How to test building products when you have chemical sensitivities

We show how you can test a building product before you use it in your home or office.

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Building products such as drywall, paint, carpet, caulk, and much else can transform your safe space into one you can't live in any more. It can take months or years of airing it out before it is safe again.

Doing a little testing of a sample beforehand can greatly limit the risk.

The biggest mistake people commonly make is use a product they did not test themselves. People have lost their homes because they trusted the products that worked for a friend, or were advertised as "ecofriendly" or "zero VOC" or even "safe for people with MCS."

The glass jar method

Get some one-liter (or larger) glass canning jars. They have a wide mouth and a screw-on lid. See picture above.

Wash the jars thoroughly and let dry. Especially if they are new.

Sniff the jars to make sure they are all odor-free.

Place a large sample of the product you are testing inside the jar. If you are testing caulk or other pasty product, smear it all over the inner surfaces. The idea is to have as large an exposed surface of the product as possible.

Write on the jar the date and what it is. Maybe also which store it came from.

Leave the jar open for a day or two so the product can dry or cure.

After a couple of days, lift up the jar. With one hand gently move some air from the opening towards your nose. If you smell something, wait more days. If you smell nothing then try to *cautiously* sniff near the opening, but don't stick your nose into the opening right away.

When a sample is inert, you can consider also doing the heat test. There you screw on the lid and let the jar sit in the hot summer sun for an hour. Then you try to sniff if again. If not okay, leave the lid off for a couple of days, then repeat the test.

It depends on your level of sensitivity how many days it takes for something to become odorless. For some people and some products it may be just a day. For others, it can be weeks, or even never.

The large-surface method

Products that will be covering a large surface need to be truly inert. That includes paints, sealers, and carpets. Winnow down the choice of candidate products with the jar test, then test again by applying the product to a large surface and then try to "live" with it.

You'll need some large inert surface to apply it to (unless it can stand or hang without). People commonly use a sheet of cement board or drywall that has been offgassed for some time. The board is tightly sealed up with aluminum foil that

covers all surfaces, including the edges. The paint or sealer is then applied on top of the aluminum foil. Then let offgas.

Once it seems inert, place the sample in your bedroom, near your head. Then see how well you tolerate it.

If you do not have a safe bedroom to sleep in, try some other small space. Maybe a tiled bathroom, an old tent or old car may work.

Get fresh samples

Make sure the sample is fresh, so it really represents what it will be like when you buy the product for real.

If the store offers you a cut piece they have laying around from a previous customer, turn it down. Get something from the stack they are selling from, even though it'll cost more.

If the product comes in a can, look for an expiration date to make sure it is not too old.

Comparing products

The jar test is great for comparing products. You gather up all the candidates at the same time, then you apply them to their individual jars on the same day. That makes it simpler to see which becomes inert first and second.

Or you can record the dates and calculate how many days it takes for each sample to become inert.

It is possible that the product that comes in as second-best in the jar test is the best one long term.

Try to make the amount of material in each jar roughly the same.

Special case: drywall

The different brands of drywall looks identical, except for the label. That is deceiving.

Drywall is mostly gypsum with a backing of recycled paper. But the gypsum can come from a mine, or the smokestack of a coal-fired power plant. It may even be

recycled from a demolished building. There can be gross impurities in the gyosum if it doesn't come from a mine.

There can also be a lot of mold spores embedded in drywall (especially the paper), and there can be a lot of nasty additives, including napthalene and formaldehyde.

The large manufacturers have multiple factories, and they have multiple suppliers of raw materials.

Bottom line is that one batch of drywall can be very different from the other, even with the same brand label on them.

The safest thing to do is to get a sample of each kind of drywall available from each hardware store. Even if you end up with more than one sheet of the same brand.

Since drywall is a fast-selling item, it is best if you can pick up each sample on the same morning. Go home and do a jar test that same day. Speed it up by leaving the jars in the sun for an hour with the lids on. Then do the sniffing, and order the least-smelling batch that same afternoon.

About applying paints and sealers

It is best to apply these products in two or three thin coats, rather than one thick layer. This allows the product to cure better, as air gets to work directly on more of the molecules.

Make sure the product is allowed to fully cure between each coat. That means waiting days between each coat.

Be aware that painters regularly apply two coats of paint the same day. Make absolutely sure the painter is aware that this is not business as usual. Some painters may say "fine" and then do it anyway, as to them if makes no sense.

Make sure to read the manufacturer's instructions on the can. Then go over them with the painter. Don't just ask the painter to read it, it likely won't happen.

Houses have been permanently lost because special "non-toxic" paints were not allowed to cure correctly.

About zero-VOC products

In the commercial world, labels such as “zero” or “100%” are rarely actually true. They actually mean “close to zero” or “close to 100%.” It may actually be 95% or 98%, but it’ll never truly be 100%.

And semi-volatiles (SVOCs) are not even counted, but they can be just as noxious.

Some people have had much better luck with high-VOC products, as they became much more inert eventually. But they are hell on the painter.

Caution

Be aware that the material is still offgassing some, even when you can longer smell it. People with severe MCS can often react to fumes they cannot smell, especially if exposed for hours every day.

It will probably also take more time to become odorless when used on a large surface inside a room. Don’t hurry.

Testing materials for many people

If testing materials for a whole new building complex, use a panel of testers and a scoring system. That was successfully done for the fifteen-apartment MCS building in Zurich, Switzerland. It is described in detail in *Baustofftests für MCS-Kranke* by Ueli Kasser and Daniel Savi in the 10/2013 issue of *TEC21* magazine.

“Scientific” methods

Scientists would not consider the above methods really scientific, since they depend on humans, and there are no objective measurements. They do have a point, but there is no “scientific” alternative to these methods when it comes to MCS. Unfortunately, some experts in indoor air quality – with little actual MCS experience – may not understand this.

The problem is that they focus on measuring the volatile organic compounds (VOCs) in the air. That gives them a number. They may even specifically measure how much formaldehyde is in the air too, then they have two numbers. If those numbers are low, then it “must be safe.”

That approach may work for regular people, and even people with mild MCS, but it doesn’t work for people with severe MCS.

First of all, there is no objectively verified number for when VOCs are “safe” for people with MCS.

Another problem is that they tend to ignore chemicals that are semi-volatile (SVOC), which can be just as hazardous to people with MCS.

And they lump the VOCs into one number. There can be a hundred chemicals in the air, they are not all the same. Some chemicals are much worse than others. There is no list of which chemicals are more noxious and less noxious for MCS people, and such a list may not be possible to make.

Which chemicals are the worst does vary with the person, though there is also a lot of agreement (just as some types of pollen tend to be worse for people with allergies, but there is also a lot of variation there).

So, again, there is no real “scientific” alternative to testing the materials on humans. Not when it comes to chemically sensitive people.

More information

More articles about safer building materials on www.eiwellspring.org/housingdetails.html.

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