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Monthly Newsletter

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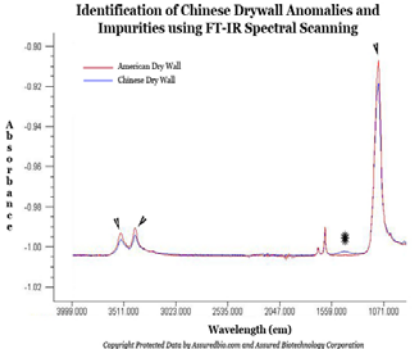
Field Tests for Chinese Drywall

By Edward A. Sobek, Ph.D.

To date, I am not aware of any valid field test for Chinese drywall. I am bringing this up because I receive numerous calls from home owners with questions about DIY Chinese drywall tests purchased from internet sites. Most test kits are modification of the standard hydrogen sulfide test kits that are were designed for water testing. A piece of drywall is placed in a bottle, water is added, and an Alka-Seltzer table is dropped in—"*yes it's the same Alka-Seltzer that is guaranteed to calm those late night atomic nachos"*. The bottle is capped immediately. In the cap is a hole with an indicator paper. The idea is, and it works fine for water, that the carbon dioxide in the Alka-Seltzer is released and will drive the hydrogen sulfide (H_2S) from the water into the gas phase and out through the indicator filter. If the filter turns brown the water contains hydrogen sulfide. Again this test is perfectly acceptable for water but does not work for Chinese drywall. The most probable explanations are that any hydrogen sulfide present in the drywall is either below the tests detection limits (1,000 ppm) or most likely the sulfur is bound in another form other than hydrogen disulfide.

The second most common field test that is out there is the pH test. The test kit usually contains some colored indicator papers, distilled water and a chart with pH values. The paint is scrapped back to expose the drywall surface, the drywall is wetted with the distilled water and the indicator paper is dipped onto the wet drywall. The color of the indicator paper is compared to the pH chart to determine the pH value. This test relates to the idea that the sulfide compounds in the drywall are mixing with water and forming sulfuric acid (H_2SO_4). That may be happening, but using pH to test drywall has fatal flaw—the buffering capacity drywall. Drywall is composed mainly of calcium sulfate ($CaSO_4$), which has neutral pH. Try to recall the high school chemistry lesson on chemical buffers. Remember that in the presence of a buffer the pH of the solution changes very little when an acid or base is added. Likewise, if water is added to drywall the calcium sulfate buffers that solution, thus preventing dramatic changes in pH. In other word, if Chinese drywall chemistry forming sulfuric acid the calcium sulfate that makes up the drywall neutralizes it and the test would read false negative.

Internet Buyer Beware. The best tests to date are laboratory tests like FTIR couple with the skills of an experienced professional inspector. An inspector who is experienced in identifying the signs and symptoms of defective Chinese drywall is invaluable



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A Discussion on Allergies

By Lyn Pope

It is that time of year again. Leaves start to change colors; they start to fall and mold and the exterior mold concentrations begin to rise. The sniffling and sneezing begins to occur. It is allergy season. But what are allergies?

Allergies are a common dysfunction of the immune system, also known as atopy. The immune system functions to protect the body or self from foreign harmful intruders such as bacteria, fungi, and viruses. It utilizes physical barriers such as the nasal passages, skin, and cilia to minimize these organisms from entering the body. Internal defenders are used to clean up those that make it through the front line defense. These defenders are white blood cells. They are activated by antibodies whose function is to identify foreign intruders by detecting unique individual cellular membrane markers. Once an organism is identified as foreign or non-self, the white blood cells move in and go to work destroying it.

When having an allergic response, the immune system goes to work on intruding particulate or organisms that do not lead to disease. The body simply is hypersensitive to the matter, which is called an allergen. Allergens can be objects such as pollen, dust mites, insect venom, food, or mold. When the allergen is introduced to the body a specific antibody, IgE, responds. It communicates to specific white blood cells (Mast cells and basophils) that a foreign intruder (in this case the allergen) is pre-

sent. This leads an inflammatory response. The response can be hay fever, itching, allergic conjunctivitis, runny nose, asthma, pain, bloating, diarrhea, or vomiting.

The most basic treatment for allergy is limiting exposure to the allergen. This can be done by first identifying your unique individual allergens. An allergist can do this. Skin testing, often called the prick test, is the most common. This involves an allergist mapping out a section of skin (usually the back or forearm) and then pricking areas of skin with common allergens. Areas where there is inflammation of the skin are considered positive tests.
Blood testing is another method that can be used for allergen identification. This focuses on measuring the IgE levels in the patient's blood to identify an allergy to a specific substance.
Common allergens that indoor air quality professionals encounter are: cat, dog, cockroach, dust mite, and mouse. Their concentration indoors can be determined in the presence of household dust. This is done using a laboratory testing method called ELISA (Enzyme-Linked ImmunoSorbent Assay), a biochemical technique which is commonly used in immunology to detect the presence of antigen (allergen) or antibody in a sample. This measurement allows IAQ professionals to detect the level and/or presence of the common indoor allergens so that occupants suffering from these unique hypersensitivities have the resources to limit their exposure.

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ERMI Score Calculation
By Merissa McGraw

When looking at an ERMI report it may be a little disconcerting exactly how all of the species concentrations add up to one number. Not so long ago Dr. Steven Vesper from the EPA was sitting on the other side of the problem trying to figure out how to link the data compiled during the Housing and Urban Development's American Healthy Home Survey to a relative moldiness index. He knew not just one or two water impact molds present could determine whether or not a home had water intrusion. Instead he noticed out of the 82 mold species tested, 36 species were widely distributed in both typical and atypical homes across the United States. Knowing what homes had water damage and which homes did not he was able to further narrow the mold species into two categories: Group 1 or water impact molds and Group 2 or common environmental molds. This laid the backbone to the ERMI score.
The ERMI score is computed by taking the sum of the logs, on a base 10 scale, of the Group 1 molds and subtracting the sum of the logs of the Group 2 molds. Why not just subtract the total spore counts from one another? As one may wonder how the ERMI scale can encompass homes subjected to high humidity such as in Florida as well as very arid homes such as in Arizona and compare the two this is the very reason the log scale is used. By using the log scale this normalizes the results. What this means is by comparing homes on a log scale certain data noise such as homes being predisposed to having higher concentrations of Group 1 molds for climatic reasons is reduced. For example, homes in the Midwest on average may have 100 spores/mg dust of Cladosporium present whereas on the Gulf Coast the average is 1000 spores/mg of dust. Just looking at the spore concentrations by themselves, 100 spores vs 1000 spores, is a stark difference. If you take the log of 100 and 1000 you get 2 and 3 respectively. These numbers are much more similar and therefore data noise is reduced.
Now that we understand the reason behind the sum of the logs of both groups of mold how about the final step of subtracting the Group 2 molds from the Group 1 molds. Many wonder why no control is needed for the ERMI, this is because the sum of the logs of the Group 2 molds is the inherent control of the ERMI scale. The Group 2 molds are the common molds brought in from the outdoors by foot traffic and air currents. Dr. Steven Vesper found the normal range of the Group 2 molds to be between 7 and 14. As long as the sum of the Group 2 molds is within this range you can be assured the ERMI score you receive corresponds to the ERMI chart within the report. What happens when the Group 2 molds are out of range? We will discuss these exceptions to rule next month. As always please do not hesitate to contact me with any questions.

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Sales Tips
By Matthew Dinse

Sales tips come in two categories: Those that work and those that don't. There are an infinite number of rules and guidelines as to what goes into making a sale successful. Here are a few helpful tips to help close your next sale.
- Be Persist!!! If a salesman/woman did almost everything else wrong, but simply persisted to try to interest his prospect in his/her service eventually the customer would become sufficiently interested in that service or to buy it.
- Discover what is needed and wanted by your customers, in relation to your product or service you provide.
Demonstrate yourself as helpful, caring and interested in what your customers needs are, and you will win your customers trust.
- Maintain excellent communication with your prospect throughout the sales process.
- Handle every concern or objection your prospect has, either with communication whenever that is possible, or with real world solutions.

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