

NZS 3640:2003

CHEMICAL PRESERVATION OF ROUND AND SAWN TIMBER

AMENDMENT NO. 3

August 2006

REVISED TEXT

EXPLANATORY NOTE

Amendment No. 3 reinstates boron treatment in hazard class H3.1 with the proviso that the treated timber has an oil alkyd or modified acrylic or modified latex grey pigmented surface coating applied to all timber surfaces, after treatment and before dispatch from the treatment plant; and allows CuN at 0.05 % m/m elemental copper to be used in hazard class H3.1 for fascia, cladding, joinery and other timber components less than 30 mm thick provided a continuous face brand is applied along the full length of the timber prior to dispatch from the treatment plant.

Amendment No. 3 also updates the Foreword and the definition for Penetration Test, commentary C1.1.3, clause 3.3.1, clause 4.3.1.1 and commentary, clause 4.4.1 and commentary, clause 5.1.3, clause C6.1.1.1 and commentary, clause C6.3.1.1 and new commentary, figure 5.1 and tables 5.2 and commentary, and 6.2 and Appendix A.

APPROVAL

Amendment No. 3 was approved on 18 August 2006 by the Standards Council to be an amendment to NZS 3640:2003 pursuant to the provisions of section 10 of the Standards Act 1988.

FOREWORD (page 5).

Delete the final paragraph and **substitute:**

This Standard refers to the WOODmark ® scheme, which is an initiative of the New Zealand Timber Preservation Council and to the AgriQuality Timber Treatment Programme. Quality assurance schemes arranged by other organisations in the future could also comply with the requirements of this Standard.

(Amendment No. 3, August 2006)

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C1.1.3 (page 7).

Delete the commentary and **substitute**:

C1.1.3

NZS 3640 is to be used in conjunction with NZS 3602, NZS 3603 and NZS 3604 which are cited in the Department of Building and Housing's Compliance Documents.

The New Zealand Timber Preservation Council (NZTPC) and AgriQuality operate quality control and branding schemes. Further details are given in Appendix A. This Standard does not preclude the adoption of any other appropriate quality assurance schemes which may be introduced in the future.

The effectiveness of preservative treatment can be adversely affected by subsequent handling, storage and utilisation. These issues are outside the scope of this Standard, but some advisory information is given in Appendix B.

(Amendment No. 3, August 2006)

Definitions (page 10).

Delete the definition Penetration Test and **substitute**:

PENETRATION TEST. A test where chemical reagents are applied to samples of the treated wood, which identify evidence of penetration of the preservative at the prescribed depth in the wood using methods described in AS/NZS 1605.

(Amendment No. 3, August 2006)

3.3.1 Penetration (page 13).

Delete the clause and **substitute**:

3.3.1 Penetration

The penetration of the preservative into timber shall be checked using a chemical reagent appropriate to the preservative being tested in accordance with AS/NZS 1605. The preservative shall be found throughout the wood to the required depth.

Some active ingredients such as synthetic pyrethroids, tebuconazole, propiconazole and IPBC, cannot be checked with a chemical reagent, or may be present at a concentration below the sensitivity limit of the chemical reagent, e.g. boron. In that case, penetration shall be confirmed by chemical analysis.

(Amendment No. 3, August 2006)

4.3.1.1 *Situation* (page 16).

Delete the clause and the commentary to it and **substitute**:

4.3.1.1 *Situation*

Boron preservatives are suitable for use in hazard class H1.1 and H1.2. Boron preservatives are suitable for use in hazard class H3.1 provided an oil alkyd or modified acrylic or modified latex grey pigmented surface coating is applied to all timber surfaces, after treatment and before dispatch from the treatment plant.

Preservative penetration shall be as required in section 6.

C4.3.1.1

Boron compounds are non-fixed, waterborne preservatives which have insecticidal and fungicidal effectiveness.

The use of boron compounds in H3.1 situations exposed above ground and to the weather requires a priming coat as described in 4.3.1.1, plus a minimum of two further coats of a well-maintained paint system on all exposed surfaces to minimise the potential for boron loss by leaching (refer to NZS 3602 Clause 111.2.1).

(Amendment No. 3, August 2006)

4.4.1 *Situation* (page 16).

Delete the clause and the commentary to it and **substitute**:

4.4.1 *Situation*

LOSPs are suitable for use in hazard classes as specified in table 4.4.

In addition, CuN at 0.05 % m/m elemental copper is suitable for use in hazard class H3.1 for fascia, cladding, joinery and other timber components less than 30 mm thick. A continuous face brand shall be applied along the full length of the timber prior to dispatch from the treatment plant.

Preservative penetrations shall be as required in section 6.

C4.4.1

LOSPs are fungicides, insecticides or termiticides used singly or in combination.

Refer to NZS 3602 for conditions of use for CuN at 0.05 % m/m in H3.1 applications and painting requirements.

(Amendment No. 3, August 2006)

5.1.3 (page 19).

Delete existing clause 5.1.3 and **substitute** new clause 5.1.3:

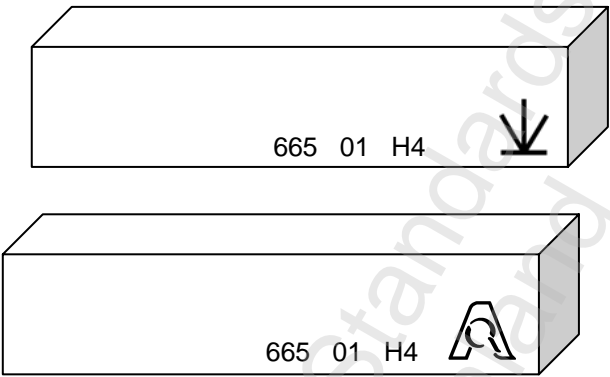
5.1.3

Branding shall be by permanent ink, imprint, incision or burn brand applied directly to the timber or on a plastic tag affixed to the timber.

(Amendment No. 3, August 2006)

Figure 5.1.4 (page 19).

Delete existing figure 5.1 and **substitute** new figure 5.1:



Key

- Treatment plant number665
- Preservative code number.....01
- Hazard class number..... H4
- Woodmark ® (optional)..... ⚡
- AgriQuality Assurance (optional)..... A.....

Figure 5.1 – Example brandings

(Amendment No. 3, August 2006)

Table 5.2 (page 20).

Delete table 5.2 and commentary and substitute:

Table 5.2 – Colour coding for timber to be used as framing

Hazard class	Preservative	Colour ⁽¹⁾
H1.2	TBTO/TBTN or IPBC permethrin	Blue ⁽²⁾
	Boron	Pink ⁽³⁾
H3.1	TBTO or TBTN Propiconazole + tebuconazole/permethrin	No added colour ⁽⁴⁾ or green ⁽⁵⁾
	Boron	Grey ⁽⁶⁾
NOTE – (1) These colours shall not be used for any preservative types/hazard classes other than specified. (2) The blue colour shall be a red-shade blue in order that it does not appear green with the natural yellow of timber (suggested colour – Pigment Blue 15.3). (3) Colour – Red 112 (red) or Red 122 (pink). (4) H3.1 framing shall be branded repetitively along the length at 1500 mm centres maximum on its face or edge. (5) If coloured green, the colour is to be distinctly different (colour Green 368) from the green of the H3.2 preservative treatment – see C Table 5.2 (a) below. (6) Colour of oil alkyd or modified acrylic or modified latex coating – see C Table 5.2(b) below.		

C Table 5.2

- (a) Timber treated to Hazard class 3.2 is readily distinguishable by spot test from those treatments approved for H3.1 framing. Two reagents (ammonia solution and rubeanic acid) are applied to a freshly-cut surface. A blue/black colouration indicates the presence of copper, an active ingredient of all H3.2 treatments.
- (b) Refer to AS/NZS 2311 for guidance on painting specification.

(Amendment No. 3, August 2006)

6.1.1.1 Penetration (page 21).

Delete the clause and the commentary to it and substitute:

6.1.1.1 Penetration

Complete sapwood penetration is required.

The penetration of the preservative into the timber shall be checked using a chemical reagent (see clause 3.3.1).

Some active ingredients such as synthetic pyrethroids, tebuconazole, propiconazole and IPBC, cannot be checked with a chemical reagent, or may be present at a concentration below the sensitivity limit of the chemical reagent, e.g. boron. In that case, penetration shall be confirmed by chemical analysis.

Where evidence of complete sapwood penetration is to be confirmed by analysis, the samples will comply if the preservative is found in the central one-ninth sapwood core of the sample.

C6.1.1.1

Compliance with this Standard requires clear evidence at the time of sampling that the preservative is present in every part of the sapwood and at a concentration greater than that present in an untreated sample taken from the same timber source.

No central ninth core concentrations have been set additional to the 'wet' cores for H1.1 in table 6.1.

It is noted that the analytical detectable limit for an active ingredient may vary with the chemical analytical method and sample size. The detectable limit in the central ninth core may be less than an effective concentration for that preservative. If the active is highly concentrated in a small portion of the cross-section, it is possible that subsequent processing or fabrication may expose unprotected parts of the cross-section which could result in failure of the timber. Care is needed to ensure the durability of the treated timber in-service is not adversely affected by a preservative gradient across the timber cross-section.

(Amendment No. 3, August 2006)

6.3.1.1 Penetration (page 23).

Delete the clause and **substitute**:

6.3.1.1 Penetration

The penetration of the preservative into the timber shall be checked using a chemical reagent (see clause 3.3.1).

Some active ingredients such as synthetic pyrethroids, tebuconazole, propiconazole and IPBC, cannot be checked with a chemical reagent, or may be present at a concentration below the sensitivity limit of the chemical reagent, e.g. boron. In that case, penetration shall be confirmed by chemical analysis.

Where evidence of complete sapwood penetration is to be confirmed by analysis, the samples will comply if the preservative is found in the central one-ninth sapwood core of the sample.

(Amendment No. 3, August 2006)

Insert new commentary C6.3.1.1 after clause C6.3.1 (page 23).

C6.3.1.1

Compliance with this Standard requires clear evidence at the time of sampling that the preservative is present in every part of the sapwood and at a concentration greater than that present in an untreated sample taken from the same timber source.

It is noted that the analytical detectable limit for an active ingredient may vary with the chemical analytical method and sample size. The detectable limit in the central ninth core may be less than an effective concentration for that preservative. If the active is highly concentrated in a small portion of the cross-section, it is possible that subsequent processing or fabrication may expose unprotected parts of the cross-section which could result in failure of the timber. Care is needed to ensure the durability of the treated timber in-service is not adversely affected by a preservative gradient across the timber cross-section.

(Amendment No. 3, August 2006)

Table 6.2 (page 24).

Delete table 6.2 and **substitute**:

**Table 6.2 – Minimum preservative retention in the H3.1,
H3.2 analysis zone**

Preservative type	Component	Retention % m/m oven dry weight of wood	
		H3.1	H3.2
Waterborne preservatives			
Alkaline copper quaternary	Cu + DDAC	0.35	0.35
CCA	Cu + Cr + As	0.37	0.37
CuAz	Cu + azole	0.2288	0.2288
Boron compounds	H ₃ BO ₃	0.80 ¹	Not approved
Light organic solvent preservatives (LOSPs)			
CuN	Cu	0.05 ²	0.10
Propiconazole + tebuconazole (1:1)	Propiconazole + tebuconazole	0.06	Not approved
TBTO, TBTN	Sn	0.08	Not approved
NOTE –			
(1) Boron compounds are approved for H3.1 only when an oil alkyd, modified acrylic or modified latex grey pigmented coating is applied to all timber surfaces, after treatment and before dispatch from the treatment plant.			
(2) CuN at 0.05 is approved for H3.1 timber board for fascia, cladding, joinery and other timber components less than 30 mm thick provided a continuous face brand is applied along the full length of the timber at the treatment plant. Refer to NZS 3602 for conditions of use for CuN at 0.05 % m/m in H3.1 applications and painting requirements.			

(Amendment No. 3, August 2006)

APPENDIX A (page 29).

Delete the first sentence and **substitute**:

This Appendix describes registration in accordance with the NZTPC and includes other recognised quality assurance schemes.

(Amendment No. 3, August 2006)

A6 Enquiries (page 30).

Delete the email address and **substitute**:

Email: inquiries@nztpc.co.nz

(Amendment No. 3, August 2006)

Insert new clause A7, A7.1 and A7.2 after clause A6 (page 30).

A7 AgriQuality Timber Treatment Programme

AgriQuality operates a quality assurance scheme for the treatment of timber.

A7.1 *Minimum requirements and identification*

Plants that comply with audits (timber treatment/environmental management/health and safety practices) and product testing are certified and licensed to use the registered assurance mark (e.g. figure 5.1).

A7.2 *Enquiries*

Any enquiries regarding certification should be addressed to:

Forestry Business Manager
AgriQuality Ltd
P O Box 4127
Mt Maunganui South
Freephone: 0508 00 11 22
Email: info@agriquality.com

(Amendment No. 3, August 2006)

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