

## **PROTIM® FrameSaver™: Frequently Asked Questions**

*This document has been compiled as a ready reference for people using PROTIM FrameSaver as a remedial or preventative treatment for timber. It has been revised August 2012 to align with recommendations given in the Department of Building and Housing document “Dealing with Timber in Leaky Buildings”<sup>1</sup>.*

### **What does FrameSaver do?**

FrameSaver is a liquid wood preservative that is intended for application to wood to control or prevent fungal decay and insect attack.

### **What is in FrameSaver?**

FrameSaver is based on boron (29.2 % m/v as boric acid), plus a co-biocide (benzalkonium chloride 1.2% m/v), dissolved in a glycol solvent. Boron-based wood preservatives have been protecting New Zealand house framing for 60 years.

The active ingredients in FrameSaver remain mobile within the wood and can fully penetrate and protect the entire cross-section should the timber become damp, unlike copper or zinc-naphthenate preservatives which remain near the wood surface

### **Where should I use FrameSaver?**

FrameSaver should be applied to timber where eradication or prevention of decay and insect attack is required, for example interior framing, joinery, flooring and panelling. FrameSaver may also be used to restore the protective envelope to internal timbers where pre-treated timber is cut, drilled or planed during installation, exposing untreated heartwood.

The active ingredients in FrameSaver are water-soluble, this means that the preservative will be slowly removed from the wood by leaching if used in a weather-exposed situation. The application and maintenance of a supplementary water-resistant coating (e.g. 3-coat paint system) is recommended if FrameSaver treated wood is to be used in such a situation.

### **Will FrameSaver prevent decay?**

Independent tests conducted by Scion (formerly NZ Forest Research Institute) have concluded that wood treated with FrameSaver is resistant to decay. The recommended preventative usage rate is 10 mL FrameSaver per 1000 cm<sup>3</sup> of wood, and this has been proven to prevent the development of decay fungi. For remedial treatment of wood in-situ the rate should be 20 mL per 1000cm<sup>3</sup>.

*Note: FrameSaver can stop decay from advancing, but cannot restore structural strength to decayed timbers.*

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<sup>1</sup> “Dealing with Timber in Leaky Buildings: A Guide for Builders and Building Professionals”, Department of Building and Housing, June 2012.

## **Will FrameSaver stop existing decay?**

Independent tests have been conducted by Scion<sup>2</sup> to simulate real-world house remediation. FrameSaver was applied to untreated framing which had already developed significant decay, and was then maintained under worst-case leaky-house conditions. The application of FrameSaver arrested further development of decay even though exposure conditions were ideal for fungal growth. Preservative analysis showed that boron penetrated into the core of most components in a sufficient amount to control decay.

## **Will FrameSaver prevent insect attack?**

The recommended preventative usage rate has been proven to prevent all borer attack; where termite control is desired it should always be used at the higher remedial rate.

## **Will FrameSaver prevent mould growth?**

Some moulds can still grow on FrameSaver treated surfaces, but in general mould growth is significantly suppressed compared to an untreated surface. Note that moulds do not affect wood's structural strength.

## **I've got decayed wood in my house; will FrameSaver fix my problem?**

Firstly decay is caused by wood getting wet, generally from leaks through the building envelope, faulty plumbing, or insufficient ventilation; this needs to be addressed before any wood is treated. Wood maintained below 20% moisture content will not decay, irrespective of presence of any preservative treatment.

Secondly, FrameSaver will halt the advance of decay and prevent re-occurrence, but it can't restore the structural strength of decayed wood. If the decayed piece is structural, you **MUST** replace it or seek advice from a structural engineer.

During remediation works the general recommendation is to cut out any timber at least one metre beyond the last visual signs of fungal decay on any individual piece of timber. Timber that remains in place should then be treated with FrameSaver.

## **How do I apply FrameSaver?**

FrameSaver is best applied via a liberal brush, roller or spray coating to all wood surfaces, to the point of run-off.

## **Can I spray FrameSaver?**

Yes, but you will require an airless or high pressure sprayer or similar, as other spray equipment may have insufficient pressure to successfully spray FrameSaver.

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<sup>2</sup> "Application of FrameSaver to Control Decay on Pre-decayed Model Frame Units", Scion Wood Processing Newsletter, Issue No.43 September 2009

If a spray mist is generated, you should wear a mask fitted with organic solvent cartridges and avoid any inhalation of mists.

## **I can't get access to all sides of the board; how should I apply FrameSaver?**

FrameSaver is most effective when it is applied to all surfaces of boards, where the risk of decay is greatest. The effectiveness decreases if fewer faces of the timber are treated. Research<sup>3</sup> has shown that the treatment is effective in limiting the spread of the early stages of brown rot provided at least two coats are applied by brush to at least three faces of the timber.

For studs where three faces cannot be accessed, a combination of two coats applied by brush and injection of FrameSaver into holes drilled into the interface between studs is recommended. The holes should be 6mm in diameter and 80mm deep, sloping downwards (at approximately 30 degrees to the horizontal) at 300mm intervals. Ten mL of treatment solution should be injected into each hole, followed by a second injection 30 minutes later.

A similar technique can be used on double lintels. Two coats of FrameSaver should be applied by brush, followed by injection of FrameSaver into 6mm by 45mm deep holes drilled into the outer lintel 10mm below the top edge. A drill hole spacing of 100mm is recommended, starting 75mm from the end of the lintel. 15mL of FrameSaver should be injected into each hole, followed by a second 30mL injection 30 minutes later. Adhesive tape should be applied to the bottom of the joint before injecting FrameSaver to minimise the liquid running out of the bottom of the lintel. One of the main influences on boron coverage is the size of the gap between the two pieces of timber; if the gap is too large the liquid may escape rapidly with little coverage and penetration. Temporary clamping of the lintel can help minimise this.

*Because of the variability associated with the injection process, it is recommended as a remediation method only where there is a high degree of confidence that there is no decay present between studs or lintel members.*

## **How many coats of FrameSaver should I apply?**

Where wood is to be treated in a remedial situation a use rate of 500 mL per square meter is recommended, and this can generally be achieved with two liberal coats to all surfaces.

The recommended use rate for preventative uses (where new, clean wood is being treated as a precautionary measure) on timber up to 50 mm thick is 250 mL per square metre. This is generally achieved with a single liberal coat to all surfaces.

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<sup>3</sup> "Site-Applied Timber Treatment: Summary of Research carried out by Scion for the Department of Building and Housing"

## **What is the Coverage Rate?**

The typical coverage rate is 4 to 6 m<sup>2</sup> of board surface per litre of FrameSaver; the actual coverage rate will depend on the surface roughness and absorbance of the wood. 1 litre will cover approximately:

- 15 - 22 lineal metres of 90 x 45 mm
- 11- 16 lineal metres of 140 x 45 mm
- 9 - 13 lineal metres of 190 x 45 mm
- 7 - 11 lineal metres of 240 x 45 mm

These use rates will achieve a retention of between 2.5 and 4 kg boric acid per cubic metre of wood (0.55 to 1.0 % m/m BAE) per coat.

## **What surface preparation is necessary before applying FrameSaver?**

FrameSaver cannot penetrate through any previous surface coatings like oil, grease, paint or stain, and these should be removed before application. Remove any soil, sawdust, fungal growth or other debris by brushing or water blasting. Airborne spores from surface decay or mould can be toxic; avoid creating dust or wear a dust mask.

## **Can I apply FrameSaver to damp wood?**

Yes; actually FrameSaver will penetrate more rapidly into damp surfaces. However note that building regulations require timber to be below 20% MC before close-in is permitted.

## **Can I apply FrameSaver to exposed timber when it is raining?**

No, this is not recommended. FrameSaver is water soluble, and rain washing will remove any surface chemical quickly. However once FrameSaver has been absorbed into the wood surface, short-term incidental rain wetting is of little concern, although long-term wetting will eventually leach the product out of the timber.

## **Can I use FrameSaver instead of buying treated framing?**

Commercially pre-treated timber is generally more economical to purchase, however when correctly applied, the durability of FrameSaver treated wood will be comparable to interior decay and insect-resisting (NZS 3640:2003 H1.2) treatments.

## **Is FrameSaver treated wood equivalent to H1.2?**

The H1.2 specification calls for complete sapwood penetration and a minimum retention of boron of 0.4% m/m boric acid equivalent (BAE) in the cross section of dry timber. The retention of boron achieved when FrameSaver is applied at the preventative rate (1 liberal coat on typical framing sizes will normally achieve 0.7 % m/m BAE) exceeds the minimum specified for H1.2. On the day that it is applied to the wood surface, FrameSaver will not meet the H1.2 penetration specification. In

the weeks to follow, diffusion of the product will continue, and this process will be accelerated by any moisture that enters the wood.

Independent tests conducted by Forest Research have confirmed that wood treated with a surface coating of FrameSaver delivers decay resistance equal to approved H1.2 treatments.

## **Can I apply FrameSaver to LOSP treated timber?**

Where insecticide-only LOSP H1.1 treated timber has been used, it is possible to apply FrameSaver to this material to add decay resistance. The water repellents used in LOSP reduce the absorption rate of FrameSaver into the surface, and this means that additional coats of FrameSaver may be required to achieve the desired retention. As a general guide, the presence of LOSP reduces FrameSaver absorption by around 40%, hence the number of coats applied should be doubled compared to untreated timber.

## **Can I apply FrameSaver to any species of wood?**

Yes you can; the active ingredients in FrameSaver are effective preservatives for any wood species. The rate at which FrameSaver is absorbed into the wood surface will differ with the different species. Radiata pine is a permeable species and surface absorption is rapid, usually within 30 minutes to 2 hours. Species like Douglas fir and spruce are more refractory and absorption can take 24-48 hours.

## **Can I dilute FrameSaver?**

This is not recommended; in order to deliver the right retention of preservative, the product should be used at its original concentration. If dilution is unavoidable (suggest a maximum of 10%, using water) then an additional coat should be applied to compensate for the reduced concentration of the liquid.

## **How long does FrameSaver take to dry?**

This depends to a degree on timber surface conditions, timber species, and moisture content; generally radiata pine will be touch-dry in 2 hours, however refractory species like Douglas fir may take longer.

## **How long should I wait before applying a second coat of FrameSaver?**

As soon as the surface is touch-dry from the first coat, a second coat can be applied, generally within two hours.

## **Can FrameSaver-treated wood be painted and glued?**

Where surfaces are to be subsequently painted or glued we recommend a minimum 48 hours drying time. FrameSaver does not dry on the surface to form a film, rather it is absorbed into the timber where it can penetrate and protect from within. With paints it is advisable to paint a small test-patch in an inconspicuous location first.

Both oil-based and acrylic paints have been found to be compatible, as have water-based and solvent-based adhesives. You should contact the paint or adhesive manufacturer for more detail.

### **Does FrameSaver have any effect on wood stiffness?**

No, FrameSaver does not have any significant effect on the stress rating of the timber.

### **Does FrameSaver discolour timber?**

No, FrameSaver is colourless. When first applied the timber will darken and look wet, but this will disappear as the product is absorbed. For identification during application FrameSaver is available with a red marker dye, and this is often preferred in remedial situations as a means of ensuring full coverage.

*Note that the red dye is intended as a coverage indicator only, and cannot be relied upon as a means of determining whether the correct application rate or number of coats have been used. A check of the volume used vs the area to be coated is a better means of checking this aspect (see “How Far Does FrameSaver Go?” above).*

### **Can I use FrameSaver outside?**

Yes you can, but be aware that the boron active ingredient is water soluble. Repeated rain wetting will slowly remove the preservative unless it is replenished every few years and/or a water repellent surface coating (e.g. well-maintained three-coat paint system) is applied.

### **Is FrameSaver corrosive?**

No; borates are commonly used as anti-corrosive additives. FrameSaver will not affect metal fixings such as screws, nails, nail plates etc.

### **Is FrameSaver incompatible with any materials?**

No; FrameSaver is compatible with all common building products, including all cladding and lining products, damp-proof course, concrete, particle board, insulation etc.

### **Does FrameSaver smell?**

The product has a very faint sweet odour when first applied. Once surface dry, odour is generally undetectable.

## **Does FrameSaver affect the moisture content of timber?**

FrameSaver contains less than 1% m/v as water so does not add any significant water content when used at the recommended rates. The glycol carrier is mildly hygroscopic and increases the equilibrium moisture content of timber by 1 to 2 percent. The presence of the product does increase the wood conductivity and will initially render moisture meter readings based on conductivity unreliable, producing exaggerated results. Where an accurate moisture content is required, the Oven-dry method<sup>4</sup> (AS/NZS1080.1) is preferred.

## **What protective clothing should I wear when applying FrameSaver?**

FrameSaver is classified as toxic, a skin and eye irritant, a respiratory and contact sensitizer, and a component is a suspected human development/reproductive toxicant, and it is toxic to certain organs.

Users of FrameSaver should avoid all skin contact; you should wear chemical resistant gloves and long sleeve work clothing when handling the liquid, plus eye protection. Do not breathe any mist generated during spraying; wear a mask fitted with organic vapour cartridges. A copy of the Safety Data Sheet (SDS) is available for the product via [www.osmose.co.nz](http://www.osmose.co.nz) or 0800 78 70 70.

## **What happens if I get a splash on my skin?**

FrameSaver is toxic by absorption but not corrosive; mild skin or eye irritation is possible, and any splashes to skin should be washed off with soap and water. See the SDS for details.

## **How do I clean up after applying FrameSaver?**

Brushes, rollers and any surfaces accidentally coated can be cleaned with water.

## **Is FrameSaver treated wood safe to handle?**

You should avoid skin contact with the wood when it is freshly coated (wet). Once the FrameSaver has been absorbed and the surfaces are touch dry, treated wood poses no additional risks compared to untreated wood. Wood treated with FrameSaver should not be used where the runoff is collected for use as drinking water.

## **Will FrameSaver harm plants?**

At high enough concentrations, the boron component of FrameSaver is poisonous to plants. Direct spray or splashes, or rain washing from very freshly treated surfaces, can cause damage to plants. Hose down affected plants with water immediately.

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<sup>4</sup> AS/NZS 1080.1: 1997 Timber – Methods of Test, Method 1: Moisture content

## **What other Osmose remedial products are available?**

**ReSeal™** is an organic solvent-based copper naphthenate solution specifically intended for application to the cuts, notches and bore holes made in treated outdoor wood products. Cutting into treated timber can expose untreated heartwood which is then more susceptible to decay. A brush-on coat of ReSeal™ restores the protective envelope and prolongs the wood life.

## **Is FrameSaver Guaranteed?**

We are unable to provide a performance guarantee for the product as we have no control over its application. The composition and condition of FrameSaver is guaranteed to be in a fit state for its intended use. A Producer Statement is available upon request.

## **Is this a new product?**

Products similar to FrameSaver are sold in many other countries under names such as Boracol and Bora-Care. The product has been in use for decades in countries where there has been a need for remedial treatments of buildings due to insect attack or dampness problems. Recent changes to New Zealand's building materials and practices mean that there is now a growing need here.

## **Where can I buy FrameSaver?**

FrameSaver is sold through most building products stores. FrameSaver is also available direct from Osmose New Zealand's two warehouses in Auckland and Christchurch, phone 0800 78 70 70. Products can be ordered using your Visa or Mastercard, and will be couriered direct to you.

## **What pack sizes are available?**

FrameSaver is available in 5 and 20 L containers, with or without a red marker dye.

## **Where can I get more information?**

Contact Osmose New Zealand on 0800 78 7070, or visit our website

[www.osmose.co.nz](http://www.osmose.co.nz)

## **Osmose New Zealand**

14 Mayo Rd  
Wiri  
Manukau City