



Facts About Home Mold Testing

Mold Sampling – Should it Be Performed?

Expert organizations in assessing indoor air quality, such as the Environmental Protection Agency (EPA)¹, Centers for Disease Control and Prevention (CDC)², American Industrial Hygiene Association (AIHA)³ and the Occupational Safety and Health Administration (OSHA)⁴, recommend against routine mold sampling. Looking for evidence of water damage and visible mold growth should be the first step.³ If visible mold is present, sampling is usually unnecessary and the mold should be appropriately remediated. Results from mold sampling and the species of mold do not change the requirement to locate and stop the water intrusion. Finally, it is important to cleanup and remediate the affected area(s) as necessary.



In addition, there are no health standards for what are “acceptable” levels of mold in the indoor environment³; so there is no health standard to which to compare mold sampling results. Also, mold is ubiquitous; it is everywhere – outside and inside. If mold sampling were to be done, mold will be found most anywhere. The mere presence of mold does not necessarily mean that there is a problem or that occupants will be exposed or will have adverse health effects. However, if you have visible mold or suspect you have a mold problem, it is more important to spend time and resources solving the moisture problem and getting rid of the mold than on mold sampling.³

Commercial Home Mold Test Kits – How Effective Are They?



This image depicts a culture plate which contained malt extract agar (MEA) that had been grown from a sample obtained inside a home flooded by Hurricane Katrina, and which exhibited visible mold growth on its walls and furnishings. This is a type of black mold commonly found in homes.
 (Photo by Ginger L. Chew/CDC)

Generally, home mold test kits do not provide meaningful answers. Since mold will be found anytime such testing is done, the home test kits would only confirm what we already know - that mold is everywhere, both outside and inside. Even if the home test kit analysis provides detailed information, results can be misleading and difficult to interpret, even for the professional. Results can only be accurately interpreted together with a well-thought-out sampling and analysis plan and visual inspection.⁴ Additionally, *Consumer Reports* recommends to “avoid mold test kits [as we have] found them to be unreliable.”⁶ They also say, “Each of the kits we tested had significant flaws that were serious enough to earn a **Not Recommended Rating** in our 2006 tests.”⁷



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Professional Sampling: When Might It Be Necessary?

Sampling for mold should be performed by professionals who have specific experience in developing mold sampling protocols and conducting sampling methods as well as interpreting sample results. While routine mold sampling is not recommended, there are a few specific situations when mold sampling might be useful to the professional who has the specific experience previously mentioned.

Sampling for mold is expensive and you should have a clear reason for doing so. In situations where visible mold is present but there is a specific need to have the mold identified, surface or bulk sampling might be warranted. In specific instances, such as cases where potential health concerns are an issue, litigation is involved or the source(s) of contamination is unclear, sampling may be considered as part of a building evaluation.³ If mold is suspected but not visibly detected after a thorough inspection, then microbial air sampling, conducted in accordance with specific guidance documents, might reveal evidence of mold amplification indoors or hidden reservoirs behind walls and other building structures³ (also see references 8 - 10). If mold is being removed and there is a question about how far the mold colonization extends, then surface or bulk sampling, in combination with moisture readings, might be applicable.³ Surface sampling might also be useful to determine if an area has been adequately cleaned or remediated. If samples are collected, regardless of the purpose, the results should clearly help to answer a specific question. Sampling without a specific purpose and a well-thought-out sampling plan greatly increases the chances of generating data that is not usable. The presence of mold depends on environmental conditions (e.g., heat, light, water availability, rain, humidity, winds, time of day, etc.), so carefully consider the seasons and ambient weather conditions when developing the sampling plan.



This image depicts various tools professionals use for mold sampling.
(Photo by NMCPHC Public Affairs)

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In situations where mold sampling might be useful, it must be performed by professionals, such as industrial hygienists, who are experienced in evaluating mold issues and familiar with current guidelines and, if applicable, local regulations, using a well-thought-out sampling plan. Sample analysis should follow recommended analytical methods by the AIHA, the American Conference of Governmental Industrial Hygienists (ACGIH) or other professional organizations. Since laboratories vary in experience and capability, it is advised that professionals use an AIHA accredited laboratory (Laboratory Accreditation Programs, LLC, Environmental Microbiology Laboratory Accreditation Program [EMLAP]) or equivalent laboratory; this is required when mold sampling is performed by Navy Industrial Hygienists.^{3,10, 11}





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Methods Used by Professionals to Interpret Sample Results

The presence of mold or other biological contaminants does not mean that occupants will have adverse health effects or that they will even be exposed. Like any other stressor, you must have a completed exposure pathway to the contaminant. The mold or mold fragments, spores, bacteria, metabolites or allergens must be produced, released, reach the occupants and then be inhaled, physically contacted, or ingested. Even after contact, human response will depend on individual susceptibility (e.g., genetic predispositions to allergens, age, health status, etc.) and type of exposure (e.g., allergen, toxin, infectious agent, etc.).¹⁰

A useful method for interpreting microbiological sample results is to compare the kinds and levels of mold detected in different environments. Usual comparisons include indoors versus outdoors or complaint areas versus non-complaint areas.³

Sampling for airborne molds and mold spores can indicate whether the mix of indoor molds is representative of the outdoor mix or whether it is different at the time of sampling. In buildings without mold problems, the types and concentrations of indoor airborne mold and mold spores and those found outdoors should be similar. If the presence of one or two types of mold are more dominant indoors but those same types are absent outdoors, or if the concentrations of mold and mold spores are significantly elevated indoors over outdoors, it might indicate a moisture problem and degraded air quality.

Also, the consistent presence of certain molds that are over and beyond background concentrations might also indicate a moisture problem and a potential exposure. Generally, indoor mold types and airborne concentrations should be similar to, and be no greater than, those found outdoors and in non-complaint areas. Analytical results from bulk material or surface samples can also be compared to results of similar samples collected from reasonable comparison areas such as other rooms inside a building.

References:

- [1] U.S. Environmental Protection Agency (EPA). Mold 2016. <https://www.epa.gov/mold>. Accessed October 21, 2016.
- [2] Centers for Disease Control and Prevention (CDC). Mold 2010. <http://www.cdc.gov/mold>. Accessed February 10, 2010.
- [3] American Industrial Hygiene Association (AIHA). Facts about Mold 2016. <https://www.aiha.org/publications-and-resources/TopicsofInterest/Hazards/Pages/Facts-About-Mold.aspx>. Accessed November 2016.
- [4] The Occupational Safety and Health Administration (OSHA). A Brief Guide to Mold in the Workplace 2013. <https://www.osha.gov/dts/shib/shib101003.html>. Accessed December 29, 2016.
- [5] Mold Report. Can I Use Home Mold Test Kits Instead of A Mold Inspection? http://www.moldreport.com/home_mold_testing_kits.html. Accessed 2016.
- [6] Consumer Reports. Is Poor Indoor Air Quality Making You Sick? Protect Yourself Against Six Hidden Hazards in Your Home 2012. <http://www.consumerreports.org/cro/magazine/2012/06/is-poor-indoor-air-quality-making-you-sick/index.htm>. Accessed June 2012.
- [7] Consumer Reports. Five Home Repairs You Shouldn't Ignore – Use Our Expert Advice to Stop Trouble in its Tracks 2009. <http://www.consumerreports.org/cro/magazine-archive/june-2009/home-garden/5-home-repairs-you-shouldnt-ignore/overview/5-home-repairs-you-shouldnt-ignore-ov.htm>. Accessed June 2009.
- [8] Dillon, H. K. Field Guide for the Determination of Biological Contaminants in Environmental Samples, 2nd edition. Fairfax: AIHA, 2005.
- [9] Prezant, B., Weekes, D. M., Miller, D. J. Recognition, Evaluation, and Control of Indoor Mold (The Green Book). AIHA, 2008.
- [10] Navy and Marine Corps Public Health Center (NMCPhC). Navy Industrial Hygiene Field Operations Manual: Chapter 13 Indoor Environmental Quality. http://www.med.navy.mil/sites/nmcphc/Documents/industrial-hygiene/IHFOM_CH13_Intro.pdf Accessed July 2015.
- [11] AIHA Laboratory Accreditation Programs. Environmental Microbiology Laboratory Accreditation Program (EMLAP). <http://www.aihaaccreditedlabs.org/LabAccreditationPrograms/EMLAP/Pages/default.aspx>. Accessed November 17, 2016