

MOLD ARMOR®

Mold Identification Report*

Prepared for:

CANTON GARDENHIRE

Email: GARDEHNHC@gmail.com

101 Coastal Pl Apt B
Savannah, GA 31406
US

This Mold Armor® Test Kit and report is **NOT designed to determine any health effects or risk from exposure to mold growing in your home. If you or other family members are suffering from health problems which you suspect are related to mold exposure or indoor air quality, please seek appropriate medical advice. You may also want to consider hiring a qualified indoor air quality or industrial hygiene consultant to perform an indoor air quality assessment of your home.*

Sample Identification Number:	10047841
Sample Date:	12/19/2018
Sample Received Date:	1/2/2019
Report Date:	1/7/2019

Please direct questions and comments about your MOLD ARMOR® TEST KIT ANALYSIS to
Consumer Care: 1.866.370.2499 or moldarmor@wmbarr.com.

Analysis of Submitted Mold Samples

Identification of Viable Mold Colonies

The results below were obtained using standard laboratory procedures to examine the agar plate samples that were submitted for identification of environmental molds.

Sample location (if different from mailing address):

101 Coastal Place Unit B
Savannah, GA 31406
US

Sample Number (SIN#)	Sample Location	Sample Date	Sample Received Date	Sample Source	Mold Identification
10047841	Kitchen	12/19/2018	1/2/2019	HVAC	Aureobasidium spp. Arthrographis spp. Cladosporium spp.

****This Mold Armor® Test Kit and report is NOT designed to determine any health effects or risk from exposure to mold growing in your home. If you or other family members are suffering from health problems which you suspect are related to mold exposure or indoor air quality, please seek appropriate medical advice. You may also want to consider hiring a qualified indoor air quality or industrial hygiene consultant to perform an indoor air quality assessment of your home.***

DESCRIPTION OF MOLDS IDENTIFIED IN YOUR MOLD TEST KIT:

MOLD	DESCRIPTION AND COMMENTS
Aureobasidium spp.	Aureobasidium spp. can commonly be found growing indoors on surfaces that are very damp such shower curtains, tiles, window sills and very wet wood. Aureobasidium spp. can cause allergies with some experiencing fever and asthma.
Arthrographis spp.	Arthrographis spp. are most commonly isolated from soil and compost.
Cladosporium spp.	Cladosporium spp. is among some of the most common indoor and outdoor molds. It can be found in fiberglass duct liners, paints, and textiles. It is associated with condensation areas around aluminum window frames, air intakes and outlets, showers and many others. This mold produces unpleasant odors. Additionally, it may have health impacts if there are large amounts of spores affecting individuals with asthma and those with respiratory diseases.

MOLD IDENTIFICATION

This report includes the identity of mold isolates from the submitted **Mold Armor® Test Kit**. Each sample represents a "snapshot in time" of a small area of the home or other area sampled to determine the presence of viable mold spores. The results may not be indicative of the conditions throughout the entire home or building. Furthermore, conditions may have changed during the time between sampling the area and the receipt of the results. The presence of active mold growth on building materials in the home should be addressed immediately. Also, the geographical region in which sampling was performed will impact the results. Wet seasons or tropical/humid environments support mold growth. Ideally when sampling is conducted, outdoor air quality should be similarly sampled and compared with indoor air quality.

WHAT IS MOLD?

Mold is found everywhere and can grow on almost any surface when moisture is present. Mold appears in fuzzy assorted textures and irregular shapes and comes in varied colors. Mold can grow in as little as 48 hours. Molds reproduce by tiny spores that are invisible to the naked eye. These spores travel through the air, and when they land on moist surfaces, they can begin to grow.

WHY IS IT IMPORTANT TO UNDERSTAND MOLD?

Many molds are a nuisance and cause allergies in certain people. Mold allergies may result in rashes, asthma, coughing, itchy-watery eyes, sinus problems, sneezing, and much more. Some types of mold pose greater health concerns than others. Some species of mold, such as *Stachybotrys*, emit toxins linked to major health issues. This is even more concerning with people who have compromised immune systems. Understanding mold and how to prevent it can be imperative to maintaining a healthy home and person.

CUSTOMER: CANTON GARDENHIRE | 10047841

Generally, mold can grow on almost all natural and synthetic materials, especially if they are wet. Some surfaces absorb dust and serve as good growth substrates for several types of mold. Wood and insulating material are highly vulnerable to mold growth. Some types of inner wall materials used in buildings can support the survival and growth of some toxic mold.

If mold proliferation is suspected inside a building, it is important to determine the type of mold so that a risk assessment can be conducted and possible sources that support mold growth can be remedied quickly. Congratulations on taking that first step!

ALREADY HAVE MOLD?

It is important to clean up mold once it is found and to eliminate the source of moisture. The longer mold is allowed to grow, the more damage it could potentially cause. If mold is left unattended it can gradually destroy the surface it grows on. Luckily in most incidences mold can be a "do it yourself" project. For larger hidden contaminated areas, the EPA recommends that you hire a professional remediation company rather than attempting to clean up and remove mold yourself.

Since mold needs moisture to grow, look for moisture problems in the area that mold occurs. Look for sources of improperly installed roofing, plumbing, windows, landscaping, or gutters that direct water into or onto the building. Look for sources of excess condensation in bathrooms and kitchens, around wood window frames, and behind insulating materials.

CLEANING AND KILLING MOLD

Repair any leaks before undertaking any mold remediation efforts. Drying the area will help prevent mold growth, and improve the effectiveness of anti-mold products. Do NOT use conventional vacuum cleaners or shop vacuums, because these may emit mold spores and other irritants and allergens in their exhaust. Metal, plastic, wood, fiberglass, and other vehicle surfaces can be treated with an appropriate EPA-registered fungicide as needed, but the surfaces must first be dry. Treat cloth and leather seats with an appropriate EPA-registered fungicide. A light application of an appropriate EPA-registered fungicide can help to disinfect areas of light surface mold. If carpet contains visible mold or has remained damp for more than two days and has a strong musty odor, it may have to be replaced.

Protect yourself by wearing protective equipment (goggles/safety glasses, rubber gloves, etc). Be sure to wash thoroughly with soap and water after handling any mold remediation products and before eating, drinking, chewing gum, using tobacco, or using the toilet. Also, be sure to remove and wash contaminated clothing as soon as possible, especially before reusing clothing.

IDENTIFYING EFFECTIVE PRODUCTS FOR MOLD REMEDIATION

Mold Armor® helps clean and KILL mold inside and outside of your home. Not all mold control products will KILL mold, and it is important to select a mold control product that is EPA registered and contains the words "KILLS" or "fungicide" on the label. The EPA registration number is typically found on the product label. Mold Armor® Mold Remover & Disinfectant is your one-step disinfectant that is effective against a broad-spectrum of bacteria – killing 99.9% of bacteria and viruses. It serves as a disinfectant, cleaner, sanitizer, and fungicide. Mold Armor® inhibits the growth of mold and mildew and associated odors! To obtain best results, always use these products as directed.



REFERENCES

Cleaning Mold Does Not Have to be a Chore

Creating a Cleaner, Healthier Environment

<http://www.moldarmor.com/pro/resources/professionals-guide/>

Mold Solution Center

<http://www.moldarmor.com/home/resources/mold-solution-center/>

Your Guide to Fighting Mold

<http://www.moldarmor.com/home/resources/mold-guide/>

CDC Mold Facts – General Information

<http://www.cdc.gov/mold/faqs.htm>

CDC Stachybotrys and Other Molds

<https://www.cdc.gov/mold/stachy.htm>

EPA Regulations Guide:

<https://www.epa.gov/sites/production/files/2016-10/documents/moldguide12.pdf>

Mold Cleanup in Your Home

<https://www.epa.gov/mold/mold-cleanup-your-home>

Mold Fact Sheets from

Institut National de Santé Publique Quebec (INSPQ) Public Health Expertise and Reference Center

<https://www.inspq.qc.ca/en/moulds/fact-sheets>

Review of Quantitative Standards and Guidelines for Fungi in Indoor Air

<http://dx.doi.org/10.1080/10473289.1996.10467526>

End of Report

Do you use test kits frequently in your work?

Talk to us about a simple way to buy in bulk
and get your results

Toll-free: 1-866-370-2499



Clean Vent Air Solutions LLC

8362 Pines Blvd, #304 Pembroke Pines, FL 33024

www.cleanventair.com

Lab Analysis Report

Reference Number:	524
Client:	Canton Gardenhire
Address:	101 Coastal Place unit B Savannah, GA. 31406
Reception Date:	01/09/19

Results

Lab Number	Mold (CFU/Kit)
33243/2	139

CFU: Colony Forming Unit

Parameters	Low Range	Medium Range	High Range
Mold	< 20	21-50	51 >

Air Sample Score

Low Range	Medium Range	High Range



The levels of mold in your AC System are in the low range. To keep mold levels in the low range we recommend installing Air purifier devices in your AC System



The levels of mold in your AC System are in the medium range. We recommend contacting an AC Contractor within **30 days** in order to lower the levels of mold and to avoid further growth.



The levels of mold in your AC System are in the high range. We recommend contacting an AC Contractor **immediately** in order to lower the levels of mold and to avoid further growth.

Order ID BARR-0540619
Order Date 27 DEC 2018 07:57:08

Bill To
Name Canton Gardenhire
Address 101 Coastal Pl
Apt B
City Savannah
State GA
Zip 31406-1003
Country United States

Ship To
Name C Gardenhire
Address 101 Coastal Pl
Apt B
City Savannah
State GA
Zip 31406-1003
Country United States
Phone

Gift No

Shipping Method FedEx Standard Overnight
(Residential)

Email gardenhc04@gmail.com

PayPal Order

Item	Quantity	Description	Unit Cost	Amount
MTKA	1	Mold Armor Optional Lab Test Analysis Barcode 10047841 Analysis report to this GARDEHNHC@gmail.com email Your Role Apt Owner Testing Date 12-19-2018 Testing Location Type Residential Testing Location Street 101 Coastal Place Unit B Testing Location City Savannah Testing Location State GA Testing Location Zip 31406 Sampling Method HVAC What item did you swab? Approximate age of 30 house Approximate age of HVAC 30 Room Location KITCHEN Question - Use Products Yes Question - Allergies Yes Question - Moisture No Problem Question - Weather Event No opt-in to promotional No material	40.00	40.00
			Subtotal	40.00
			Tax	0.00
			Shipping/Handling	0.00
			Total	40.00

Order information

Buyer	crazcom-ga
Seller	katcindu-deals
Order placed on	Tuesday, Dec 18, 2018
Payment method	Credit card
Payment date	Tuesday, Dec 18, 2018

Shipping address

C Gardenhire
101 Coastal Pl
Apt B
Savannah GA 31406-1003
United States

Order total

Subtotal	\$12.99
Shipping	\$3.50
Total	\$16.49

Item(s) bought from katcindu-deals

Qty	Item name	Shipping service	Item price
1	Clean Vent Air Solutions Air Vent Test Kit Check Your Home for Mold (273587635071)	USPS First Class Package	\$12.99

CANTON GARDENHIRE
101 COASTAL PLACE
SAVANNAH, GA 31406

Certificate of Mold Analysis

Prepared for: CANTON GARDENHIRE
Phone Number: (706) 564-9710
Fax Number:
Project Name:
Test Location: 101 COASTAL PLACE
SAVANNAH, GA 31406
Report Number: 1211863
Received Date: February 20, 2019
Report Date: February 28, 2019

Elena Santiago, Technical Manager

Olmedo Ferrer, Quality Control Manager

Currently there are no Federal regulations for evaluating potential health effects of fungal contamination and remediation. This information is subject to change as more information regarding fungal contaminants becomes available. For more information visit <http://www.epa.gov/mold> or www.nyc.gov/html/doh/html/epi/mold.shtml. This document was designed to follow currently known industry guidelines for the interpretation of microbial sampling, analysis, and remediation. Since interpretation of mold analysis reports is a scientific work in progress, it may as such be changed at any time without notice. The client is solely responsible for the use or interpretation. PRO-LAB/SSPTM Inc. makes no express or implied warranties as to health of a property from only the samples sent to their laboratory for analysis. The Client is hereby notified that due to the subjective nature of fungal analysis and the mold growth process, laboratory samples can and do change over time relative to the originally sampled material. PRO-LAB/SSPTM Inc. reserves the right to properly dispose of all samples after the testing of such samples are sufficiently completed or after a 7 day period, whichever is greater.



For more information please contact PRO-LAB at (954) 384-4446 or email info@prolabinc.com



Prepared for : CANTON GARDENHIRE

Test Address :

101 COASTAL PLACE
SAVANNAH, GA 31406

ANALYSIS METHOD	6120 Air Culturable	INTENTIONALLY BLANK	INTENTIONALLY BLANK	INTENTIONALLY BLANK
LOCATION	DEN			
COC / LINE #	1211863-1			
SAMPLE TYPE & VOLUME	HVAC			
SERIAL NUMBER	None supplied			
COLLECTION DATE	Feb 11, 2019			
ANALYSIS DATE	Feb 21, 2019			
CONCLUSION	ELEVATED			

IDENTIFICATION	Colonies	Percent of Total	Raw Count	Spores per m ³	Percent of Total	Raw Count	Spores per m ³	Percent of Total	Raw Count	Spores per m ³	Percent of Total
Cladosporium	40	100									
TOTAL SPORES	40	100									
MINIMUM DETECTION LIMIT	1										
BACKGROUND DEBRIS	Not Applicable										
OBSERVATIONS & COMMENTS											

Background debris qualitatively estimates the amount of particles that are not pollen or spores and directly affects the accuracy of the spore counts. The categories of Light, Moderate, Heavy and Too Heavy for Accurate Count, are used to indicate the amount of deposited debris. Light (None to up to 25% obstruction); Medium (26% to up to 75% obstruction); Heavy (76% to up to 90% obstruction); Too Heavy (Greater than 90% obstruction). Increasing amounts of debris will obscure small spores and can prevent spores from impacting onto the slide. The actual number of spores present in the sample is likely higher than reported if the debris estimate is 'Heavy' or 'Too Heavy for Accurate Count'. All calculations are rounded to two significant figures and therefore, the total percentage of spore numbers may not equal 100%. The effect of the results relate only to the items tested. The methods used in this analysis have been validated and is fit for the intended use. R "version" indicated after the lab ID# indicates a sample with amended data.

* **Minimum Detection Limit.** Based on the volume of air sampled, this is the lowest number of spores that can be detected and is an estimate of the lowest concentration of spores that can be read in the sample. NA = Not Applicable.

Spores that were observed from the samples submitted are listed on this report. If a spore is not listed on this report it was not observed in the samples submitted.

Interpretation Guidelines: A determination is added to the report to help users interpret the mold analysis results. A mold report is only one aspect of an indoor air quality investigation. The most important aspect of mold growth in a living space is the availability of water. Without a source of water, mold generally will not become a problem in buildings. These determinations are in no way meant to imply any health outcomes or financial decisions based solely on this report. For questions relating to medical conditions you should consult an occupational or environmental health physician or professional.

CONTROL is a baseline sample showing what the spore count and diversity is at the time of sampling. The control sample(s) is usually collected outside of the structure being tested and used to determine if this sample(s) is similar in diversity and abundance to the inside sample(s).

ELEVATED means that the amount and/or diversity of spores, as compared to the control sample(s), and other samples in our database, are higher than expected. This can indicate that fungi have grown because of a water leak or water intrusion. Fungi that are considered to be indicators of water damage include, but are not limited to: *Chaetomium*, *Fusarium*, *Memnoniella*, *Stachybotrys*, *Scopulariopsis*, *Ulocladium*.

NOT ELEVATED means that the amount and/or the diversity of spores, as compared to the control sample and other samples in our database, are lower than expected and may indicate no problematic fungal growth.

UNUSUAL means that the presence of current or former growth was observed in the analyzed sample. An abundance of spores are present, and/or growth structures including hyphae and/or fruiting bodies are present and associated with one or more of the types of mold/fungi identified in the analyzed sample.

Identification	Outdoor Habitat	Indoor Habitat	Possible Allergic Potential Not an opinion or interpretation	Comments
Cladosporium	The most common spore type reported in the air worldwide. Found on dead and dying plant litter, and soil.	Commonly found on wood and wallboard. Commonly grows on window sills, textiles and foods.	Type I (hay fever and asthma), Type III (hypersensitivity pneumonitis) allergies.	A very common and important allergen source both outdoors and indoors.

Prepared for : CANTON GARDENHIRE

Test Address :

101 COASTAL PLACE
SAVANNAH, GA 31406

Indoor Air Quality Testing

Introduction

The fungi are a large group of organisms that include mold. In nature, the fungi and mold help breakdown and recycle nutrients in the environment. Mold are the most common type of fungi that grow indoors. Mold are microscopic organisms that live on plants, in the soil, and on animals, in fact almost anywhere food and moisture are available. Mold is everywhere present in the outdoor and normal indoor environments. It is in the air and on surfaces as settled dust. Exposure to mold is inevitable in everyday life. Thus, exposure to mold is considered part of a normal activity for most people. Only environments for which extraordinary preparations have been taken don't have mold present in the air or on surfaces.

Understanding Mold

Under the right conditions (moisture, a food source, and time) mold will grow, multiply and produce spores. Mold grows throughout nature as well as the built environment. Mold reproduces by microscopic cells called "spores" that can be spread easily through the air. Mold spores are always present in the indoor and outdoor air. There are mold that can grow on any organic substrate including wood, paper, carpet, food, ceiling tiles, dried fish, carpet, or any surface where dust has accumulated. When excessive moisture or water accumulates indoors, mold growth will often occur, particularly if the moisture problem remains undiscovered or un-addressed. There is no practical way to eliminate all mold spores in the indoor environment. The way to control indoor mold growth is to control the amount of moisture available to the mold.

Mold growth can become a problem in your home or office where there is sufficient moisture and the right foodstuff is available. The key to preventing mold growth is to prevent all moisture problems. Of course, hidden mold can grow when there is water available behind walls, sinks, floors, etc. Indications of hidden moisture problems are discoloration of ceiling or walls, warped floors or condensation on the windows or walls.

Controlling Moisture

The most critical step in solving a mold problem is to accurately identify and fix the source(s) of moisture that allowed the growth to occur. In order to prevent mold from growing, it is important that water damaged areas be dried within a 24-48 hour period. If a small amount of mold is present in the home, the mold can be cleaned up with a mild detergent and the excess water or moisture removed. It is not necessary to try and kill the mold or its spores. You can carefully remove the moldy materials if necessary. There are many common sources of excess moisture that can contribute to indoor mold growth. Some of the primary means of moisture entry into homes and buildings are water leakage (such as roof or plumbing leaks), vapor migration, capillary movement, air infiltration, humidifier use, and inadequate venting of kitchen and bath humidity. The key to controlling moisture is to generally reduce indoor humidity within 35% - 60% (depending what climate you live in) and fix all leaks whatever their cause.

Mold Growth Sources

If the source of moisture is not easily detected or you have a hidden water leak, mold testing can be helpful. Often a roof leak or a plumbing leak can be identified as the source. The difficulty arises when there is an odor present or when an occupant shows signs of mold exposure but no visible mold can be seen. Excess water intrusion can also lead to dry rot of lumber and cause a serious structural defect in buildings.

Health Related Risks

Based on the Institute of Medicine and the National Academy of Sciences, dampness and mold in homes is associated with increases in several adverse health effects including cough, upper respiratory symptoms, wheeze, and exacerbation of asthma. Mold and fungi contain many known allergens and toxins that can adversely affect your health. Scientific evidence suggests that the disease of asthma may be more prevalent in damp affected buildings. Dampness and mold in homes, office buildings and schools represent a public health problem. The Institute of Medicine concluded, "When microbial contamination is found, it should be eliminated by means that not only limit the possibility of recurrence but also limit exposure of occupants and persons conducting the remediation".

Mold Sampling Methods

The goal of sampling is to learn about the levels of mold growth and amplification in buildings. There are no EPA or OSHA standards for levels of fungi and mold in indoor environments. There are also no standard collection methods. However, several generally accepted collection methods are available to inspectors to study mold (and bacteria) in indoor environments. Comparison with reference samples can be a useful approach. Reference samples are usually taken outdoors and sometimes samples can be taken from “non-complaint” areas. In general, indoor fungal concentrations should be similar to or lower than outdoor levels. High levels of mold only found inside buildings often suggest indoor amplification of the fungi. Furthermore, the detection of water-indicating fungi, even at low levels, may require further evaluation. There are several types of testing methods that can detect the presence of mold. They can be used to find mold spores that are suspended in air, in settled dust, or mold growing on surfaces of building materials and furnishings. There are different methods that can identify types of live mold and dead mold in a sampled environment. Mold spores can be allergenic and toxic even when dead.

All sampled material obtained in the laboratory is analyzed using modern microscopic methods, standard and innovative mycological techniques, analyzed at 630 – 1,000 times magnification.

Testing for mold with an accredited laboratory is the best way to determine if you have mold and what type of mold it is.

Surface Sampling Methods

Surface sampling can be useful for differentiating between mold growth and stains of various kinds. This type of sampling is used to identify the type of mold growth that may be present and help investigate water intrusion. Surface sampling can help the interpretation of building inspections when used correctly. The following are the different types of surface samples that are commonly used to perform a direct examination of a specific location. Spore counts per area are not normally useful.

Tape (or tape-lift)

These samples are collected using clear adhesive tape or adhesive slide for microscopic examination of suspect stains, settled dust and spores. Tape lifts are an excellent, non-destructive method of sampling. The laboratory is usually able to determine if there is current or former mold growth or if only normally settled spores were sampled.

Bulk

This is a destructive test of materials (e.g., settled dust, sections of wallboard, pieces of duct lining, carpet segments, return-air filters, etc.) to determine if they contain or show mold growth. Bulk sampling collects a portion of material small enough to be transported conveniently and handled easily in the laboratory while still representing the material being sampled. A representative sample is taken from the bulk sample and can be cultured for species identification or analyzed using direct microscopy for genus identification. The laboratory is usually able to determine if there is current or former mold growth or if only normally settled spores were sampled.

Swab

A sterile cotton or synthetic fiber-tipped swab is used to test an area of suspected mold growth. Samples obtained using this method can be cultured for species identification or analyzed using direct microscopy for genus identification. The laboratory is usually able to determine if there is current or former mold growth or if only normally settled spores were sampled. Identified spores are generally reported as “present/absent”.

Carpet (filter-type) Cassette

A carpet cassette is used with a portable air pump (flow rate usually doesn't matter) to collect mold, pollen and other particulates. Samples obtained using this method can be cultured for species identification or analyzed using direct microscopy for genus identification. This method is usually used to determine a presence or absence of water-indicating mold in a carpet. The laboratory is usually able to determine if there is current or former mold growth or if only normally settled spores were sampled.

Air Sampling Methods

Air samples are possibly the most common type of environmental sample that investigators collect to study bioaerosols (mold, pollen, particulates). The physics of removing particles from the air and the general principles of good sample collection apply to all airborne materials, whether biological or other origin. Therefore, many of the basic principles investigators use to identify and quantify other airborne particulate matter can be adapted to bioaerosol sampling. Common to all aerosol samplers is consideration of collection efficiency. The following are the two most common forms of air sampling methods.

“Non-Viable Methods” *(The Laboratory results are reported in “spores per cubic meter (sp/m³)”)*

Z5 Cassette

The Z⁵ spore trap is used with a portable air pump (5 liters/minute for 1 to 5 minutes) to rapidly collect airborne aerosols including mold, pollen and other airborne particulates. Air is drawn through a small slit at the top of the cassette and spores are trapped on a sticky surface on a small glass slide inside the cassette. They are efficient at collecting spores as small as 1µm.

Micro5 Cassette

The Micro5 Microcell spore trap cassette is used with a portable air pump (5 liters/minute for 1 to 5 minutes) to collect airborne aerosols including mold, pollen and other airborne particulates. Air is drawn through a small circular hole at the top of the cassette and spores are trapped on a sticky coated glass slide inside the cassette. They are efficient at collecting spores as small as 0.8µm.

Air-O-Cell Cassette

The Air-O-Cell spore trap cassette is used with a portable air pump (15 liters/minute for 1 to 10 minutes) to collect airborne aerosols including mold, pollen and other airborne particulates. Air is drawn through a small opening at the top of the cassette and spores are trapped on a sticky coated glass slide inside the cassette. These cassettes are efficient at collecting spores as small as 2.6µm.

Allergenco-D Cassette

The Allergenco-D spore trap cassette is used with a portable air pump (15 liters/minute for 1 to 10 minutes) to collect airborne aerosols including mold, pollen and other airborne particulates. Air is drawn through a small opening at the top of the cassette and spores are trapped on a sticky coated glass slide inside the cassette. These cassettes are efficient at collecting spores as small as 1.7µm.

“Viable Methods” *(The Laboratory results are reported in “colony forming units per cubic meter (CFU/m³)”)*

Agar Impaction Plates

The agar impaction plates are used with a portable air pump (28.3 liters/minute for 1 to 3 minutes) to collect airborne mold. This is called “viable sampling” because it only grows what is alive at the time of testing. Air is drawn through a 200-400 holes at the top of the impactor and spores are trapped in the agar media. The agar plate should be shipped to the laboratory immediately or kept cool until it can be shipped. These cassettes are 90% efficient at collecting spores as small as 0.7µm. The laboratory results are reported in “colony forming units per cubic meter (CFU/m³)”.

Data Interpretation

Information (data) on mold in buildings can consist of the simple observation of fungal growth on a wall, analytical measurements from hundreds of environmental samples, or the results of a survey of building occupants with and without particular building-related conditions. Data interpretation is the process whereby investigators make decisions on (a) the relevance to human exposure of environmental observations and measurements, (b) the strength of associations between exposure and health status, and (c) the probability of current or future risks. These interpretation steps are followed by decisions on what measures can be taken to interrupt exposure and prevent future problems.

Remediation of Mold

Prevention of mold growth indoors is only possible if the factors that allow it to grow are identified and controlled. When prevention has failed and visible growth has occurred in a home or building, remediation and/or restoration may be required. The extent of the mold growth will determine the scope of the remediation required. The goal of remediation is to remove or clean mold-damaged material using work practices that protect occupants by controlling the dispersion of mold from the work area and protect the workers from exposure to mold. You should consult a professional when contemplating fixing a large area of mold growth. Generally, remediation requires (a) removal of porous materials showing extensive microbial growth, (b) physical removal of surface microbial growth on non-porous materials to typical background levels, and (c) reduction of moisture to levels that do not support microbial growth. Identification of the conditions that contributed to microbial proliferation in a home or building is the most important step in remediation. No effective control strategy can be implemented without a clear understanding of the events or building dynamics responsible for microbial growth. Following the completion of the remediation process, mold testing should be performed to obtain clearance.

Symptoms of Mold Exposure

The most common symptoms of mold exposure are runny nose, eye irritation, cough, congestion, and aggravation of asthma. Individuals with persistent health problems that appear to be related to mold or other types of air quality contaminant exposure should see their physicians for a referral to specialists who are trained in occupational/environmental medicine or related specialties and are knowledgeable about these types of exposures. Decisions about removing individuals from an affected area must be based on the results of such medical evaluation. Mold is naturally present in outdoor environments and we share the same air between the indoor and outdoor, it is impossible to eliminate all mold spores indoors.

Ten Things You Should Know About Mold

- 1) Potential health effects and symptoms associated with mold exposures include allergic reactions, asthma, and other respiratory problems.
- 2) There is no practical way to completely eliminate mold and mold spores in the indoor environment. The way to control indoor mold growth is to control moisture.
- 3) If mold is a problem in your home or building, you must clean up the mold and eliminate sources of moisture.
- 4) To prevent mold growth any source of a water problem or leak must be repaired.
- 5) Indoor humidity must be reduced (generally below 60%) to reduce the chances of mold growth by: adequately venting bathrooms, dryers, and other moisture-generating sources to the outside; using air conditioners and de-humidifiers; increasing ventilation; and using exhaust fans whenever cooking, dishwashing and cleaning.
- 6) Clean and dry any damp or wet building materials and furnishings within 24-48 hours to prevent mold growth.
- 7) Clean mold off of hard surfaces with water and detergent and dry completely.
- 8) Prevent condensation: reduce the potential for condensation on cold surfaces (e.g., windows, piping, exterior walls, roof, or floors) by adding insulation.
- 9) In areas where there is a perpetual moisture problem on the floor, do not install carpeting
- 10) Mold can be found almost anywhere. Mold can grow on wood, paper, carpet, foods; almost anything can support some mold growth provided there is moisture, time to grow and food to eat.

References & Resources

Bioaerosols: Assessment and Control, Janet Macher, Sc.D., M.P.H., Editor. 1999. ACGIH, 1330 Kemper Meadow Drive, Cincinnati, OH 45240-1634.

Health Implications of Fungi in Indoor Environments, Edited by R.A. Samson. 1994. Elsevier Science, P.O. Box 945, Madison Square Station, New York, NY 10159-0945.

Damp Indoor Spaces and Health, Institute of Medicine of the National Academies, Washington, DC, 2004

Field Guide for the Determination of Biological Contaminants in Environmental Samples, 2nd Edition, Edited by L-L. Hung, et al. AIHA, Fairfax, VA, 2005.

Recognition, Evaluation, and Control of Indoor Mold, Edited by B. Prezant, et al. AIHA, Fairfax, VA, 2008.

Useful Websites

www.acgih.org/resources/links.htm

American Conference of Governmental Industrial Hygienists - information on Indoor Air Quality and useful links

www.cal-iaq.org

California Indoor Air Quality Program - California Indoor Air Quality resources and useful links

www.health.state.ny.us/environmental/indoors/air/mold.htm

New York State Department of Health - New York state recommendations for IAQ, indoor mold inspections, remediation, and prevention

<http://www.nyc.gov/html/doh/html/epi/moldrpt1.shtml>

Guidelines for Assessment and Remediation of Fungi in Indoor Environments – a good reference for mold clean up and removal

orf.od.nih.gov/PoliciesAndGuidelines/ORFPolicies/MoldPrevPolicy.htm

National Institutes of Health - information mold prevention and remediation

<http://www.niehs.nih.gov/health/topics/agents/mold/index.cfm>

National Institute of Environmental Health Sciences - information on mold

www.epa.gov/mold/

United States Environmental Protection Agency website on mold and moisture

www.aaaai.org/nab/index.cfm?p=faq

American Academy of Allergy, Asthma, and Immunology – information on mold and allergies and outdoor allergens

<http://www.aanma.org/?s=mold>

Allergy & Asthma Network – information for homes about allergies and asthma

<http://www.homeenergyresourcecenter.org>

Minnesota Department of Commerce Energy Information Center – good information on moisture control in homes

<http://eetd.lbl.gov/ie/>

Governmental Indoor Environment Department – good information on indoor health, comfort and energy efficiency in buildings

<http://www.osha.gov/dts/shib/shib101003.html>

Occupational US Department of Labor (OSHA) - A Brief Guide to Mold in the Workplace