

PREPARED FOR: CLIENT

TEST ADDRESS: 2233 WEST MAIN STREET SAMPLE CITY, WISCONSIN 53111

# CERTIFICATE OF PARTICLE ANALYSIS

PREPARED FOR:

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TEST LOCATION:

TEST CLIENT

2233 WEST MAIN STREET

SAMPLE CITY,

WISCONSIN 53111

COLLECTED: 09/01/20XX

RECEIVED: 09/01/20XX

REPORTED: 09/02/20XX

APPROVED BY:



JOHN D. SHANE PHD

LABORATORY MANAGER

VERSION: 1.0 (A VERSION NUMBER GREATER THAN ONE (1) INDICATES THAT THE DATA IN THIS REPORT HAS BEEN AMENDED)

EPA regulations or standards for airborne or surface mold concentrations have not been established. There are also no EPA regulations or standards for evaluating health effects due to mold exposure. Information about mold can be found at [www.epa.gov/mold](http://www.epa.gov/mold).

All samples were received in an acceptable condition for analysis unless noted specifically in the Comments section under a particular sample. All results relate only to the samples submitted for analysis and apply to the samples as received by the laboratory. Volumes, flowrates, areas or other information are supplied by the customer. This information can affect the validity of the results. Results have not been adjusted for field or laboratory unless otherwise noted. InspectorLab bears no responsibility for sample collection activities or analytical method limitations. No warranty is either express or implied and InspectorLab assumes no responsibility or liability for error in public information utilized, statements from sources other than InspectorLab, or developments resulting from situations outside the scope of this analysis, nor for the purpose for which the client uses the analysis. The determinations in this report are outside the scope of the AIHA LAP, LLC scope of accreditation. Contractors or consultants reviewing this report must draw their own conclusions regarding further investigation or remediation deemed necessary. InspectorLab liability is limited to the cost of the sample analysis and may not exceed the amount of the fee paid by the client.

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# Detailed Particle Identification Report

Analysis Method	Air Analysis	Air Analysis	Air Analysis	Air Analysis
Lab Sample #	52674956-1	52674956-2	52674956-3	52674956-4
Sample Identification	1234567	2345678	3456789	1012345
Sample Location	OUTSIDE	DEN	KITCHEN	BASEMENT
Sample Type / Metric	Breeze ST/150L	Breeze ST/150L	Breeze ST/150L	Breeze ST/150L
Analysis Date	Tue March 28, 2023	Tue March 28, 2023	Tue March 28, 2023	Tue March 28, 2023

Particle Types Identified	Raw Count	Particles / m <sup>3</sup>	% of Total	Raw Count	Particles / m <sup>3</sup>	% of Total	Raw Count	Particles / m <sup>3</sup>	% of Total	Raw Count	Particles / m <sup>3</sup>	% of Total
Amorphous Organic Debris	17	114	<1	6	40	1	8	54	<1	16	107	2
Charred Woody Fragments	---	---	---	34	228	9	5	34	<1	14	94	2
Feather Barbules	---	---	---	1	7	<1	---	---	---	10	67	1
Fiberglass	---	---	---	3	20	<1	1	7	<1	19	127	3
Fibers-Cotton	---	---	---	13	87	3	6	40	<1	45	302	7
Fibers-Synthetic	---	---	---	4	27	1	4	27	<1	101	677	16
Fire Related Soot	---	---	---	136	911	37	865	5796	85	78	523	12
Insect Fragments	4	27	<1	---	---	---	1	7	<1	1	7	<1
Low Contrast Amorphous	31	208	<1	4	27	1	5	34	<1	---	---	---
Minerals	8762	58705	98	14	94	3	10	67	<1	37	248	6
Plant Fragments	17	114	<1	1	7	<1	6	40	<1	8	54	1
Pollen-Grass	13	87	<1	---	---	---	---	---	---	5	34	<1
Skin Cells	---	---	---	103	690	28	67	449	6	196	1313	32
Soot	13	87	<1	---	---	---	---	---	---	---	---	---
Starch Grains	---	---	---	43	288	11	28	188	2	66	442	10
Tire Rubber	6	40	<1	---	---	---	1	7	<1	---	---	---
Wood-Softwood Fragments	---	---	---	4	27	1	7	47	<1	8	54	1

<b>Minimum Detection Limit</b>	7			7			7			7		
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<b>Comments/Definitions</b> <b>Raw Count:</b> Actual number of particles observed and counted. <b>Particles/m<sup>3</sup>:</b> Particles per cubic meter. <b>% of Total:</b> Percentage of a particular particle type in relation to total number of other particles. ---: Particle type was not observed.	Debris is defined as any and all particles that are not mold spores and / or hyphae. Determining a normal amount of debris is not possible because no baseline data exist. Interpretation of debris types and amounts should be made with caution because so many factors can influence debris loads, e.g., housecleaning, type of vacuum cleaner, pets, carpets, conditions outside, etc. Homes normally have a diverse amount of materials in them and therefore, a wide diversity of particles are often identified in air samples. Fiberglass is normally found in indoor samples, but a large amount of fiberglass is not normal in indoor air samples.	Debris is defined as any and all particles that are not mold spores and / or hyphae. Determining a normal amount of debris is not possible because no baseline data exist. Interpretation of debris types and amounts should be made with caution because so many factors can influence debris loads, e.g., housecleaning, type of vacuum cleaner, pets, carpets, conditions outside, etc. Homes normally have a diverse amount of materials in them and therefore, a wide diversity of particles are often identified in air samples. Fiberglass is normally found in indoor samples, but a large amount of fiberglass is not normal in indoor air samples.	Debris is defined as any and all particles that are not mold spores and / or hyphae. Determining a normal amount of debris is not possible because no baseline data exist. Interpretation of debris types and amounts should be made with caution because so many factors can influence debris loads, e.g., housecleaning, type of vacuum cleaner, pets, carpets, conditions outside, etc. Homes normally have a diverse amount of materials in them and therefore, a wide diversity of particles are often identified in air samples. Fiberglass is normally found in indoor samples, but a large amount of fiberglass is not normal in indoor air samples.	Debris is defined as any and all particles that are not mold spores and / or hyphae. Determining a normal amount of debris is not possible because no baseline data exist. Interpretation of debris types and amounts should be made with caution because so many factors can influence debris loads, e.g., housecleaning, type of vacuum cleaner, pets, carpets, conditions outside, etc. Homes normally have a diverse amount of materials in them and therefore, a wide diversity of particles are often identified in air samples. Fiberglass is normally found in indoor samples, but a large amount of fiberglass is not normal in indoor air samples.
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# Particle Glossary

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## Introduction

All particles are generated from substances, either organic, inorganic, living or dead. Particle generation is a natural consequence of growth, friction, combustion or some other process. Particles are found everywhere in the built and natural environment and therefore, it is not unusual to find particles in indoor and outdoor air. Furthermore, since homes are not built to prevent the entry of outside air, the same kind of particles can be found in the outdoor as well as the indoor air. This Particle Glossary is only intended to provide general information about the particles and their origin in the samples provided to the laboratory.

Interpretation of any Particle Report is the responsibility of the company and/or individual collecting the samples.

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### *Amorphous Organic Debris*

**Comments:** Organic debris that has not structure.

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### *Charred Woody Fragments*

**Comments:** Charred wood fragments are a result of both high and low temperature combustion. They are produced from a variety of fire types. These fragments can sometimes be related to a taxonomic group and thus can be helpful in identifying the wood source origin.

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### *Feather Barbules*

**Comments:** Feather barbules are soft, small filamentous structure emanating from the quill point of the down. A branch of the barb plus its nodes can be identified.

The source of feather barbules in homes is typically from; 1) down comforters, 2) down pillows and 3) down clothing.

Feather barbules can also be seen in homes with birds although these are typically larger than the barbules of down.

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### *Fiberglass*

**Comments:** Fiberglass is inert and the predominant insulation inside almost all building. Small amounts of fiberglass is normal inside buildings. A large amount of fiberglass in the air could indicate a breach in fiberglass ducting or a filter that is desintegrating. Fiberglass is considered non-allergenic.

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### *Fibers-Cotton*

**Comments:** Cotton fibers are cellulosic seed hairs from which cotton clothes are made. These fibers are originally long, but break into smaller fibers as a consequence of wear.

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### *Fibers-Synthetic*

**Comments:** Synthetic fibers are derived mostly from carpets and synthetic clothing materials. They are considered non-allergenic and normally found indoors in small concentrations.

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### *Fire Related Soot*

**Comments:** This type of soot is from emissions most likely as a result of house fires - a fire containing particles and gases that include charred and coked fuel, heat decomposed associated materials, and agglomerates of "soot" and condensed organic compounds. Also candle soot. Because of the very small particle size, this particle usually agglomerates.

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### *Insect Fragments*

**Comments:** Insect fragments are commonly found indoors because insects are a normal part of most indoor environments. Their body parts that get airborne are mostly inert and non-allergenic.

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### *Low Contrast Amorphous*

**Comments:** These particles are transparent, low contrast and are of uncertain origin. They can range from as small as 1-2  $\mu\text{m}$  to 40-50  $\mu\text{m}$ .

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### *Minerals*

**Comments:** Minerals of all kinds can be found in turbulent air. The most common mineral in the air is silica. Low concentrations in the air are normal. Outside air generally has a higher concentration than indoor air. It is considered non-allergenic.

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### *Plant Fragments*

**Comments:** Non-woody plant fragments are derived from the degradation of non-woody parts of plants that are naturally found inside and (mostly) outside. They are considered non-allergenic.

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### *Pollen-Grass*

**Comments:** Any one of a number of grass pollen grains - most look alike and species identification is not usually possible. Moderate to high allergenicity

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### *Skin Cells*

**Comments:** Skin cells are derived from the body and are normally in all environments humans live in. A large concentration in the air is not normal. A large concentration could mean an abnormal exposure to dust mite allergens. Dust mites eat skin cells and their droppings are allergenic.

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### *Soot*

**Comments:** Soot is derived from incomplete combustion of any product - gas to particle conversion process. It is impossible to identify the type of soot or its origin based on light microscopic techniques. Soot particles are normally fine to ultra fine (<100 nm).

Detailed analysis of soot can best be accomplished using the electron microscopy and energy dispersive spectroscopy. These methods can provide detailed morphology and chemical composition of the soot particles.

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### *Starch Grains*

**Comments:** Starch grains are found in and on a variety of products people have in their homes like food, clothing and paper. Most starch grains in homes and on and in products are derived from corn and are considered non-allergenic.

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### *Tire Rubber*

**Comments:** Tire rubber is produced from friction degrading car and truck tires. A small amount is normal in most outdoor air. It is not common indoors.

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### *Wood-Softwood Fragments*

**Comments:** Softwoods are commonly used in building homes and offices, e.g., framing timber, subfloors, etc. Fragments are easily identified based on the structure and morphology of the xylem elements (wood). These fragments are most common when samples are taken from surfaces, but can also be found in the air.

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