HAYES MICROBIAL CONSULTING

#21000288

Analysis Report prepared for

Sample Company

123 Main Street
Midlothian, VA 23112

Phone: **(804) 562-3435**

Spore Trap Sample Report

Collected: **April 21, 2021**
Received: **April 22, 2021**
Reported: **April 22, 2021**

We would like to thank you for trusting Hayes Microbial for your analytical needs!
We received 4 samples by Drop Off in good condition for this project on April 22nd, 2021.

The results in this analysis pertain only to this job, collected on the stated date, and should not be used in the interpretation of any other job. This report may not be duplicated, except in full, without the written consent of Hayes Microbial Consulting, LLC..

This laboratory bears no responsibility for sample collection activities, analytical method limitations, or your use of the test results. Interpretation and use of test results are your responsibility. Any reference to health effects or interpretation of mold levels is strictly the opinion of Hayes Microbial. In no event, shall Hayes Microbial or any of its employees be liable for lost profits or any special, incidental or consequential damages arising out of the use of these test results.

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Laboratory Director
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EPA Laboratory ID: VA01419

Lab ID: #188863

DPH License: #PH-0198

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Particle Analysis

Sample Number	1	3578001		2	3578007		3	3578008		4	3578010	
Sample Name	**Outdoor Control**			**Family Room**			**Master Bedroom**			**Basement**		
Sample Volume	75.00 liter			75.00 liter			75.00 liter			75.00 liter		
Reporting Limit	13 particles/m³			13 particles/m³			13 particles/m³			13 particles/m³		
Particle	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**	**Raw Count**	**Count / m³**	**% of Total**
Cellulose Fibers	3	40	1.4%	7	93	2.8%	9	120	2.9%			
Synthetic Fibers				2	27	<1%	4	53	1.3%			
Fiberglass				1	13	<1%				48	640	2.3%
Dander	13	173	6.1%	224	2987	90.3%	270	3600	87.9%	254	3387	12.2%
Plant Hair												
Talc												
Aciniform-like Soot										120	1600	5.8%
Animal Hair										2	27	<1%
Human Hair												
Wood Fibers												
Feather Barbule												
Pollen	184	2453	86%	5	67	2%	8	107	2.6%			
Gypsum										420	5600	20.2%
Silicates	12	160	5.6%	6	80	2.4%	11	147	3.6%	1200	16000	57.7%
Carpet Beetle Larvae												
Insect Frass												
Dust Mite Parts												
Insect Parts										4	53	<1%
Mineral Salts												
Opaque Particles	2	27	<1%	3	40	1.2%	5	67	1.6%	26	347	1.2%
Ash and Char-like Soot										7	93	<1%
Rust												
Total	214	2853	100%	248	3307	100%	307	4094	100%	2081	27747	100%

Collected: **Apr 21, 2021** Received: **Apr 22, 2021** Reported: **Apr 22, 2021** Revision: **3**

Project Analyst: Ramesh Poluri, PhD P. Ramesh Date: **05 - 13 - 2021**

Reviewed By: Steve Hayes, BSMT Stephen N. Hayes Date: **10 - 06 - 2021**

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Total Particulate Analysis Information

Our Total Particulate Analysis test is based on the initial screening procedures from ASTM #D6602. Our Lab only uses light, polarized light, and phase contrast microscopy. No SEM or X-ray defraction is performed. Below are some guidelines to help find totals for the most common particle counts analyzed by light microscopy.

Particle		Air *	Surface *
Dander	Home (Carpeted Areas)	1,000-6,000 / M^3	10,000-16,000 / cm^2
	Home (Hard Surface Areas)	500-5,000 / M^3	5,000-16,000 / cm^2
	Office or Classroom (Carpeted)	4,000-12,000 / M^3	14,000-24,000 / cm^2
	Office or Classroom (Hard Surface Areas)	3,000-10,000 / M^3	12,000-20,000 / cm^2
Cellulose Fibers		0-250 / M^3	0-1,600 / cm^2
Synthetic Fibers		0-250 / M^3	0-1,600 / cm^2
Fiberglass Fibers		0-60 / M^3	0-400 / cm^2
Gypsum Fibers		0-400 / M^3	0-1,800 / cm^2
Talc		0-250 / M^3	0-2,000 / cm^2
Dust Mites (parts)		0-30 / M^3	0-200 / cm^2
Insect Parts		0-30 / M^3	0-200 / cm^2
Animal Hair		0-30 / M^3	0-200 / cm^2
Wood Fibers		0-60 / M^3	0-200 / cm^2
Plant Hairs		0-60 / M^3	0-200 / cm^2
Human Hair		0-60 / M^3	0-200 / cm^2
Carpet Beetle Larvae		0-40 / M^3	0-200 / cm^2
Insect Frass		0-40 / M^3	0-400 / cm^2
Feather Barbules		0-40 / M^3	0-200 / cm^2
Opaque Particles		0-100 / M^3	0-600 / cm^2
Starch		0-40 / M^3	0-200 / cm^2
Rust		0-60 / M^3	0-400 / cm^2
Ash and Char-like Soot		0-100 / M^3	0-300 / cm^2
Aciniform-like Soot		0-100 / M^3	0-800 / cm^2
Silicates	(Varies greatly depending on area)	0-500 / M^3	0-2,800 / cm^2
Pollen	(Varies with outdoor pollen levels and whether there are live indoor plants)	0-500 / M^3	0-2,800 / cm^2

** Estimated Normal Ranges are based on prior experience. There are no standard ranges for this form of testing.*

M^3 = Cubic Meter cm^2 = Square Centimeter

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Organism Descriptions

Aciniform-like Soot

Habitat: Also known as black carbon, aciniform soot comes from the combustion of oil based or hydrocarbon containing materials. This type of soot should not be confused with Carbon Black, which is a manufactured product that has been used in commerce for over a century and consists of a fine black powder of nearly pure elemental carbon.

Effects: Sources are from the combustion of waste oil, fuel oil, gasoline fuel, diesel fuel, coal, coal-tar pitch, oil shale, rubber, plastics and resins, natural gas fireplaces and stoves, candles etc.

Animal Hair

Habitat: Hair from any animal. They are easily distinguished from human hair.

Effects: Common sources in homes are cats, dogs, mice, squirrels, raccoons, bats, etc.

Ash and Char-like Soot

Habitat: Ash-like soot is formed from the combustion of wood and paper products. Char-like soot comes from the incomplete combustion of wood and paper products.

Effects: Sources are wood fireplaces, house fires, forest fires, and burning of leaves and other yard debris.

Cellulose Fibers

Habitat: Cellulose fibers are natural fibers from plant material.

Effects: Sources of cellulose fibers are paper, cardboard, insulation material.

Dander

Habitat: Dander is dead skin cells. The average person sheds about 600,000 skin cells per day.

Effects: Sources are people and animals.

Fiberglass

Habitat: Fiberglass Glass or Glass wool is an insulating material made from fibers of glass arranged using a binder into a texture similar to wool. The process traps many small pockets of air between the glass, and these small air pockets result in the thermal insulation properties.

Effects: Insulation

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Organism Descriptions

Gypsum

Habitat: Drywall (also known as plasterboard, wallboard, or gypsum board is a panel made of gypsum plaster pressed between two thick sheets of paper.

Effects: Drywall

Insect Parts

Habitat: Pieces of insects such as arms, wings, antennae, etc.

Effects: Insects

Opaque Particles

Habitat: Particles that are not characteristic of other opaque particles that can be identified such as soot. If significant amounts are present, further analysis by SEM and Xray Diffraction are suggested to help determine the makeup and possible sources.

Effects: Unknown until characterization is determined.

Pollen

Habitat: Reproductive structures of trees, grasses and plants.

Effects: Trees, grasses and plants.

Silicates

Habitat: Silicates comprise the majority of the Earth's crust. Sand, Portland cement, and thousands of minerals are examples of silicates. Also includes quartz.

Effects: Sources are sand, cement and drywall.

Synthetic Fibers

Habitat: Synthetic fibers are man-made fibers such as nylon, polyester, and polyolefin.

Effects: Sources of synthetic fibers are carpet, upholstery and clothing.