Forest Products Center

UT Extension
W228

WOOD PRODUCTS INFORMATION

Test of a Sodium Carbonate-based Mold Control Spray on Wood

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Mold on wood

Mold can be seen as a fuzzy or discolored layer on the surface of wood. Mold fungi can grow on wood, concrete, bread, oranges or any surface that provides a suitable combination of temperature, moisture and food. These fungi feed on nutrients on the surface of wood – they do not eat or weaken the wood itself.

Molds produce millions of microscopic spores that can be carried in the air. If these spores land on the surface of wood (or other materials), and if conditions are right, then a new growth of mold will result. Spores are all around us and in the air that we breathe. High concentrations of mold spores may cause allergic reactions in sensitive individuals.

Chemical treatments exist that can kill and prevent mold growth on wood. Such chemicals are commonly used to provide temporary protection for freshly-sawn lumber; however, these chemicals are not generally available to homeowners.

The best way to prevent or stop mold from growing on wood is to keep the surface of the wood dry. This means that bathrooms, kitchens and basements should be well-ventilated. Existing mold can be removed by washing with water, and bleach or detergents can be used to eliminate discolorations. However, if the conditions for mold growth remain, new spores will land on the wood and fresh mold will grow again.

Our test

A mold control spray was purchased at a local building supply store (Figure 1). The active ingredient listed on the bottle was sodium carbonate, a chemical that is present in some toothpastes and foods, and is 'Generally Regarded as Safe' (GRAS) by the Food and Drug Administration.

Figure 1. This active ingredient in this mold control spray is sodium carbonate. Sodium carbonate is safe, but our test found that it wasn't effective in preventing mold growth on wood.

The label on the bottle of mold spray claimed that the product could eliminate and prevent mold, so a trial was done to measure its effectiveness on wood in a standardized mold test.

The test was AWPA E24-06 Standard Method of Evaluating the Resistance of Wood Products Surfaces to Mold Growth. This is a severe test in which wood samples are suspended within a 'mold box,' which contains water and a heater to maintain high humidity (close to 100 percent relative humidity) and warm temperatures (about 80 degrees F). A tray of soil is placed above the water and this soil is inoculated with mold spores. The wood samples are also sprayed with mold spores when they are placed into the box.

The samples remain in the box for a total of eight weeks and the growth of mold and discoloration of the samples is observed every two weeks. The samples are evaluated visually, using a scale from 0-5:

0 No visible mold

1 Up to 10 percent of the surface covered with mold and discoloration does not obscure more than 5 percent of the surface.

2 10 and 30 percent coverage and not more than 10 percent obscured

3 30 and 70 percent coverage and not more than 30 percent obscured

4 > 70 percent coverage and not more than 70 percent obscured

5 100 percent coverage or more than 70 percent obscured

For our test, we treated three clean, dry Southern pine lumber (Pinus spp.) samples with the mold spray according to the directions on the package. The surfaces were sprayed until evenly wet and then allowed to dry thoroughly. The treated samples and three untreated ('control') samples were placed into the chamber. Each of the samples was evaluated for mold, by the same evaluator, after 2, 4, 6 and 8 weeks exposure.

Results

Mold grew quickly on both the untreated and treated samples after exposure in the mold box (Figure 2). Most of the samples were almost completely covered by mold growth by the end of the test.

Although there were only three samples in each group, and the samples varied in mold growth within each group, the treated wood samples actually had higher average values for mold coverage than did the control.

As mentioned, the 'mold box' test is harsh, because it exposes the samples to nearly optimum conditions for mold growth: high humidity, high temperatures and high concentrations of mold spores. Also, the pine wood used in the test is known to be relatively susceptible to mold. Thus, the test may not be a realistic simulation of conditions in your bathroom, kitchen or crawlspace. However, because all the samples are exposed to the same conditions, it does provide a fair, and relatively rapid, basis for comparison.

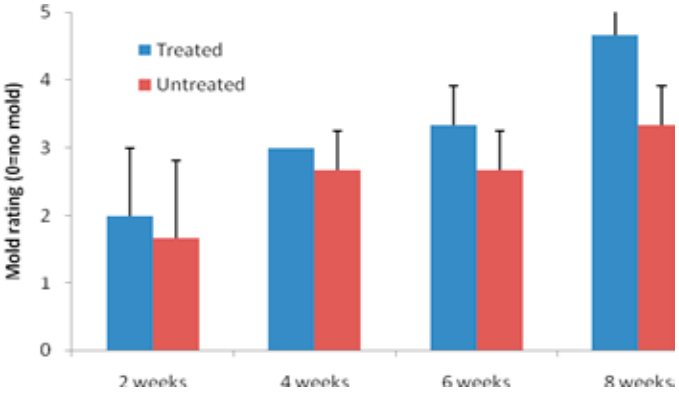

Figure 2. Mold ratings of pine wood samples exposed in the "mold box" test. The treated samples were coated with a sodium carbonate solution according to the directions on the label. Note: The black lines ("error bars") are one standard deviation, which is a measure of variation in the data.

Conclusion

The sodium carbonate-based solution that we tested did not provide good mold inhibition in a severe, standardized test.

Eliminating the warm, wet conditions that lead to mold remains the best option for preventing the growth on mold on wood.

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