

# Australian/New Zealand Standard™

## Reconstituted wood-based panels— Methods of test

### Method 14: Dimensional changes associated with changes in relative humidity

AS/NZS 4266.14

#### PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-005, Reconstituted Timber Panel Products, to supersede AS/NZS 4266.14(Int):2001.

This Standard is equivalent to the industrial Standard harmonized between the wood panel industries in Australia, Japan and New Zealand, known as JANS 8.

#### METHOD

##### 1 SCOPE

This Standard specifies a method for determining dimensional changes in reconstituted wood-based panels, due to climatic variations.

##### 2 REFERENCED DOCUMENTS

The following documents are referred to in this Standard:

AS/NZS

- |        |  |
|--------|--|
| 4266   | Reconstituted wood-based panels—Methods of test              |
| 4266.1 | Method 1: Sampling, cutting, and conditioning of test pieces |
| 4266.3 | Method 3: Moisture content                                   |
| 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

The equilibrium moisture content of panel products is dependent on the history of moisture change. Higher equilibrium moisture contents for any one relative humidity are achieved in desorption compared with absorption; this gives rise to a hysteresis effect.

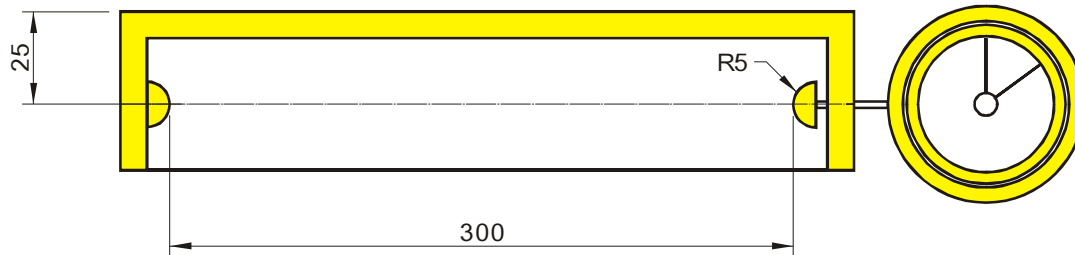
In order to obtain the true dimensional change, relative humidity is measured between 65% relative humidity and 85% relative humidity in absorption and 65% relative humidity and 30% relative humidity in desorption.

## 5 APPARATUS

### 5.1 Balance

Balance with scale interval of 0.01 g.

Instruments for measuring length and thickness with an accuracy of  $\pm 0.01$  mm. An example of a length measuring device is shown in Figure 1.



DIMENSIONS IN MILLIMETRES

FIGURE 1 EXAMPLE OF LENGTH-MEASURING EQUIPMENT

### 5.2 Calibration bar

Corrosion-resistant metal bar of sufficient length and shape to calibrate the length-measuring equipment. The length of the calibration bar shall be known to within 0.01 mm.

### 5.3 Climate chamber

Climate chamber(s) capable of maintaining the required temperature to  $\pm 1^\circ\text{C}$  and relative humidity to  $\pm 3\%$ .

### 5.4 Drying cabinet

Ventilated drying oven, capable of being controlled at  $103 \pm 2^\circ\text{C}$ .

### 5.5 Hygrometer

Hygrometer with an accuracy of  $\pm 1\%$  relative humidity, to measure and record the relative air humidity in the climate chamber.

### 5.6 Thermometer

Thermometer with an accuracy of  $\pm 0.5^\circ\text{C}$ , to measure and record temperature in the climate chamber.

## 6 TEST PIECE

Dimensions of test pieces are  $300 \pm 2$  mm  $\times$   $50 \pm 2$  mm  $\times$   $t$  (panel thickness). From each panel, two sets of four test pieces shall be cut in each panel direction. The general conditions for sampling of the test pieces shall be in accordance with AS/NZS 4266.1.

## 7 PROCEDURE

### 7.1 Test piece preparation

#### 7.1.1 General

Prepare the test pieces with suitable markings to ensure that the measurement will be carried out at the same position each time.

### 7.1.2 Thickness-measuring points

Place the marks on the centre-line of the test piece 50 mm from the ends and at the mid point, as shown in Figure 2. Ink marks on the surface of the test pieces are considered to be adequate. Other types of markings may be used if proven to give correct results.

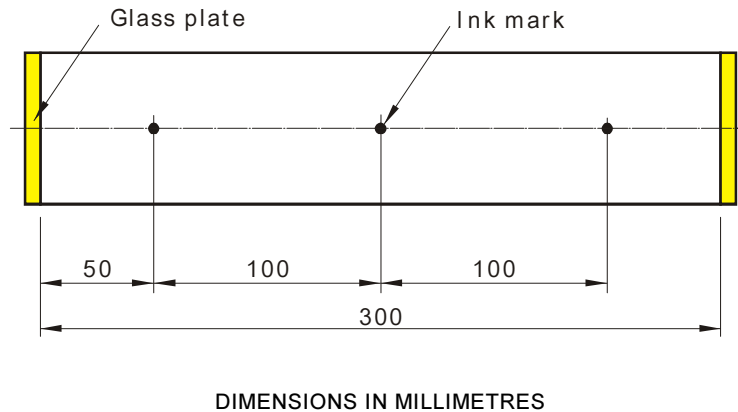


FIGURE 2 EXAMPLE OF A SUITABLE TEST PIECE PREPARATION WITH GLASS PLATES

### 7.1.3 Length-measuring points

A suitable reference system comprises glass plates with a thickness of at least 1 mm glued to the ends of the test piece. An alternative reference system is metal knobs, placed at a distance of 250 mm apart, approximately 25 mm from each end. The knobs may be fastened mechanically or glued onto the surface of the test piece. The adhesive shall not be water-based or hygroscopic. Other types of markings may be used if proven to give correct results.

## 7.2 Conditioning

The two sets of test pieces shall be treated separately and each piece shall be conditioned in three steps. Condition the test pieces to constant mass in each of the Steps given in Table 1. Measure length, thickness and mass in accordance with Clause 7.3 after Steps 2 and 3.

Constant mass is considered having been reached when the results of two successive weighing operations, carried out at an interval of 24 h, do not differ by more than 0.1% of the mass of the test piece.

The climate shall be measured and recorded at an interval of not less than once an hour during the conditioning of the test pieces.

TABLE 1

CONDITIONING CLIMATE FOR THE TWO SETS OF TEST PIECES

Step No.	Set No. 1	Set No. 2
1	20°C, 30% relative humidity	20°C, 85% relative humidity
2	20°C, 65% relative humidity	20°C, 65% relative humidity
3	20°C, 85% relative humidity	20°C, 30% relative humidity