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Chlorine Bleach Does Not Kill Mold

October 15, 2024—Doug Hoffman

When interviewed on a local New Orleans television station, a well-known expert in our area recently said, "When you have a mold problem, simply wash down the affected area with diluted bleach." We have seen Federal Emergency Management Agency (FEMA) handing out gallons of jug bleach (sodium hypochlorite and water) to flood victims. Lowe's and Home Depot stock pallets of the stuff whenever the impending doom of a threatening hurricane is close. This is one of the most widely publicized "urban legends."

Bleach is a powerful oxidizer and can, in many instances, sanitize nonporous surfaces of certain microbial contaminants. Still, when faced with a semi-porous wall covered in mold, straight bleach is NOT the product to use. Even the U.S. Environmental Protection Agency (EPA) now recognizes this is not the solution.[1]

In July 2004, prior to Hurricane Katrina in 2005, the State of Louisiana put in place the nation's first mold remediation licensing law. When Katrina devasted New Orleans, it also destroyed the residential pesticide industry, so following Katrina, in October 2005 and as part of the state's emergency declaration, the then Commissioner of the Louisiana Department of Agriculture and Forestry, Bob Odom, declared mold a "pest" (LAC 7:XXIII.125). Because the chemistries used to kill mold are registered as pesticides, this declaration resulted in requiring all licensed mold remediators, who clean and fog chemistries, to become a licensed pesticide applicator with the state of Louisiana. Sodium Hypochlorite is an EPA Registered Disinfectant, not registered as a pesticide.

Bleach alone won't do the trick

Eyebrows raise in disbelief every time I say the phrase "bleach doesn't kill mold." Some look at me as if I'm speaking another language, and they are right. But I am telling the truth. Jug bleach (the only active ingredient is sodium hypochlorite) is very effective in removing the discoloration but may leave the microflora that will enable the mold to return to precisely the same spot when conditions are right. So, how do I know this?

Several years ago, we helped develop a process by which shingle and tile roofing systems could be cleaned of the mold and mildew that discolors and shortens its life. Look at any real estate guide or website that lists homes for sale, and you'll see house after house with mold streaks running down from top to bottom of the roofing system. The mold on the roof is ugly, but that is not our biggest concern. There are two other concerns that are good reasons to address this roof mold problem. Mold destroys the shingle, and it also makes the air conditioning system less efficient.

Mold destroys shingles

First, shingles are made primarily of organic materials. A shingle's asphalt or fiberglass content is only a small percentage of the entire composite. This organic material is ripe fruit for the mold to eat. As we know, mold needs to have a nutrient of some sort, and organic materials are especially appealing.

The petroleum-based asphalt is protected from the UV light of the day's sun by a "ballast" or granules that are "glued" to the surface of the shingle. When the mold begins to grow, it "pops" the granules off of the shingle, exposing the asphalt to the UV, thus shortening the shingle's life. When shingles begin to curl, that's a good sign that the shingle is drying out and its life is ending.

Cleaning the roof off using an effective biocide can lengthen the life of the shingle by allowing the granules to remain tightly adhered to the surface.

Mold can cause inefficiencies in air conditioning

Secondly, a black roof absorbs more heat than a lighter roof. Interestingly enough, in Florida, most homeowners choose a lighter roofing color for that very reason, and yet, after a few years, they all turn the same color—black.

We commissioned a study in conjunction with the University of South Florida (USF) and found a substantial

difference in attic temperatures once the roof was cleaned and the original lighter color restored. We saw a temperature difference of 30 degrees or more.

So, by simply cleaning your roof back to the lighter color, you could make a significant difference in the attic temperature, especially if the air handler were in that hot attic. A lighter roof would allow your air conditioning system to function more efficiently. In most cases, the attic is the insulating space just above the air-conditioned space, so reducing those temperatures substantially lowers the air conditioning bill.

What can be done to combat mold?

The importance of understanding these problems makes it relatively easy to sell the customer of the value of having their roof cleaned. However, what product or products to use could make a substantial difference in the longevity of the cleaning process and the effect of the cleaning process on the roofing system.

Of course, any type of high-pressure wash could destroy the shingle by removing the granules, so a low-pressure wash is desirable, making the chemical solution you use more important. We used a combination of surfactants, detergents, and sodium hypochlorite (yes, bleach) to lightly spray on the roof then rinse it off with no more pressure than a garden hose. It worked great.

The only problems were that the landscaping had to be protected from the toxicity of the mixture, and the mold would return in less than two years. Even walking around on the roof every few years could damage the roofing system, so we looked for a better alternative.

Anecdotally, and at about the same time, my wife wondered why she had to clean the same spot of mold on the bathroom tile month after month. Now she knows why. The mold has never been killed—it simply goes clear and then returns. Jug bleach will not kill the mold, but a suitable biocide or anti-microbial solution will.

To underscore the validity of my claim, I suggest the Forest Products Journal article, referenced below, which commissioned a study by Oregon State University a couple of years ago.[2] The "implications" of their testing showed exactly what we have been training for years. The stain disappears, but the microflora remains, and under the right conditions, the mold will begin to grow.

Our NORMI™ sanitization protocol recommends using green technologies like natural enzyme cleaners to remove surface mold. Many EPA-registered products also use sodium hypochlorite as one of their ingredients to reduce staining, but it has been approved to effectively reduce fungal growth.

When you use the right kind of antimicrobial, the mold will be destroyed, and the underlying bio-slime will be annihilated. I wish we knew about these technologies when we were cleaning roofing systems twenty years ago. Instead of spending so much time protecting the landscaping, we could have done an additional job or two, and our warranty work would have been reduced.

References:

[1] U.S. Environmental Protection Agency. (Updated 2023, October) Should I use bleach to clean up mold?

https://www.epa.gov/mold/should-i-use-bleach-clean-mold

[2] Taylor, A.M., Freitag, C.M., Morrell, J.J. (2004, April) Ability of bleach and other biocide treatments to remove and prevent mold growth on Douglas-fir lumber. *Forest Products Journal* Vol. 54, No. 4, 45-49.

https://ir.library.oregonstate.edu/concern/articles/6969z1338