

Australian/New Zealand Standard™

AS/NZS 4266.11

Reconstituted wood-based panels— Methods of test

Method 11: Moisture resistance under cyclic test conditions

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-005, Reconstituted Timber Panel Products, to supersede AS/NZS 4266.11:1996, *Reconstituted wood-based panels—Methods of test*, Method 11: *Wet cyclic test (V313 test)*.

This Standard is equivalent to the industrial Standard harmonized between the wood panel industries in Australia, Japan and New Zealand, known as JANS 12.

METHOD

1 SCOPE

This Standard specifies a method for determining the moisture resistance of reconstituted wood-based panels under cyclic test conditions.

2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS

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| 4266 | Reconstituted wood-based panels—Methods of test |
| 4266.1 | Method 1: Sampling, cutting, and conditioning of test pieces |
| 4266.5 | Method 5: Modulus of elasticity in bending and bending strength |
| 4266.6 | Method 6: Tensile strength perpendicular to the plane of the panel (internal bond strength) |
| 4266.8 | Method 8: Swelling in thickness after immersion in water |
| 4266.35 | Method 35: Dimensions of test pieces |
| 4491 | Timber—Glossary of terms in timber related Standards |

3 DEFINITIONS

For the purpose of this Standard, the definitions in AS/NZS 4491 and AS/NZS 4266.1 apply.

4 PRINCIPLE

Test pieces are exposed to three cycles, each comprising immersion in water, freezing, and drying at elevated temperature. After cyclic treatment, the test pieces are then reconditioned and their swelling in thickness and residual strength are determined.

5 APPARATUS

5.1 Water bath

A water bath, which shall maintain water at a temperature of $20 \pm 1^\circ\text{C}$.

5.2 Freezing cabinet

A freezing cabinet which shall be capable of maintaining a temperature of between -12°C and -25°C . It shall also be capable of regaining this temperature within 1 h after inserting the test pieces.

5.3 Drying cabinet

A laboratory drying cabinet with forced, evenly distributed air ventilation, which shall maintain a temperature of $70 \pm 2^\circ\text{C}$ and have 25 ± 5 air exchanges per hour. It shall be capable of reaching a temperature of $70 \pm 2^\circ\text{C}$ within 2 h after inserting the test pieces.

6 TEST PIECE

6.1 Sampling

Eight test pieces shall be taken from each panel to be tested. Sampling and cutting of the test pieces shall be carried out in accordance with AS/NZS 4266.1 and the relevant material specification Standard.

6.2 Dimensions of test pieces

Dimensions shall be in accordance with AS/NZS 4266.5, AS/NZS 4266.6 and AS/NZS 4266.8, as appropriate.

6.3 Conditioning

Test pieces shall be conditioned in accordance with AS/NZS 4266.1.

7 PROCEDURE

7.1 Treatment of the test pieces

The following sequence of operations shall be carried out:

- (a) *Initial conditioning and measurement:*
 - (i) Condition the test pieces in accordance with Clause 6.3.
 - (ii) Determine dimensions of the test pieces in accordance with AS/NZS 4266.35.
- (b) *Cyclic treatment:*
 - (i) *First cycle:*
 - (A) *Immersing* Immerse the test pieces in the water bath. The water bath shall contain fresh water of $\text{pH} = 7 \pm 1$, and the water temperature shall be $20 \pm 1^\circ\text{C}$.

The test pieces shall be placed standing on one edge (one long edge in the case of the bending test pieces) and shall be separated from each other and from the bottom and sides of the water bath by at least 15 mm. The

upper edges of test pieces shall be covered by 25 ± 5 mm of water throughout the immersion period.

The immersion period shall be 70 ± 1 h.

- (B) *Freezing* Remove the test pieces from the water bath. Allow the surface water to drain off for a few minutes and then place the test pieces in the freezing cabinet. The temperature of the freezing cabinet shall be between -12°C and -25°C .

The test pieces shall be placed standing on the same edge as when immersed, and shall be separated from each other by at least 15 mm.

The freezing period shall be 24 ± 1 h.

- (C) *Drying* Remove the test pieces from the freezing cabinet and immediately place them in the drying cabinet. The temperature of the drying cabinet shall be $70 \pm 2^{\circ}\text{C}$.

The test pieces shall be placed standing on the same edges as when immersed and frozen, and shall be separated from each other by at least 15 mm. The total volume of the test pieces shall not exceed 10% of the internal volume of the drying cabinet.

The drying period shall be 70 ± 1 h.

- (D) *Cooling* Remove the test pieces from the drying cabinet and place them in a room at a temperature of $20 \pm 5^{\circ}\text{C}$.

The test pieces shall be placed standing on the same edge as when immersed, frozen and dried, and shall be separated from each other by at least 15 mm.

The cooling period shall be 4 ± 0.5 h.

(ii) *Second cycle:*

- (A) *Immersing* At the end of the cooling period, immerse the test pieces again in the water bath. The water bath shall contain fresh water of $\text{pH} = 7 \pm 1$, and the water temperature shall be $20 \pm 1^{\circ}\text{C}$.

Before standing them in the water bath, the test pieces shall be inverted to stand on their opposite edges. The test pieces shall be separated from each other and from the bottom and sides of the bath by at least 15 mm. The upper edges of test pieces shall be covered by 25 ± 5 mm of water throughout the immersion period.

The immersion period shall be 70 ± 1 h.

- (B) *Freezing* Remove the test pieces from the water bath. Allow the surface water to drain off for a few minutes and then place the test pieces in the freezing cabinet. The temperature of the freezing cabinet shall be between -12°C and -25°C .

The test pieces shall be placed standing on the same edges as when immersed (Clause 7.1(b)(ii)(A)), and shall be separated from each other by at least 15 mm.

The freezing period shall be 24 ± 1 h.

- (C) *Drying* Remove the test pieces from the freezing cabinet and immediately place them in the drying cabinet. The temperature of the drying cabinet shall be $70 \pm 2^{\circ}\text{C}$.