Australian/New Zealand Standard™

Timber—Methods of test
Method 1: Moisture content

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee TM-003, Timber Grading, to supersede AS/NZS 1080.1:1997.

This Standard sets out the oven-dry method (see Clause 4) for determining the moisture content of timber as the only accurate method of truly assigning, with confidence, a moisture content to a piece of timber.

Two other commonly used methods are offered as a means of estimating the moisture content of timber, i.e., the resistance method (see Clause 5) and the capacitance method (see Clause 6). Mandatory requirements for the operation of resistance meters and capacitance meters are specified in the body of this Standard, and further information is provided in informative Appendices of this Standard.

The electrical resistance and capacitance methods give less accurate results but may be used effectively for routine monitoring and inspection work.

The capacitance method is used to provide an indication of moisture content and is particularly beneficial in isolating high moisture content material in certain species. It provides a non-invasive method and takes readings very fast, making it suitable for in-line processing but has lower accuracy than the above two methods.

The usefulness of the resistance and capacitance indirect methods varies with species. For example, manufacturers of some hardwood species do not find sufficient levels of accuracy for the capacitance method to be of benefit to them for control purposes but sufficient as an indicator of a satisfactory drying end point. In contrast, most pine producers find sufficient levels of accuracy with the capacitance method as do some hardwood producers dealing with higher density Australian hardwoods. Neither resistance nor capacitance moisture content meters appear to provide consistent and accurate estimates of moisture content with non-solid products such as engineered wood flooring and bamboo-based flooring.

The oven-drying method for moisture content determination and resistance methods for moisture content estimation are referenced in Australian and New Zealand Standards for sawn, milled and joinery timber products.

The objective of this revision is to update the information to be in line with current research and practices. It includes the following technical changes:

(a) Recognition of resistance moisture meter methods as estimators of moisture content and providing normative requirements for their operation and further information in an informative Appendix.

(b) Recognition of capacitance moisture meter methods as estimators of moisture content and providing normative requirements for their operation and further information in an informative Appendix.

(c) General revision of technical content within the Standard to provide greater clarity.

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The terms ‘normative’ and ‘informative’ have been used in this Standard to define the application of the appendix to which they apply. A ‘normative’ appendix is an integral part of a Standard, whereas an ‘informative’ appendix is only for information and guidance.

METHOD

1 SCOPE

This Standard sets out the oven-drying method (Clause 4) for determining the moisture content of specimens cut from solid timber, and the procedure for sampling of timber lots (Appendix A).

This Standard also specifies requirements for the methods of estimating the local moisture content of solid timber using resistance meter (Clause 5) and capacitance meter (Clause 6).

NOTES:

1 For advice on the use of resistance meters, see Appendix B.

2 For advice on the use of capacitance meters, see Appendix C.

3 For determination of the moisture content of plywood, see AS/NZS 2098.1.

4 For determination of the moisture content of reconstituted wood-based panels, see AS/NZS 4266.3.

5 The oven-drying method may also provide a useful estimation of moisture content for other non-solid products such as engineered wood flooring and bamboo-based flooring

6 A bibliography listing sources for moisture content correction is given in Appendix G.

7 When using meters that are not covered by this Standard, user should follow manufacturer’s instructions and check literature for additional information that may contribute to understanding the limitations of that particular meter.

2 REFERENCED DOCUMENTS

The following are the documents referenced in this Standard:

AS/NZS

2098 Methods of test for veneer and plywood

2098.1 Method 1: Moisture content of veneer and plywood

4266 Reconstituted wood-based panels—Methods of test

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 given in AS/NZS 4491 and those below apply.

3.1 Moisture content (MC)

The amount of moisture in wood, usually expressed as a percentage of the oven-dry mass.

3.2 Test piece

A piece of a required size for a specific test that has been cut from a test specimen or test sample (see Figure 4.1).

3.3 Test sample

One or more pieces of timber drawn from a population of timber.