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Mold Testing: A Closer Look

By Jason Earle

So you think you need to get mold testing done.

Why?

Do you think you have a mold problem somewhere? Can you see it?

If it is visible, the EPA says that mold testing isn't necessary. They feel that the type of mold you have doesn't matter. Since mold growth is caused by excess moisture, what matters is getting rid of the mold growth and fixing the water problem. And, since all molds can cause allergic reactions and trigger asthma attacks, it does not matter whether your mold is "toxic" or not. Asthma attacks kill people every day. No one knows how many asthma attacks are caused by mold exposure. Mold's adverse health effects are not restricted to "toxic molds" alone. The bottom line is that there is no such thing as good mold growth indoors – unless it's on the brie in your fridge.

What if you think you may have a mold problem that isn't visible? In this case, the EPA suggests finding a competent professional with experience in finding and diagnosing such problems.

So you flip open the phone book and place a call to the local "mold guys." For a few hundred bucks they'll look around and for a little more money, they'll do some sophisticated air testing (otherwise known as air sampling). Sounds good, right? After all, they're a certified mold inspector! They must be good.

Let's see.

We'll assume you've got a good mold inspector. He really knows what he's doing. After the visual inspection, whether he finds something or not, he tells you that it's usually a good idea to do some testing to verify the findings and have some peace of mind. After all, we are talking about a microscopic organism here.

So how many mold tests do you do?

Well, you have to have at least one outside air test because there are no standards yet stating how much mold is acceptable in indoor air. And we expect indoor air to be as good, if not better, than outdoor air.

Then you do the inside air samples. When the lab analyzes the samples, you will then compare the results from the indoor samples to the results from the outside samples and see whether there are unusual quantities or types of mold spores floating around in the air you breathe every day.

So, how many tests? I don't know. And neither does the inspector usually. Maybe three or four. Maybe one in every room. (Big bucks at \$100 or more per sample.)

Next question is where? Do you sample only where you are concerned or where you have an odor? Do you sample in areas that don't have a problem? Do you sample in the middle of the room or near the walls? Most inspectors have no idea. But they'll never tell you that.

Let's pretend you do the tests in every room and spend a small fortune. The results come back with no unusual levels. Now you can sleep well. Your family is safe. Right?

Not necessarily.

The results from air sampling often create a false sense of security. If nothing unusual shows up, it does not mean you don't have a mold problem. This is known as a false negative, and it's all too common in air sampling. Air tests are prone to false negatives because 1) some molds make small numbers of spores so there aren't many to become airborne, 2) some make large spores and/or sticky spores that do not easily become airborne or stay aloft long enough to be captured, and 3) mold spores are far too large to pass through the pores of sheetrock or paneling, so it's quite possible to have mold growth in wall and/or ceiling cavities that air testing will never pick up.

And to make things worse, even when abnormal spore counts are found through air tests, the location of the source is often still a mystery.

Here's what the Institute of Medicine had to say in a study titled "[Damp Indoor Spaces and Health](#)" published in 2004, on page 66: "Fungal types vary remarkably in their capacity to produce and release spores. *Penicillium* and *Aspergillus* typically produce large numbers of spores that are easily released into the air. *Stachybotrys* and *Chaetomium* are examples of fungi that produce fewer spores and release them only occasionally. *Penicillium* and *Aspergillus* spores are regularly found in air samples, and *Stachybotrys* and *Chaetomium* spores are rarely found in the air, even in environments where they are growing (Andersen and Nissen, 2000)"

I underlined the final sentences in the last two paragraphs because part of the reason mold is on your mind is that the media has made a mountain out of a mold hill. A few stories of devastating mold problems have made this the newest modern plague; "the next asbestos," as some people are fond of saying. The mold everyone talks about – "black mold" or "toxic mold" – is called *Stachybotrys Chartarum* (pronounced: stack-ee-Bah-tris). It can produce a potent chemical toxin, hence the reason for it to be called the "toxic mold." The truth is hundreds of molds create toxins, known as mycotoxins. *Stachybotrys* is just the one that gets the spotlight.

Some people who have been exposed to *Stachybotrys* and its toxins report nosebleeds, neurological disorders, memory loss and many other frightening symptoms. While many of these symptoms are anecdotal, and the jury is still out as to the direct relationship of mold exposure and severe illness, it is well known and widely accepted that the indoor environments in which molds like *Stachybotrys* grow are not exactly healthy for human habitation. But, as you read, spores of *Stachybotrys* rarely show up in air samples. So how do you find it?

When mold grows, it creates vapors and gases as byproducts of digestion, just as we do. They are called microbiological volatile organic compounds (mVOCs). The mVOCs molds produce are what we pick up on when we smell something that smells musty. According to the [NJ Department of Health](#), these mVOCs can cause allergic reactions, headaches, nausea, dizziness and fatigue. This makes even more sense when we realize that mVOCs emitted from mold growth can include ethanols, methanols, alcohols, ketones, aldehydes, benzene, methyl chloride and many other chemicals we associate with the petroleum industry and other sources of air pollution.

So exposure to spores is not the only issue. Even if the mold is growing peacefully inside your walls, exposure to the mVOCs can still cause adverse medical effects. This complicates the whole thing doesn't it? But, ironically, mVOCs are actually the solution to finding hidden mold.

Twenty-five years ago, [Swedish scientists concerned about mold growth indoors, and knowing the power of the nose, trained a dog to find mold in buildings](#). Three years ago, a small group of people in the US, including the folks over here at Princeton-based Lab Results LLC (www.StopMold.com), picked up on this idea and began using dogs to find hidden indoor mold growth on this side of the Atlantic.

As a culture we've trusted dogs for nearly a hundred years to find truffles, missing people, bombs, drugs and arsonists. [Now, according to a study from the Alberta Children's Hospital at the University of Calgary published recently in the medical journal *Neurology*, they even have dogs that can sense their owner's epileptic seizures. And in England a recent study found that dogs were more accurate at diagnosing people with bladder cancer than traditional testing methods!](#) So why not mold?

Although mold spores are too big to pass through walls, the gases and vapors which the dogs are trained to detect and locate the source of, can and do permeate the walls. When detected and pinpointed by dogs, the area can be thoroughly investigated and evaluated, therefore reducing the probability of false negatives, enabling source detection instead of symptom detection and making diagnostics and mold remediation planning more efficient and less expensive.

When normal, non-invasive air tests are done by more sophisticated mold inspection specialists like Lab Results LLC, a calibrated handheld laser-based particle scanner can be used to find areas where the greatest concentration of airborne microscopic particles exist within the building. This eliminates much of the guesswork of where to take the air samples, enabling the technician to develop a sampling plan with more confidence and ultimately with less cost to the customer.

Lab Results LLC, based in Princeton NJ, is an indoor air quality improvement company that specializes in the detection, location, diagnosis and prevention of indoor mold and moisture problems. In March 2003, Lab Results LLC brought the first certified mold detection dog, Oreo, to the Northeast. Now with over 1000 inspections under her collar, Oreo is one of the most experienced mold detectives in the country. She has appeared on Good Morning America, Channel 6 Action News and been featured in over one hundred newspaper and magazine articles. Her owner, Jason Earle, the founder of Lab Results LLC, has pioneered the integrated use of conventional testing methods such as air sampling, with mold-detection dogs (Mold Dogs™), laser particle scanners and infrared thermal imaging cameras.

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