



Mold Remediation Part 8: Special Note on Chemicals & Remediation

MP

Michael Pinto

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And one of the reasons that we don't rely on a spray-and-pray method, or just spraying, or fogging some chemicals instead of actually removing the source, and cleaning, and the really hard work that goes along with remediation—is because even if it's a good antimicrobial, and even if it kills the mold, it kills it and it leaves it there. And dead spores can be allergic. And inactive hyphae, and fragments, and DNA can all impact people, particularly if they're sensitized and have cross-sensitivities. It doesn't necessarily remove the mycotoxins. So, these are all pretty serious things there, in terms of why we want to make sure that we're not just using chemicals as a substitute for real remediation.

KS

Kendra Seymour

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Hello everyone, and welcome to Remediation 101, a Change the Air Foundation mini class series. My name is Kendra Seymour, and today is part 8 of our series where we're going to give a special focus to chemicals and remediation. Now, the role of chemicals in remediation is probably one of the most confusing and even debated topics in the industry. And so, to make sense of all this confusion, Michael Pinto is back again, and he's going to unpack this for us. And as you'll come to see, remediation is not about avoiding all chemicals, because, after all, water is a chemical, but it is about avoiding harsh and unnecessary ones. So, Michael, thank you so much for being back here today.

MP

Michael Pinto

2:05

Well, what a blessing, absolutely, to help you Kendra and all the people that are watching this through Change the Air Foundation, I'm thrilled to be here.

KS

Kendra Seymour

2:14

Wonderful. Now, I'm not going to read Michael's bio again, because you can actually find that on our website ChangeTheAirFoundation.org, because we are lucky enough to have him as a Strategic Advisor. Or you can listen to our earlier episodes, episodes 2 and 3 that Michael did with us there. But, let's just say he has been in the industry for a long time, well respected, wealth of knowledge, so we are in good hands today, Michael, I know they do not want to hear from me, so let's just jump right in and take it away with you.

MP

Michael Pinto

2:44

Well, as Kendra said, this is part 8 of the mini training courses, and just wanted to focus in on the chemicals. And before we even get to the chemicals...so, as Kendra has heard from me many times, I keep bringing this diagram back up, because I think it's so important for anybody who's dealing with mold—but particularly the sensitized individuals, to just, as you're learning different parts and pieces, just keep that big picture in mind. How are chemicals going to impact us on the medical side? How are chemicals going to impact us on the environmental side (down at the bottom)? And each of those individual aspects of it. And that actually is kind of interesting, because chemistry is part of every one of those environmental aspects that we showed down at the bottom. Even if you get into it on the analytical side, many times we have to manipulate some of the samples and stuff with chemicals, so that we can get a proper reading off of them. Things like that, that's usually done in the lab. The other part of the chemistry, though, when you're talking about cleaning, or mold remediation, source removal, HVAC cleaning...that's actually done on the site. But, there's the quick listing that shows you where the chemistry often shows up in the different parts...the major parts of the remediation process. And I didn't really have room for it on the slide, but after the whole house cleaning, I also should have put the rebuild, because for sensitized individuals, rebuild...you probably want to use more green products, maybe less VOCs, and some of them, things like that. So, there's a whole range of chemistry sorts of questions that we can address as we go through.

But, there's also some basic things, and that, I think, is what the pictures are showing us here (the top picture there). I mean, the person isn't even wearing the right respirator, and things like that, if they're going to be spraying chemicals. But, this idea that somehow you can spray a surface that has that much mold on it, and even if that's a very good mold stain remover, that's not remediation. That might be making it look prettier, but it's not removing the spores, and certain...most likely, not even dealing with the mycotoxins, and things like that. We've talked about this in other sessions. I'm not going to belabor it, but just be aware. That's why we call it spray-and-pray, because you *spray* something on it and *pray* that it's going to do some good for you. On the other hand (the bottom there) is looking more like real remediation. It got wet. That's a porous material that needs to be removed. And you know, it's not necessarily demolition, it's controlled removal. It looks a lot like demolition. But, the fact of the matter is, that is remediation versus fake remediation (in the top photo). And part of the reason for that, part of the reason we call it spray-and-pray...and I have to admit, you know, I like a lot of the chemistry in the industry.

It's not that there's, you know, that some of the stuff is bad. It's bad usage, rather than bad chemicals, is really what it is. And one of the reasons that we don't rely on a spray-and-pray method, or just spraying, or fogging some chemicals instead of actually removing the source, and cleaning, and the really hard work that goes along with remediation—is because even if it's a good antimicrobial, and even if it kills the mold, it kills it and it leaves it there. And dead spores can be allergic. And inactive hyphae, and fragments, and DNA can all impact people...particularly if they're sensitized and have cross-sensitivities. It doesn't necessarily remove the mycotoxins. So, these are all pretty serious things there, in terms of why we want to make sure that we're not just using chemicals as a substitute for real remediation. We're using chemicals in conjunction with real remediation.

And a second ago, I said there's no such thing as, you know, necessarily bad chemicals for remediation. It's just chemicals that are being applied or being used improperly. And so, as Kendra pointed out in the beginning, we can't be chemophobics where we say, "Oh, we can't do anything with chemicals during our remediation or anything like that." Because, and I hear people say this all the time, is that, "Well, we're not going to use any chemicals." ..."Okay, so what do you damp wiping with?" ..."We're only using water." Water is a chemical, people. It's a very benign chemical. It's one that's very useful, but it's a chemical. It's a combination of atoms—of different things that are put together. That's the basic definition of a chemical. It's not a single atom, right? It's hydrogen and oxygen. Hypochlorous acid is also a chemical, and you can see by the chemistry structure (there), it's pretty close to water. It's got one oxygen atom. It's got a hydrogen atom (over on the left side there). And instead of a second hydrogen atom, it's got a chlorine atom. And all of a sudden, that chemical structure looks pretty close to water, but you're getting a very different compound. You're getting hypochlorous acid. And that can be useful. It can be dangerous. I mean, same thing with water. I mean, I don't want to be breathing in a bunch of water. That's what we call drowning. So, you know, just because we're using something that's a liquid, or powder, or, you know, even a spray, or something like that, doesn't mean we have to be fearful of it. We need to understand it. We need to use it the way it was supposed to.

So, are we diluting it properly? Are we getting it to the...to where we can use it safely, to clean surfaces? On the other hand, if we were scared of it, and so we over dilute it, and all of a sudden we're over wetting things. That's not going to dry properly, or may not have the same antimicrobial properties that the manufacturer expected it to have. And even, you know, too much water then can make it damaging to finishes, and different colors, and all sorts of stuff. So, again, the chemicals themselves are not necessarily bad or good, it's how they're being used, and this is as important as anything else. I run into this so often Kendra, where people think most stronger is better. Okay, so, you know, "I'm going to kill that mold. I don't want anything left, and so I'm going to use the strongest thing that I can find." And well, that may not be better. As a matter of fact, stronger may be dangerous. All of a sudden, you're introducing other problems into the, you know, equation here. And as you can see, just, stronger chemicals typically can be more damaging to people, but also to finish, and structural members even. And I just thought it would be interesting...I know I'm kind of a tech guy, but I took the time to actually look at the percentages. So, people use bleach all the time.

I just was reading another thing from the EPA where they said to mix bleach with water for your sanitizing after a flood. And then they even had a section there, if you've got mold, you're supposed to mix...and this is where it came from, from the EPA. One cup of bleach to one gallon of water. So, generally split straight bleach (you can see there), is about four to 6% sodium hypochlorite mixed with water. And if you dilute that down to one cup bleach to a gallon of water, you come up with essentially three tenths of a percent of sodium hypochlorite. Which is about three times stronger than you need to sanitize, you know, food services for bacteria and things like that. So that's the first thing. Even at one cup to a gallon, you're way over what the proper sanitization level needs to be. But, when people get carried away...and I've heard this before...then they start using just straight bleach right out of the bottle. "Well, if the mixing it one cup to a gallon is good. Well, I'll just use it straight from the bottle." Like I said, that's going to get you a four to 6% sodium hypochlorite that can start to damage surfaces. And of course, it's called bleach, and it will take color out, because that's kind of the definition of bleach, is that it will take some of the staining and things away. Then of course, we get people who are just overly enthusiastic, and they know just a tiny bit about chemistry, and so they say, "Well, if four to 6% on average, 5% sodium hypochlorite is good, I'm just going to go down to the pool store and I'm going to get myself some pool sanitizer, because that's approximately 10% sodium hypochlorite." Then we start spraying that around.

MP

Michael Pinto

11:48

And just for comparison, some of the products that are bleach based, or sodium hypochlorite based, that are sold as stain removers for mold, most of those are in the 20 to 25% sodium hypochlorite range. I mean, they should be wearing full face respirators, if not powered air purifying respirators. They should be wearing, you know, protective suits. 20 to 25% sodium hypochlorite is considered to be a dangerous chemical. And if you're using that in a factory or something, you're going to, you know, you're going to get a lot of scrutiny in terms of OSHA, if something goes wrong. Another one that people use quite a bit. It's not the same as bleach. People do get the two confused. They think ammonia is the same as bleach. It's not. But again, it shows up in the websites, and even some of the government documents—where you take the ammonia and you mix that, a cup of ammonia to the water, and then that's a good sanitizer. Blah, blah. And it is. It can be useful for food sanitization purposes and things like that, but it's even worse than bleach, because even at lower concentrations, it's more of a caustic, and it causes real damage to eyes, and lungs, and stuff.

The other thing I wanted to point out so many homes that have, you know, marble tile in different places, and granite countertops in their kitchen, and stuff like that—people do not understand that ammonia coming out of bottle, or even a cup to a gallon, is caustic enough that it can eat up some of those natural stones. So just be careful. You'll damage the finishes if you're using this. Now, I thought I would kind of go from some of those warnings to just a little bit more general information here, and help people understand, really, when you look at remediation chemicals...and lots of different chemicals, but I would say for remediation chemicals, there's really about four different classes of chemicals. So, you can see there, there's cleaners, there's sanitizers, there's disinfectants, and there's sterilizers. And this

kind of goes back to the slide I had previously where I said, you know, stronger isn't necessarily better. Basically, what we're trying to do is remove a lot of the mold, and the mold particles, and stuff. So, we should be relying on cleaners quite a bit, because that's what removes the dirt, and the other materials, and things like that. It just helps to loosen that stuff from the surface so it can be removed by a rubbing action, or scrubbing, or whatever. A sanitizer is generally designed for food service industry, and it kills a fairly high percentage of very specific sorts of bacteria. And that's again, so that we don't pass along a whole bunch of foodborne organisms while we're cooking, and things like that. A disinfectant kills a higher percentage, and also, in addition to bacteria, kills some viruses.

So that's why you're seeing disinfectants were used during COVID, because COVID was a virus. Sanitizers designed for bacteria...it can actually work for viruses, but it's not guaranteed to, so that's why we were moving mostly to disinfectants for during the COVID, you know, crisis and things like that. On the other hand, a sterilizer just kills all microorganisms. If it's applied properly, or used the way it's supposed to, there isn't going to be any live bacteria, viruses, nothing. So, that's the difference between the types, or the classes. Now, types of cleaning chemicals and remediation chemicals. There's probably just as many more that I could have listed here. But what I did is I put up the six that are most commonly used in the industry. We don't get to a lot of iodophors, and iodines, and things like that. Occasionally, they pop up in the different chemicals that are sold to the restoration and remediation industry. But basically, these are your choices. You have chlorine-based compounds, that, we've talked about that with the hypochlorous acid and sodium hypochlorite. You've got acids, and you can see that vinegar slides in there.

Now, notice hypochlorous acid actually fits two categories. It is a chlorine-based compound, so it's up there, but it's also an acid. So, it's there with the acids. And you'll see a lot of chemicals do that too. They have multiple properties to them, which makes it a little bit harder for us to categorize them. That's why I had one slide for classes of chemicals versus types of chemicals. The alkalis, on the other hand, are the opposite of acid. If you if you remember your basic pH chart, the acids are on the low end, and pH chart, the alkalis are on the high end, with seven being neutral in the middle, between zero and 14. And the alkalis are...also again, bleach can be an alkaline material, ammonia...even simple green is a little bit on the alkaline side, and that gets used or recommended quite a bit, at least on the internet. And again, you know, the illustration to the left there, there's all sorts of different cleaning agents, and you just want to know a little bit about them before you pick them. Oxidizers are things that release an oxygen atom. So, you basically have the four chemicals that act as oxidizers down below oxygen, ozone, fluorine, chlorine. And there's chlorine, again, that's why you know it shows up so often as it does. But, most of the oxidizers are used in the industry are either an oxygen releasing like OxiClean or ozone derivative. Enzyme production, you can see lots of different folks (down there) that have enzymes. These are actual bacteriological agents.

So, for an enzyme, you're actually taking bacteria and using it to your advantage, as compared to an antimicrobial which would be killing the bacteria. In this particular case, you're using the bacteria to create an enzyme—which is like their waste product, if you will, and then that bacterial waste product can have damaging aspects for mold, and other

materials, biological materials. And then, last but not least, we get a lot of essential oils that people talk about. Thyme oil (pardon, the misspeak there), the thyme oil is been the most common one in the restoration industry for a number of years. That started with a company called Benefect and their products. But from the home side, you see people advertising and recommending all the time, using Thieves oil, not just for the cleaning, but also diffusing into the air...where it's going to break down the stuff in the air. Just you know, again, there's different types of chemicals. Understand what you're using and what you want to use it for. Don't just rely on because somebody said so. Which brings us to this slide, which is, you have to choose what you're going to use carefully. As I said at the beginning...and Kendra reminded us, water is a chemical too. We want to use that properly. Can't just flood stuff. You're going to cause problems with that. So again, different types of cleaning agents there, that are listed, but remember that you may need different chemicals for different aspects of the restoration work.

And a slide coming up here, I'm going to remind you again, you want to think holistically here, because if I choose an acid style cleaner, like a hydrochloric acid, as my cleaning agent for the removal of source material—and then later on in the whole structure cleaning, somebody says, “Well, the best. Thing to use is like this, alkaline cleaner.” Well, alkalis and acids don't necessarily match up. There can be a reaction, and there may even be a reaction on the surface from the residues (we're going to talk about that here). This is just a great slide, if people haven't heard this before. But, you know, for years, and even as a safety professional, I've known about bleach and ammonia. Bleach and ammonia people talk about that all the time, because those are two standard household cleaning products that you typically have in your cleaning cabinet and stuff. And the reminders...you put those two together, you're going to have, you know, a fairly significant reaction. You're going to get the chloramine gas that is produced by...I mean, it's just nasty stuff. But notice there, there's other things that you shouldn't be mixing together that are typically in your cleaning closet. There, bleach and vinegar, bleach and rubbing alcohol. And, you know, there's a number of hydrogen peroxide products that are out, being sold to people in the restoration industry.

So, we go in and we use the hydrogen peroxide products, again, during our source removal portion of it—and then use vinegar, because we want to be safe, and, you know, we use that all the time, and we're not reactive to it as a sensitized individual. So, all of a sudden we start doing the whole house cleaning with the vinegar. And there's some of that hydrogen peroxide residue that may be left, even though it does dissipate quite quickly. You can have, you know, reactions on the surfaces. And that's one of the reasons I left that last bullet point there. Typically, whenever we're doing cleaning and/or remediation for sensitized individuals, we call it ‘excessive ventilation.’ You know, put your containment areas under negative pressure, and get the air flowing through those. But, even when you're doing whole house cleaning and things like that. Get fans running, get windows open, you know, weather permitting. Use air scrubbers if you need to, with the tails on them, things like that. Just so that you can mix that air, and you don't get a lot of, you know, chemicals just hanging somewhere in the air to cause you problems later on. Now, with that, once you have made the connection in terms of, “Okay, I'm gonna use this particular chemical for this

aspect of the work, and this one over here for this aspect of the work, and it doesn't seem like it's gonna cause problems when they come together, we're good with all that.”

You still have the whole question of, how are you gonna apply this stuff? And here's again, the typical application methods that we see in the industry. Everything from damp, wiping all the way down...people wouldn't believe this that, you know, mold is caused by excess moisture, so why would people flood stuff with chemicals? And yet, that does happen. They drench, they flood, they power wash stuff. And if you're not prepared to dry that properly, you're getting....you may be taking care of one problem, but you're just setting yourself up for another problem down the road. So, yeah. So, the other thing I would say, and this is just really important, Kendra, is that not every chemical is designed for every application method. So, I've seen these things where people come out and they say, “Well, we're going to use 'XYZ', and we're going to clean with that. We'll spray it, we'll wipe it, and then at the end, we fog some of that...or we mist it into the air, because, you know, it's so good, it's going to, you know, if there's any dust particles left in the air...there's any spores left in the air...” And I can't tell you how many times I've looked at the product manual or the safety data sheet, specifically looking for can you fog this product, or can you mist this product? It's not there. And the manufacturer isn't very specific in saying that you should mist or fog this. You shouldn't. They're chemicals that you're not even supposed to spray. You should be dipping and wiping, or you should be applying with, again, a brush or a roller. So, just be aware that there's a lot of information out there that people just hop, skip, and jump over without even thinking about it.

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Michael Pinto

24:20

I did want to take a moment and, just as we start to kind of wrap up here, talk about some of the don'ts, if you will. And, again, don't want to sound like a broken record, but I am going to. There's too many providers in the mold remediation industry that want to do what I call 'the magic bullet'. They want to fog something, they want to gas something, they want to spray something, but they don't really want to do the hard work of removing the source material or doing detailed cleaning. Their “chemical” is going to take care of all that. And, as I say (at the bottom there), it can be a useful adjunct. You know, sanitizing is very useful in the food service industry. We clean our dishes first and then we sanitize them. And there may be some reason to sanitize a house after it's been cleaned, but you don't sanitize a house instead of cleaning it. It's always going to be an extra step, not a replacement step. So, just be careful with that.

The other thing I did point out is you want to be careful (and I've got a slide on this), you just want to be careful in terms of advertising language...and how...and being a little skeptical. And, I...there you can see this all-purpose disinfectant. It's a chlorine dioxide derivative. And when they just use gross terms, like they do up on the top of that package, eliminates meaning, like, in my mind, we use word eliminate, that means all gone. So essentially, they're making a claim that's 100% kill for bacteria, viruses, mold, allergens and odors, and the minute they throw allergens in there. I mean, it's like just the logic tells you that's not the allergens are non-living, you know, portions of the, you know, fragments of the mold, and the dead spores, and things like that. So, eliminate it.

Does this mean that it's actually going to dissolve it in midair? It's just, it's crazy talk. So anyway, and that's important that people understand some of those technical things, but it's also important that people just remember common sense. People get carried away. This is a great example, as a certified safety professional, I've dealt with all sorts of fire issues in my younger days, when I was a firefighter and things like that. You spray water around, and you're not careful...and just a misting bottle as you're doing your own general household cleaning, and you spray an electrical outlet, and get it wet inside there, you probably aren't going to have any problem right then and there, all right? I mean, you'd have to drench it for it to short out, but you put the moisture in there and then plug a plug in, yeah, have fun with that. That's what this picture is all about. That's what happened, is that they got so moisture. I think it was a cleaning chemical. I don't think it was just water. But, they put, you know, some sort of cleaning chemical in there, and then shortly thereafter, before it had a chance to completely dry, they plugged in appliance back in...because, you know, you unplug it while you're cleaning, and then you spray it, and then you plug it back in...and boom, you get a short. And in this particular case, pretty significant one. You can tell there that it burned out one of the poles on the electrical outlet. That's fire time. You know that in this particular case, wasn't too bad. It ended right there. But that could have been a house fire. That electrical fire could have also got inside the box, started the wires, and then the next thing you know, you're going to have a real problem. So just common sense on some of the stuff.

And that also then means mix it according to the directions. Read the actual directions. People are stunned a lot of times when I'm talking to them about different products. And there's this term called 'dwell time', which means, how long should that product stay on a surface, wet if it's going to act as an antimicrobial, or as a sanitizer, or whatever? A lot of the antimicrobials that are used for viruses have 10 and 20 minute dwell times. You can't just spray and walk away that surface, if it's going to do what the manufacturer says has to stay wet for 20 minutes. So, after we figured out what chemicals we're going to use? How we're going to use them properly? How we're going to apply them? Then we also have to look at it and say, "Well, is this darn stuff going to work? What is the effectiveness of this?"

And the first thing I would say about that is (up on that top purple bullet point), just be very skeptical of advertising. A lot of times, the advertising is put together by individuals who don't necessarily know the product. They know the advertising, they know the buzzwords to use. So, I just have this advertisement here. Just point out a few things. The first part there, where they're talking about being bio-organic. Okay, that's great. Sounds good. Doesn't necessarily mean it's any better or worse than any of those other classes, or types of chemicals that we talked about previously. This comment down below in the second paragraph there. Hundreds...tested hundreds of times on harmful spores, effectively killing them within minutes of treatment. We talked about that, are we trying to kill them, or are we trying to remove them? So, right there, this is, you know, starting to...make some bells go off in my head. And, then...when, you know, start adding the terms that are "100%". Where they talk about, you know, 'kills all', or they use the term 'every' ...anything like that in an advertisement you just want to be concerned about.

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Michael Pinto

30:21

So, here it is. "Our method completely kills mold spores." So, they're guaranteeing, essentially 100%. That just isn't real world. I'm sorry, folks. But, "We can come in, we're going to spray this stuff, it's airborne and we're out in two to three hours, and your life is so much better." And then, of course, they throw the dollar figure in there, because that's so much less than doing a real remediation, which may be thousands or tens of thousands of dollars. And the reason it's thousands or tens of thousands of dollars is because they're doing real work. They're not just coming in and spraying some what I call 'foo foo juice' around. So just again, I'm not trying to pick on this particular company. You see, I blocked the names and everything. But you just need to put on what I call your 'skeptical glasses' when you look at some of these advertisements and stuff. The other thing I would say is there's people to help you with this. You know, your different forums and stuff, you can ask people. Be aware. However, that even in forums, there's fake, you know, comments into some of the forums and stuff, where people are actually just putting up endorsements, and saying that things actually work without it being true. I hate to admit that we live in a world where there's people that would tell lies and stuff, but unfortunately, that's the case. So, the sensitized person has to do actually more work than a regular customer, because the potential impact on them, in terms of cross-contamination and cross-sensitivities, can be so much more damaging.

So, I hate to end the presentation on kind of a downer note there, that we have to, you know, be distrustful of the advertisements, and even some of the websites, and the forums and things. But, typically, if you get information from multiple sources that are good sources, like Change the Air Foundation...and, you know, go through some of the other sections here that's in the mini training program. When you come out the other end, you just have a little bit better understanding of how the whole process is supposed to work together, and where these chemicals fit. So, you're not such a target, so to speak, for the shysters who want to come in, "Oh, we're just going to fog this, we're going to gas this, we're going to use our magic product, and you're going to feel better than you've ever felt before." We've already talked about that even if the environment is completely eradicated of the mold and everything, from a health standpoint, it can take...if you're not on a good regimen on the medical side, just cleaning the environment may not make that big of a difference in the symptoms. So, lots of different parts and pieces that are blending together here. I would just say thank you again to Change the Air Foundation for letting me share some of my wisdom on these different topics with you.

KS

Kendra Seymour

33:30

No Michael, this is great, and I think some of the big takeaways here are harsher and stronger isn't better. That it's not about killing, it's about removal. And, you know, just as a reminder to everyone listening, this is not a do-it-yourself series. We are equipping you with information so that when you hire a remediation company, that you know what to look for...some of those red flags that Michael was mentioning. But, just to kind of bring it home. So, if I'm a homeowner or renter, I'm hiring a remediation company, what am I

looking for though, in terms of...they're going to hand me a scope of work, and I'm going to see some sort of cleaning or chemical solution. I can ask to see that safety data sheet, which gives me all the background, but without naming products, like, can you give us a little bit more direction on what you want to see in in that scope of work? For, you know, what they're actually using to clean?

MP

Michael Pinto

34:20

So, that's a great question, and the answer to that is that the sensitized client is a little different than the normal client. And my main concern there is that whatever chemicals they're going to use, they tell you up front. And I want a whole list of them, because, well, the main chemical they use is ABC, mold remover, or whatever it is, right? But they're also going to use this to clean the windows when they're done, because they like to have the window shiny, because that leaves a good impression on you. And they like to, you know, clean the countertops, and that's granite. So, they're going to use something else. You want that entire list of chemicals for two reasons. One, so that you can do a little bit of research yourself, or even just ask somebody else, are there going to be any bad reactions here? And number two, because of potential cross-sensitivities to chemicals, that so many of our mold sensitized people have.

We always recommend, you know, sniff test and spot test. And sniff test, generally, you're taking some of the material, putting it in an open cup, or even a cap of the bottle, if that's all you have. But you want it in an open container, and you don't, you know, like somebody sniffing the brandy before they drink it. You put it out in front of you, and you move the air across it, toward your face a little bit, so you get a much lower dilution...that you could start to, you know, smell or not smell, or react to, not, hopefully not react to. But that's one of the first things, because I'd rather have a reaction to the individual...even if it's somewhat significant. I'd rather have it once and short term, than have them move back into their house and not be able to live in their house, not because of the mold anymore, but because of some chemical residue. So that's the sniff test. But those two things will...are just practical common sense things that you can do. Because unfortunately, as I said, we've been called in...by the time it gets to us. We get called in these cases, these people can't live in our house a lot of times because of the mold, but just as many times, because of what they did for the mold that left a residue. That now, they have to deal with. So, just happy to help people if they need the help. I just, I pray that you don't need to call us. Because generally, like I said, by the time people get to us, it's usually a fairly bad situation.

KS

Kendra Seymour

36:54

Yeah. And David Myrick, who did episodes 4 through 7, in 6 and 7, he talks about chemical usage a little bit, and what they actually use during the process. But, this is really helpful, because I think, you know, one of the things you and I talked about is we know that mold is bad microbial growth, I just want to kill it. And I think the big takeaway here is, don't be, you know, misled or lured in by that strong, *kill, eliminate*, whatever. The focus needs to be on that removal, and it doesn't need to be anything fancy, and it doesn't need to be anything particularly harsh. And you know, that's a good takeaway, I think, for people, and

they can certainly check out the other parts of our mini class series to learn a little bit more. But Michael, thank you so much for being here again.

MP

Michael Pinto

37:44

Well, I appreciate very much. I would also leave you with the fact that, you know, our grandparents and great grandparents, a lot of people relied on soap and water for a long time, and that's not a bad place to start. So.

KS

Kendra Seymour

37:57

Yeah. And we'll and we'll talk. David talks about that a little bit, uh, water and surfactant, a little bit, like, does wonders. It's really...it can really be, you know, that simple. And so, everyone listening, we hope you found this helpful. Join us for our next part, where we're going to dig into the HVAC and heating system, and the special considerations there. And of course, if you found this helpful head on over to ChangeTheAirFoundation.org, sign up for our newsletter, because it really is the best way to get great information like this. All of our freebies, all of our interviews, directly to your inbox. We'll see you next time. Thanks so much.