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Mold Remediation and Ozone Treatments

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Ozone Kills Mold

A debate has swirled about for years about the use of ozone generators for mold infestations. Some mold experts call ozone "useless" for mold treatment, while others strongly insist that ozone will kill mold.

The truth will not please either side, but it is clear that high PPM ozone does kill mold and harms mold spores so they cannot reproduce. However, ozone treatments alone are not enough to treat a mold problem. Not only is mold a health concern, but even dead mold and mold spores can be a health threat.

The reason that ozone generators are not a full mold solution is that mold is a kind of SYNDROME. Mold does not happen unless there are several factors working in sympathy to provide the conditions mold growth requires. So, an ozone treatment may be like a running a water pump in a basement with a broken water pipe. The flood is not solved by the pump alone. You must go to the cause of the flood, which is the broken pipe. If you fix the broken pipe, the pump will do the rest. Likewise, solving the water infiltration problem is as important as killing mold you know is there.

So, killing mold with an ozone generator has merit, and it is a proven mold-killing process. I want to add, that we are not talking about many of the ozone generators on the market today. 90% of of these are simply too small to drive the PPM levels needed for an effective ozone treatment. Some who have criticized the effectiveness of ozone treatments for killing mold have not used adequate equipment, applied it long enough, or followed basic protocols for a proper mold remediation. Obviously, ozone levels strong enough to kill mold means you must do this work in an uninhabited/vacated building.

We have seen some documentation by groups claiming that ozone treatments that are below EPA or OSHA

permitted levels (for occupied areas) are not effective. We agree. You can't have both.

If the level of ozone produced by these machines is low enough to meet safety standards, it will be ineffective killing organisms of any kind. Please spare us the false mockery that ozone is dangerous is people at high levels. So, are the nasty chemicals used to kill mold? Ozone treatments are applied to vacated homes as standard operating protocol. So, the puffery about health concerns tend to show critics have no knowledge of the subject.

Commercial ozone generators are race car compared to bicycles for units bought via most Internet promoters. And, mold safely growing behind the walls must be exposed and removed. Ozone does not penetrate walls, so the actual "Hands On Removal Process" cannot be bypassed by an ozone treatment. Ozone can be added as a part of the solution as needed.

Why isn't ozone enough? Mold happens due to the compounding of events over time and will require several stages of resolution. First and foremost, is the need to find and stop the water or moisture source. Water invasion is the root cause of mold, and any professional knows that any cleanup is short-lived if the water source is not found and fixed. In one example, treating with an ozone generator for mold in your attic is helpful, but not enough. An attic will have a leak or poor ventilation that causes the roof to condense moisture much like a terrarium. Solve the moisture issue before treating the mold, and the mold problem will not return.

Second in importance is the cleanup, or debridement. There is nothing that can replace the duty to remove mold-damaged materials. Ozone does not reverse the damage done by mold. Other than water, mold needs an organic food source. Wood and paper are excellent food sources, so other than the lack of direct sunlight, we have the basic requirements for mold to take over.

The fundamentals, therefore, for mold remediation are: 1) Stop water source, 2) Get rid of the infected materials and potential food sources, 3) properly ventilate, and 4) allow some sunshine in when possible.

Okay, we should all know the critical elements. Let's look at treatments intended to kill and prevent mold. Part of the process is the application of a **MOLDICIDE**, and it is here that the range of choices may be varied. Bleach is not a good choice. Concrobium is a likely mold treatment that can be applied at different stages. An effective ozone treatment can be a good substitute for the mold killing process.

In addition, an ozone treatment can be used as a pre-treatment, especially when you can't get to the problem right away. An ozone treatment will halt mold growth for a short period. This would help when the remediation service can't get in right away to remediate the building. Early ozone treatments after a flood or water invasion can halt the growth of mold for a short period. An ozone pre-treatment can also lower the health threat to workers.

Using an ozone treatment as a post-remediation process can resolve any latent concerns and will aid in the final mold test. If you are failing the final mold test, try doing an ozone treatment afterward.

Ozone is very effective in attacking mold, mildew and mold spores. At high levels, ozone deteriorates the cell structure of these microorganisms and breaks down their ability to reproduce.

Just in case you care to debate the effect of ozone, here are some well-established links that prove the point.

Mold Kills Mold and Mildew in Grain Storage

Read FDA rule (21 CFR part 173) which became effective June 26, 2001: “SUMMARY: The Food and Drug Administration (FDA) is amending the food additive regulations to provide for the safe use of ozone in gaseous and aqueous phases as an antimicrobial agent on food”

As an antimicrobial, it is effective against fungus. It is only a questions of "How Much" and "How Long" to do the treatment.

The University of New Hampshire and many other laboratories have done extensive research regarding the ability of ozone to kill both mold and bacterium.

National Institute of Health Articles:

http://www.ncbi.nlm.nih.gov/pubmed/22095762

http://www.ncbi.nlm.nih.gov/pubmed/9350226

Ozone works well as an antimicrobial treatment prior to disturbing mold during remediation. This helps to prevent any inadvertently transported spores from being able to reproduce in other areas by deeming them nonviable (dead). Ozone is also an excellent finishing treatment after a mold remediation project. Due to the fact that mold spores are microscopic, it is given that some spores will remain in the area after remediation and will likely be in areas that are difficult to mechanically clean. Because ozone uses air as the vehicle to find mold, it can treat any difficult area that airborne spores have traveled to: air ducts, air conditioner A-coils, attics, wall cavities, and crawl spaces.

It is important to understand that while ozone kills mold, it does not “clean” mold. Depending on the location of the mold, killing the mold may only be a partial solution. When touched or inhaled, mold can remain allergenic, pathogenic, or toxigenic, even after being rendered nonviable. Therefore, consideration needs to be given to the location of the contamination, and possibly the type of mold present. Whenever mold is discovered inside a building's heated envelope, whether viable or nonviable, it should be cleaned or otherwise removed if at all possible.

admin's blog

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COVID-19 changed our world, and now there is a need for a new Solution to Sick and Toxic buildings that goes beyond a sanitizing service. Sick buildings are everywhere. They make you sick from viruses, bacteria, toxins, pollution, VOCs, spores, allergens, and gases.

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