

# Facts About Mold



## Risk Management & Safety

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Mold is in the news. People are talking about its potential health and economic impact. But what are the real risks and issues?

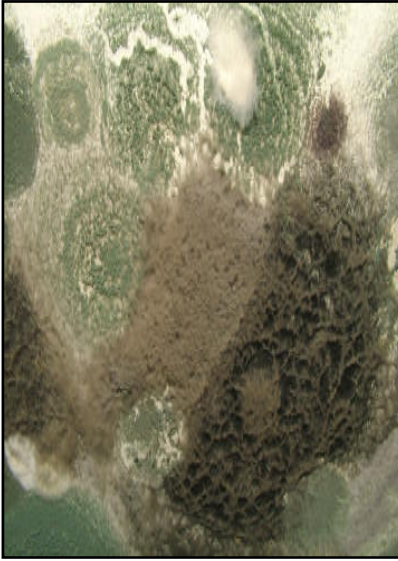
The available science is incomplete and sometimes controversial. Although there are several guidance documents available (refer to the resource section), there is no accepted national standard. Validated methods to measure contamination are still in their infancy, and even when measurement techniques are available, there are no clear benchmarks or standard values to compare the results against. Similar scientific uncertainties exist in the medical diagnosis of some mold-related health effects. Cases involving mold involve the public, media, risk communicators, money and liability.

The guidance offered is practical and does not claim to be a definitive or comprehensive position statement. It should be used in conjunction with other existing guidance document, as well as professional judgment.

### THE FACTS ABOUT MOLD: FOR EVERYONE

**What is mold?** Molds are forms of fungi found all year round both indoors and outdoors. Outdoors, molds live in the soil, on plants and on dead or decaying matter. Another common term for mold is mildew. Mold growth is encouraged by warm and humid conditions, although it can grow during the cold weather. There are thousands of species of mold and they can be any color. Most fungi, including molds, produce microscopic cells called "spores" that spread easily through the air. Live spores act like seeds, forming new mold growths (colonies) with the right conditions. All of us are exposed to fungal spores daily in the air we breathe. ([Back to Top](#))

**How does mold get into house or building?** Most, if not all, of the mold found indoors comes from outdoor sources. It needs moisture to grow and becomes a problem only where there is water damage, high humidity, or dampness. Common sources of indoor moisture that cause mold problems include flooding, roof and plumbing leaks, damp basements or crawl spaces, or any moisture condensation on cold surfaces. Bathroom showers and steam from cooking may also create problems if not well ventilated. ([Back to Top](#))



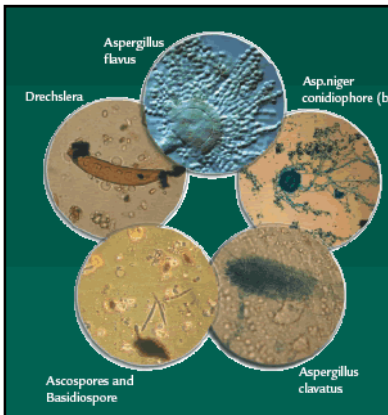
**How do I prevent mold growth?** Controlling excess moisture is the key to preventing and stopping indoor mold growth. Keeping susceptible areas in the building clean and dry is very important. Ventilate or use exhaust fans (vented to the outdoors) to remove moisture where it accumulates, particularly bathrooms, kitchens, and laundry areas. Clothes dryers should be vented to the outside. Repair water leaks promptly, and either dry out and clean or replace water-damaged materials. Materials that stay wet for more than 48 hours are likely to produce mold growth. Lowering humidity indoors helps prevent condensation problems. ([Back to Top](#))

**Can mold be toxic?** Some molds produce toxic substances called mycotoxins. Airborne mycotoxins have had some correlation to health problems for occupants in residential or commercial buildings. The health effects of breathing mycotoxins are not well understood and are currently under study. In rare cases, high or chronic airborne exposures, typically associated with certain occupations such as agricultural work, have been associated with illnesses. More is known about the health effects of consuming moldy foods or feed containing mycotoxins than about the effects of breathing them. ([Back to Top](#)) For more information on mycotoxins, [click here](#).

**What is “black mold”?** This type of mold is usually associated with *Stachybotrys chartarum*, a type of greenish-black mold commonly associated with heavy water damage. Not all molds that appear black are *Stachybotrys*. The known health effects from exposure to *Stachybotrys* are similar to other common molds, but have been inconclusively associated with more severe health effects in some people. ([Back to Top](#))

**Why are we concerned about mold?** Small amounts of mold growth in workplaces or homes (such as mildew on a shower curtain) are not a major concern. But no mold should be allowed to grow and multiply indoors. Large quantities of mold growth may cause nuisance odors and health problems for some people. In addition, mold can damage building materials, finishes, and furnishings and, in some cases, cause structural damage to wood. ([Back to Top](#))

**How do molds affect people?** Most people have no reaction when exposed to molds. Allergic reactions, similar to common pollen or animal allergies, and irritation are the most common health effects for individuals sensitive to molds. Flu-like symptoms and skin rash may occur. Molds may also aggravate asthma. In rare cases, fungal infections from building-associated molds may occur in people with serious immune disease. Most symptoms are temporary and eliminated by correcting the mold problem. ([Back to Top](#))



**Who is affected by exposure to mold?** There is a wide variability in how people are affected by mold exposure. People who may be affected more severely and quickly than others include:

- Infants and children
- Elderly people
- Pregnant women
- Individuals with respiratory conditions or allergies or asthma
- People with weakened immune systems (i.e., chemotherapy patients, organ or bone marrow transplant recipients, and people with HIV infections or autoimmune diseases).

Those with special health concerns should consult their doctor if they are concerned about mold exposure. Symptoms that may seem to occur from mold exposure may be due to other causes, such as bacterial or viral infections or other allergies. ([Back to Top](#))

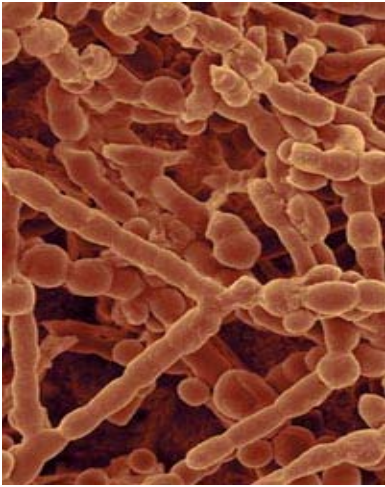
**What should I do if I see or smell mold at work?** If possible identify and fix the moisture sources causing mold growth. RMSO can assist you in doing this (call: 6-3385). For small mold problems, contact your custodian who will use detergent and water to wash the mold off hard surfaces, and allow it to dry completely. Moldy porous or absorbent materials (such as ceiling tiles, wall-board, and carpeting) need to be replaced. If you do not see mold growth but notice a musty odor, mold may be growing behind water-damaged materials, such as walls, carpeting, or wallpaper. People who clean mold should wear gloves, eye protection, and a dust respirator to protect against breathing airborne spores (Consult with RMSO on required fit-test procedures for wearing a respirator). ([Back to Top](#))

**What will kU o\ do if the come to inspect mold?** RMSO will check building materials and spaces for visible mold and signs of moisture damage indicating a history of water leaks, high humidity levels, and/or condensation. Occupants of the space may be asked to fill out a questionnaire concerning their concerns and health related symptoms. The building ventilation system may be inspected. A moisture meter may be used to identify wet or damp building materials. Potential air pathways from the source may be characterized to determine its impact on the building and occupants.

Sampling is not always necessary. If visible mold is present, then it should be remediated, regardless of what species are present and whether samples are taken. Sampling is needed in situations where visible mold is present and there is a need to have the mold identified.

If mold is suspected, but not visibly detectable after an inspection, then





sampling may reveal evidence of mold amplification or reservoirs indoors. If mold is being removed and there is a question about how far the colonization extends, then surface or bulk sampling in combination with moisture readings may be useful. Sampling for airborne mold spores can indicate whether the mix of indoor molds is “typical” of the outdoor mix or, conversely, “atypical” or unusual at the time. If samples are taken, regardless of the purpose, the results should help answer a clear question. RMSO will use AIHA EMLAP accredited labs (American Industrial Hygiene Association: Environmental Microbiology Laboratory Accreditation Program). ([Back to Top](#))

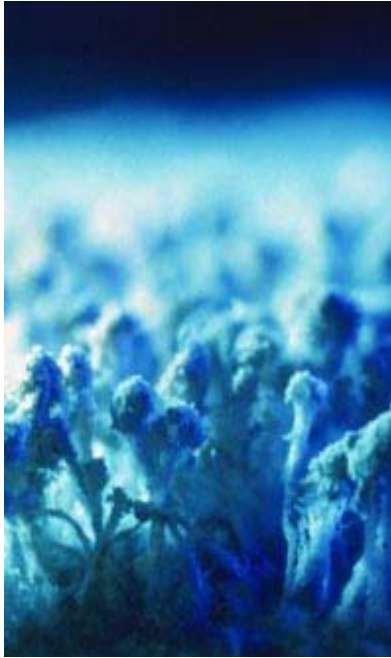
**Why are there no standards for mold exposure?** Health hazards from exposure to environmental molds and their metabolites relate to four broad categories of chemical/biological attributes. These materials may be: 1) irritants, 2) allergens, 3) toxins, and rarely 4) pathogens. Uncertainty is complicated further by a lack of information on specific human responses to well-defined mold contaminant exposures. In combination, these knowledge gaps make it impossible to set simple exposure standards for molds and related contaminants. ([Back to Top](#))

**Without standards, how are sampling results interpreted?** A useful method for interpreting microbiological results is to compare the kinds and levels of organisms detected in different environments. Usual comparisons are indoors to outdoors or complaint areas to noncompliant areas. Specifically, in buildings without mold problems, the qualitative diversity (types) of airborne fungi indoors and outdoors should be similar. Conversely, the dominating presence of one or two kinds of fungi indoors and the absence of the same kind outdoors may indicate a moisture problem and degraded air quality. ([Back to Top](#))

**In the case of mold remediation, is isolation/containment always required?** Mold remediation should always require some level of isolation of materials or containment. The lower level of containment or isolation involves sealing removed moldy materials in a plastic bag for disposal. Local area or full area containment decisions should be made based on the size of the area of growth and the potential for occupant exposure or building contamination without containment. These decisions should be based on an understanding of the full scope of mold contamination, including visible and hidden mold sources.

In mold remediation projects, biocides are not a substitute for thorough cleaning. Biocides are of limited use in remediation of indoor mold contamination for two main reasons:

1. Biocides do not remove allergens that can lead to allergies in sensitive individuals nor do they remove other metabolites from mold that can cause adverse reactions in some people. Even though the application of biocides may kill mold spores, the only way to remove the allergens and other metabolites is through the physical elimination



or mold and moldy materials by thorough cleaning or removal. Commonly used biocides do not effectively kill molds. For example, active fungal growth on a surface may produce a spore density of 1 million spores per square inch. Treating this site with biocide that has an effectiveness of 99.999% would still leave an estimated 10 viable spores per square inch. As such, mold growth may recur if the underlying moisture problem is not resolved. ([Back to Top](#))

#### **Resources (click on the reference to go to link or publication)**

- *Field Guide for the Determination of Biological Contamination* (stock #227-RC-96), American Industrial Hygiene Association (AIHA), [http://www.iagcomparisons.com/prd\\_detail.php/biological-contaminants](http://www.iagcomparisons.com/prd_detail.php/biological-contaminants)
- *Report of Microbial Growth Task Force* (stock #458-EQ-01), AIHA, [www.aiha.org](http://www.aiha.org)
- *Bioaerosols: Assessment and Control*, American Conference of Governmental Industrial Hygienists (ACGIH), [www.acgih.org](http://www.acgih.org)
- *IICRC S500, Standard and Reference Guide for Professional Water Damage Restoration*, Institute of Inspection, Cleaning, and Restoration Certification, [www.iicrc.org](http://www.iicrc.org)
- *Mold Remediation in Schools and Commercial Buildings* (EPA 402-K-01-001), Environmental Protection Agency (EPA), [http://www.epa.gov/mold/mold\\_remediation.html](http://www.epa.gov/mold/mold_remediation.html)
- *Guidelines for Environmental Infection Control in Healthcare Facilities*, Centers for Disease Control (CDC), <http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm>

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