

Bleach may be solution for bluestained pine

FORESTRY INNOVATION INVESTMENT LTD.

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Uppodate
MOUNTAIN PINE BEETLE

Researchers are finding ways to lighten and remove the blue colour that can rob mountain pine beetle-infested wood of much of its appearance value in the marketplace.

Mills in British Columbia are consuming large amounts of mountain pine beetle-infested wood, which contains bluestain caused by a fungus carried by the insect.

Many markets are unwilling to pay top dollar for this wood. For instance, the bluestained lumber is not preferred by the Japanese customer for the JAS grade of structural lumber, and customers everywhere tend to prefer unstained white wood from B.C. mills. Some mills are losing markets and revenues as a result.

A preliminary study by the Centre for Advanced Wood Processing (CAWP) at the University of British Columbia showed that a solution of sodium hypochlorite (10%) was effective at removing the blue colour from lodgepole pine wood.

Sodium hypochlorite, an inexpensive and readily available chemical, may be an effective solution to remove blue

stain. It's good news for lumber exporters, though a suitable commercial treatment process needs to be developed.

To further optimize the bleaching of bluestain in lodgepole pine sapwood (the live outer core of the log), CAWP researchers conducted a study for Forestry Innovation Investment Ltd. that examined the use of sodium hypochlorite applied by either soaking or spraying the wood with bleach solutions.

In the first part of the study, the researchers found that none of the soaking treatments was able to return the bluestain specimens to their original brightness. However, specimens treated with 5% sodium hypochlorite solution at 20° C were significantly lighter in appearance than the other specimens treated with water or even stronger solutions of bleach.

The second part of the research focused on application of bleach by spraying, as this may be a more practical commercial method for applying the bleaching agents than soaking.

Treatment concentration had a significant effect on the blue colour of stained sapwood, but



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temperature had no major effect on blueness.

The 10.5% sodium hypochlorite solution was the only treatment that virtually removed the blue colour from stained lodgepole pine, but solutions applied at concentrations of 9%, 7% and 5% also had some effect.

None of the spraying treatments brought the wood back to its original bright colour but all removed the bluestain. This occurred because the bleached wood became slightly green in appearance after treatment with sodium hypochlorite.

The third, and ongoing, portion of this study includes experiments to determine how well paint



If it is shown that painted bluestained wood is more susceptible to colonization by mould fungi, subsequent research will look at developing finishes or pre-treatments to prevent such colonization.

FOR THE FULL REPORT GO TO WWW.BCFII.CA/MPB/ AND DOWNLOAD THE REPORT "MPB 2006-08: BLEACHING AND FINISHING OF MOUNTAIN PINE BEETLE AFFECTED LODGEPOLE PINE WOOD".

can mask bluestain. Painting nonstructural wood products, such as cladding and joinery, made of beetle-affected pine and not used in load-bearing situations is attractive because it masks the bluestain that is often associated (wrongly) with the loss of mechanical properties.

Researchers are using a range of finishes applied to both stained and unstained sapwood and heartwood (dead inner core) boards. The coated samples are being exposed to weather in an exterior trial in Vancouver, and monitoring of the exposed boards will occur throughout 2006/07.

Forestry Innovation Investment Ltd. is a British Columbia government corporation investing in initiatives to help market BC forest products, and promote our sustainable forest practices to the world. FII's Mountain Pine Beetle Program supports government's Mountain Pine Beetle Action Plan and its objective to maximize the economic value of mountain pine beetle wood. FII does this through marketing activities and research into new products and manufacturing processes for mountain pine beetle wood.

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