Total "Other"	54	216	6.02 %	LOW
Black Particles	54	216	6.02 %	
Total Counts:	898	3,590	99.9 %	


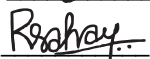
Comments : Tape Prep #10002 (Fungi Only)

Method of Analysis: EDLAB SOP-7/13001

Remarks: LOW =At or Below Guidelines* MODERATE =Moderately Above Guidelines* HIGH =Significantly Above Guidelines*
* Please refer to Appendix-1 for Guidelines. Known Pathogens are significant and high priority irrespective of above referenced Guidelines.

BDL = Below Detection Limit: No particles were reported from the microscopically observed area on the specimen slide (at 10x10 or 10x40 magnification).

The results in this report apply only to the sample(s) specifically listed above and tested at Environmental Diagnostics Laboratory. Unless otherwise noted, samples were received in good condition. Laboratory-prepared Quality Control (QC) samples are analyzed with the samples routinely; however, unless a blank (control) is received, the result for the control is not compared. Quantitative data is based on 3 significant figures; Grand Total may not equal 100% due to rounding.

Quality Controlled By : 
Approved By : 
Rajiv R. Sahay, Ph.D.

Opaque Particles Identified from Tape Prep Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Opaque Particles

These particles may originate from inorganic or organic sources in nature. However, it appears opaque when observed under light microscopy. It has various shape and sizes. It may be regular or irregular in shape. On an average it can be measured less than one micron to well over fifty microns with some exceptions. Commonly these particles include but are not limited to dust & debris, paint, combustions, emission, ash, silica and others.

These particulates are significant from a health/allergy point of view especially in case of respiratory disorder.

Fibers Identified from Tape Prep Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Hair, Animal

Fiber Glass

Manmade Fibers

Man-made fibers may come from natural raw materials like cellulose or from synthetic chemicals like rayon, nylon, etc. In indoor environments, some important sources of man made fiber include carpet, cellulose based building materials, clothing, paper and paper products, etc. Size of these fibers varies from a few microns to a several centimeters; however, an average size range may be 1 micron to over 500 microns.

Health implications of these particles are not well described, however some of the man-made fibers are important from an allergy point of view especially for dermal allergy.

Pollen Species Identified from Tape Prep Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Quercus (Oak) Species

A very large genus in North America that can be divided into five natural classes which may correspond to allergenic classes. The classes are 1) true white oak found predominately in the southeast; 2) chestnut oaks found in the eastern states; 3) true red oaks found in mid-Atlantic to the southeastern states; 4) willow oaks found in the southeastern states to central Florida; and 5) live oaks found in the California and Arizona, the northwest, and the southeastern coastal states. The live oaks have been reported as causing severe pollinosis (an allergic reaction (hay fever) resulting in a type I, antibody-mediated hypersensitivity) in California and the Gulf Coast states.

Spores / Fungal Elements Identified from Tape Prep Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

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.

Alternaria species

Alternaria species are found worldwide and are very common. The hyphae, conidiophores, and conidia are pigmented olivaceous-brown (dematiaceous). They can be isolated from air, plants ("blackspot" of roses), foodstuffs, soil, carpets, and textiles. They can be an opportunist human pathogen causing a hypersensitivity pneumonitis (woodworker's lung disease) and an immediate-type hypersensitivity -type I (IgE-mediated) extrinsic asthma and disease that is very common in individuals with atopic disease.

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.

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.

Chaetomium species

Chaetomium species are found worldwide and may produce an earthy odor. They are an important cause of decay of cotton and other cellulose materials; causes soft rot in wood and fruit rot; and is an important component in the decomposition of plant material in composts. They can be isolated from dung, straw, bird feathers, soil and plants. They may be associated with allergic disease.

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.

Epicoccum species

Epicoccum species are found worldwide and are very common. The hyphae, conidiophores, and conidia are pigmented olivaceous-brown (dematiaceous). They can be isolated from air, plants, grains, textiles, animals, foodstuffs, and paper products. They can cause allergic disease in humans.



Spores / Fungal Elements Identified from Tape Prep Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID# : **00099**
Work Order # : **000999**

Trichoderma species

A rapidly-growing fungus that has worldwide distribution and is common. It can be isolated from soil, sewage sludge, jet fuel, plants, paper, textiles, fresh water, sea water, bird feathers, and bees. There have not been any reports of human infections, however, it can cause allergic disease.

Other Material Identified from Tape Prep Assays

Client : **Jane Example**
Jobsite : **Ms. Jane Example Residence**

PACS ID # : **00099**
Work Order # : **000999**

"Talc-Like" Particles

These are thin disk-like particles of variable size range (10 to 50 micron). It may be organic or inorganic in nature. In indoor environment these particles mainly come from cornmeal, other grain flour, talcum powder etc. Some of these particles may adversely influence the health of dweller (example talcum powder).

Black Particles

These microscopic particles may originate from an organic source material. They greatly vary in their shape and sizes depending on their origin. However, an average size ranges between 1-micron to 5-micron with some exceptions. It may be regular or irregular in shape. In the indoor environment some important source/cause of these particles includes but are not limited to combustion, burning of oil & candles, chimney shoot, automobile exhaust, neoprene (rubber compound that applied to the inside surface of fiber glass duct liner), and other organic materials emitted by copier machines, printers, abraded paints etc.

These particles may influence health and hygienic condition of dwellers.

Reddish-Brown Particles

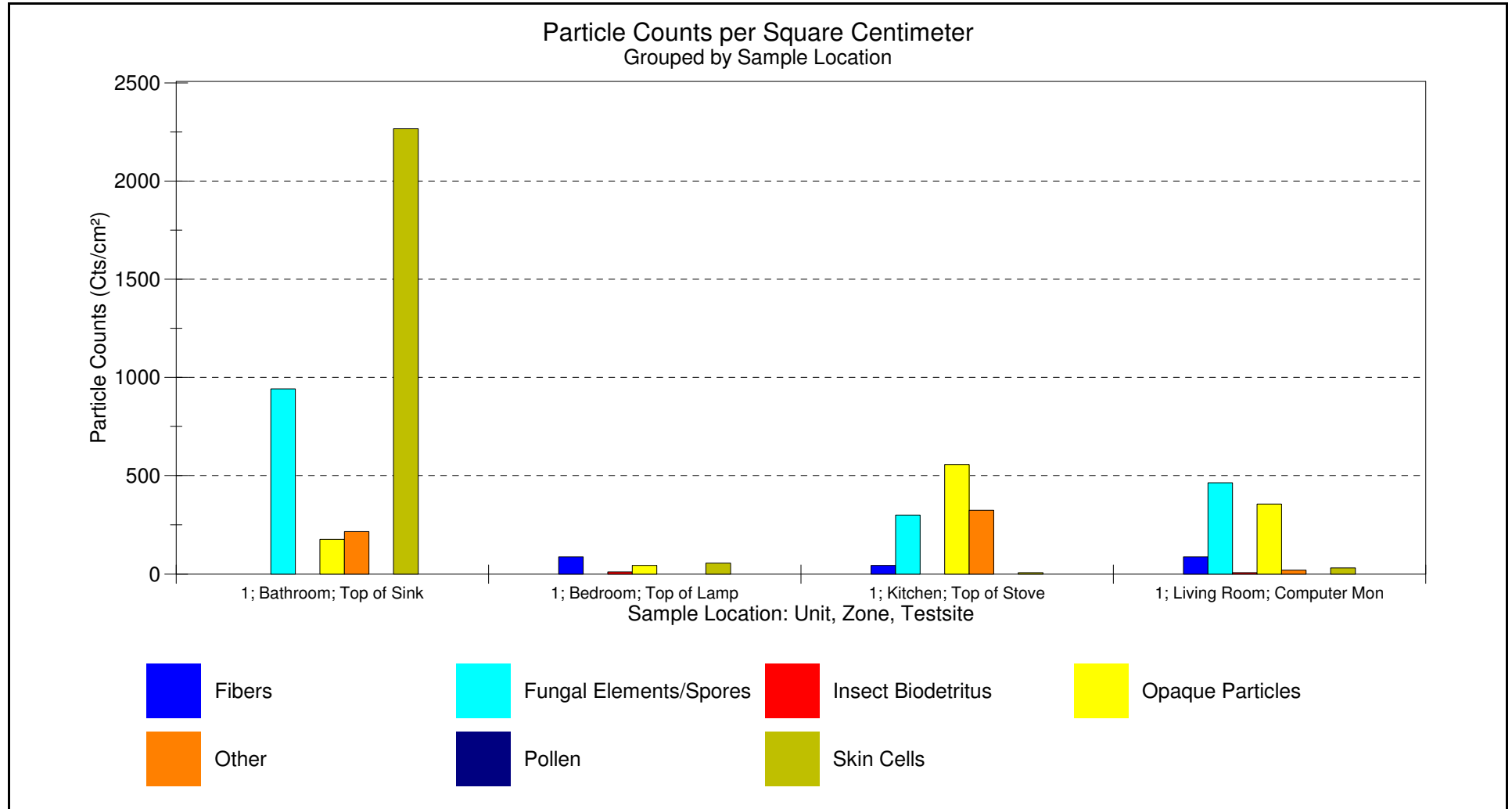
These microscopic particles may originate from in-organic or organic source materials. In indoor environments these particles mainly come by rusting, coarse, weathering of materials etc. They may also be released into the environment due to deterioration of wood or wood products, art and sculpture work etc. These particles greatly vary in their shape and sizes. It can be measured from a few micron to over 100-microns. This particle may be the indicator of moisture problem in indoor environment.

The health implications of this material are not well established however; it may be significant from a health and hygiene point of view.

Laboratory Analysis Chart Surface Microscopy (Tape Prep Assays)

Client: **Jane Example**
 Jobsite: **Ms. Jane Example Residence**
 Location: **Example Residence**

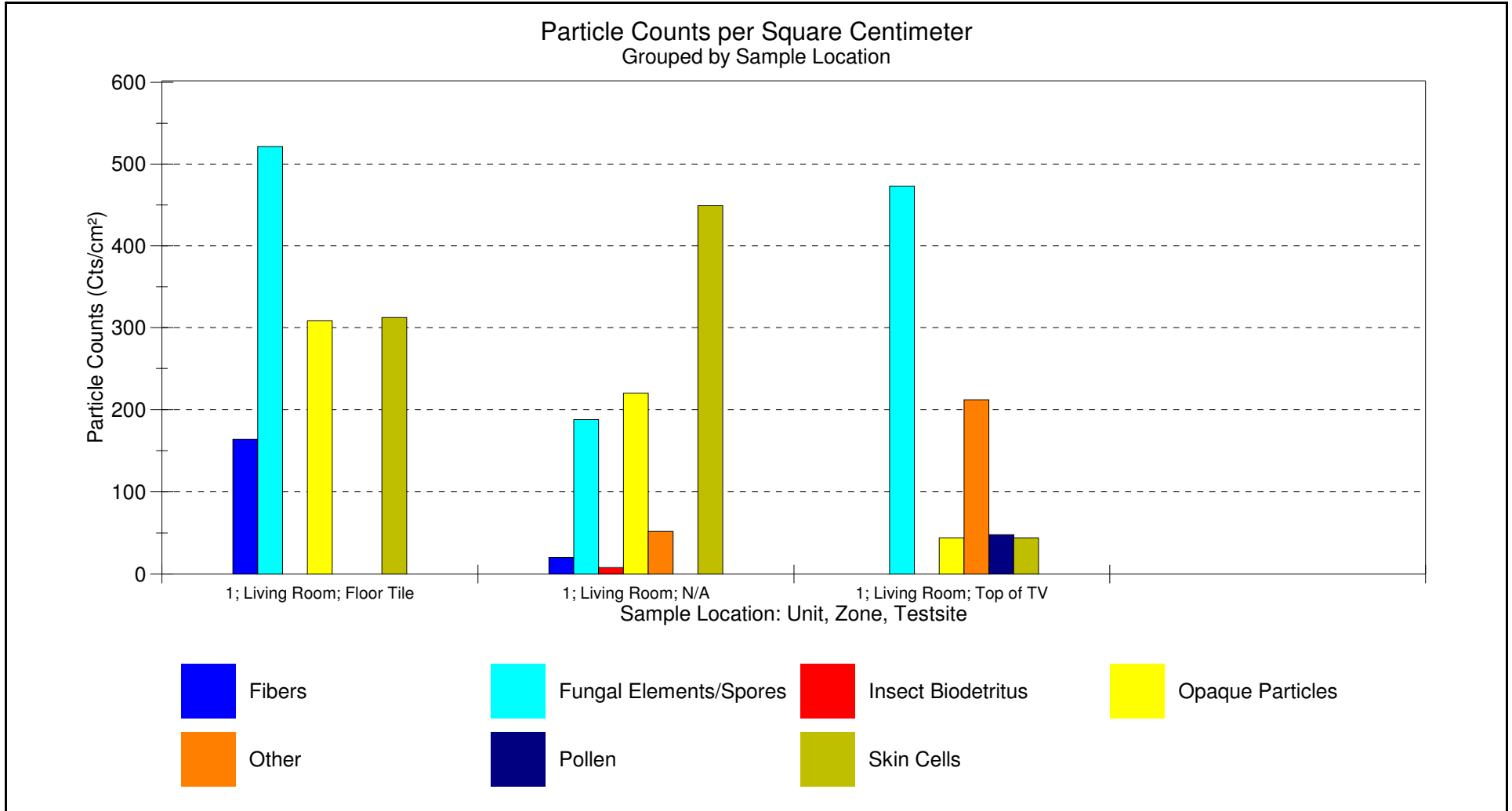
Work Order: **000999**
 PACS ID#: **00099**
 Project Date: **1/1/2006**
 Date Issued: **1/11/2016**



Laboratory Analysis Chart Surface Microscopy (Tape Prep Assays)

Client: **Jane Example**
 Jobsite: **Ms. Jane Example Residence**
 Location: **Example Residence**

Work Order: **000999**
 PACS ID#: **00099**
 Project Date: **1/1/2006**
 Date Issued: **1/11/2016**





Client: Jane Example
Jobsite: Ms. Jane Example Residence
Location: Example Residence
PACS ID#: 00099
Work Order #: 000999

End of Report

APPENDIX 1

IEQ PARAMETERS	GUIDELINES			UNITS
	LOW	MODERATE	HIGH	
Comfort				
Temperature - Summer	73-79 ¹			°F
Temperature - Winter	68-74 ¹			°F
Relative Humidity	30-60 ¹			%
Carbon Dioxide	700 + Outside Air ²			ppm + Outside Air
Microbiology				
Bioaerosol - Bacteria, CFU	175 ³	176 - 349	350	CFU/m ³
Bioaerosol - Fungi, CFU	350 ³	351 - 699	700	CFU/m ³
Bulk - Bacteria	50000	50001 - 99999	100000	CFU/m ³
Bulk - Fungi	75000	75001 - 149999	150000	CFU/m ³
Swab - Bacteria	170000	170001 - 339999	340000	CFU/m ³
Swab - Fungi	3000	3001 - 5999	6000	CFU/m ³
Water - Bacteria	40000	40001 - 79999	80000	CFU/m ³
Water - Fungi	30	31 - 59	60	CFU/m ³
Aerobiology (Spore Trap Assays)				
Opaque Particles	35000	35001 - 69999	70000	cts/m ³
Skin Cell Fragments	7500	7501 - 14999	15000	cts/m ³
Insect Biodetritus	200	201 - 599	400	cts/m ³
Fibers	500	501 - 999	1000	cts/m ³
Fibers - Fiberglass	5	6 - 9	10	cts/m ³
Pollen	15	16 - 29	30	cts/m ³
Fungal Elements	1000	1001 - 1999	2000	cts/m ³
Other	6000	6001 - 11999	12000	cts/m ³
Microscopy (Tape Prep Assays)				
Opaque Particles	3000	3001 - 5999	6000	cts/cm ²
Skin Cell Fragments	600	601 - 1199	1200	cts/cm ²
Insect Biodetritus	4	5 - 7	8	cts/cm ²
Fibers	120	121 - 239	240	cts/cm ²
Fibers - Fiberglass	4	5 - 11	12	cts/cm ²
Pollen	4	5 - 7	8	cts/cm ²
Fungal Elements	50 ⁵	51 - 99	100	cts/cm ²
Other	650	651 - 1299	1300	cts/cm ²
Allergen Screen				
Dust Mites - Der p 1	-	-	-	µg/g
Dust Mites - Der f 1	-	-	-	µg/g
Dust Mites Group 1 (Der p1 + Der f1)	2 ^{6,7,8,11}	3 - 9	10	µg/g
Dust Mites Group 2	0.2 ¹²	0.3 - 0.9	1.0	µg/g
Cat (Fel d 1)	0.2 ^{7,9,11}	0.3 - 0.9	1.0	µg/g
Dog (Can f 1)	0.2 ^{7,9,11}	0.3 - 0.9	1.0	µg/g
Mouse (Mus m 1)	n/a	-	n/a	µg/g
Rat Protein	n/a	-	n/a	µg/g
Cockroach (Bla g 1)	1 ^{10,11}	1.1 - 7.9	8	Units/g
Cockroach (Bla g 2)	0.2 ^{10,11}	0.3 - 0.9	1	µg/g
Horse	n/a	-	n/a	µg/g
Endotoxins	n/a	-	n/a	µg/g
"Other"				
Airborne Particulates	25000	25001 - 49999	50000	p/l (prtcls. per liter of air)
Moisture Content	0-35 ¹³	36-50	51-100	%

n/a = not enough data

References:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. ANSI/ASHRAE Standard 55-2004 2. ANSI/ASHRAE Standard 62.1-2010 3. Mold. June 2005; Harris Martin Columns. 4. CDC (Centers for Disease Control) Guidelines - TBD 5. Ind. J. Aerobiol 2008; Vol. 21, No.1: 13-23 6. J. Allergy Clin Immunol 1989; 83:416-427 7. Amer Rev Respir Dis 1990; 141:361-367 | <ol style="list-style-type: none"> 8. Amer Rev Respir Dis 1993; 147:573-578 9. Amer J Res Crit Care Med 1997; 155:94-98 10. J. Allergy Clin Immunol 1997; 100:S1-S24 11. Pediatric Allergy Principles and Practice 2003; 261-68 12. Indoor Biotechnologies, Ltd., "Rapid Test for Dust Mites" Guidelines, 13. Tramex Moisture Meter Manufacturer Recommendations |
|--|--|