

Hot oil-treated beetle killed pine poised to supply above ground residential construction market

FORESTRY INNOVATION INVESTMENT

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Researchers are investigating oil and heat treatment as possible options for increasing the utility of mountain pine beetle-killed boards in the above-ground residential products market.

Wood treatment scientist Jieying Wang, with the Forintek Division of FPInnovations, pulled together information from European practices and from her earlier work at the University of Toronto to devise an experimental means of treating bluestained 1x6 boards that might be used as siding and other residential products.

Her approach was to immerse pine sapwood boards in a bath of soybean oil at 220°C for one or two hours - with both schedules producing results that masked the bluestain

of MPB sapwood quite effectively. It was initially expected the treatment might also render the boards less vulnerable to moisture absorption, mould, decay and warping over time.

The boards were cut into 600 mm lengths for the siding tests, 400 mm for the termite tests and 300 mm for the above-ground sandwich tests. The sandwich test exposes boards to recurring shade and moisture entrapment, providing a broader picture of how the wood performs in real-life situations. Air-dried samples had a moisture content between 9% and 11% before the oil treatment. They were conditioned in an oven at 100°C for about 20 hours after the oil treatment.



Pine sapwood boards immersed in a bath of hot soybean oil mask the bluestain of MPB sapwood effectively

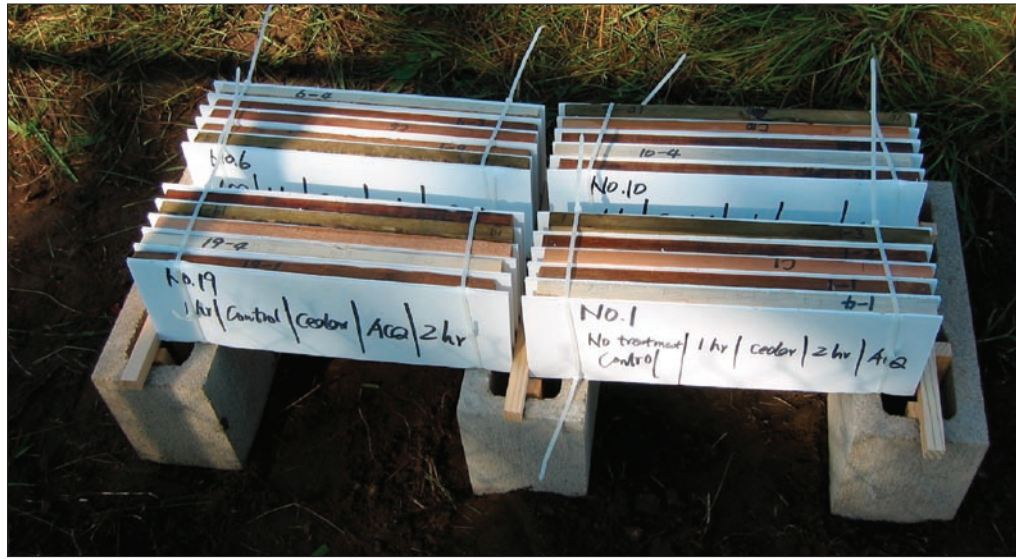


Uppodate
MOUNTAIN PINE BEETLE

Test batches of the boards have been set up in Mississippi and Vancouver for long-term weather testing, and in Ontario for above-ground termite resistance. Results of these tests will first be assessed for performance during 2007 and monitored for long term performance.

Immediate results of some other tests point to a somewhat guarded prognosis for the thermal-oil treatment.

A severe weather and moisture test of beetle-affected wood in the lab showed increased water absorption, along with unsatisfactory stain, discolouration and erosion compared to other wood species.



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HOT OIL-TREATED MPB LUMBER"

Thermal modification of wood can sometimes cause increased corrosion of metals, so more expensive galvanized or stainless fasteners might be required. It also reduced nail-holding resistance by 40% in the most recent tests, and breaking and bending strength properties are also reduced. General fire resistance is not affected significantly by the treatment.

The report notes, however, that the laboratory weathering test was very severe, and results from the three outdoor weathering sites may provide a more realistic picture of how oil-thermal treated boards perform. Further research into the best types of stain and paint to use on the boards would also be useful.

Forestry Innovation Investment is a British Columbia government corporation investing in initiatives to help market BC forest products and promotes our sustainable forest practices to the world. FII's Mountain Pine Beetle Program supports the 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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