Testing Timber for Moisture Content

Special Report by the Division of Building Research

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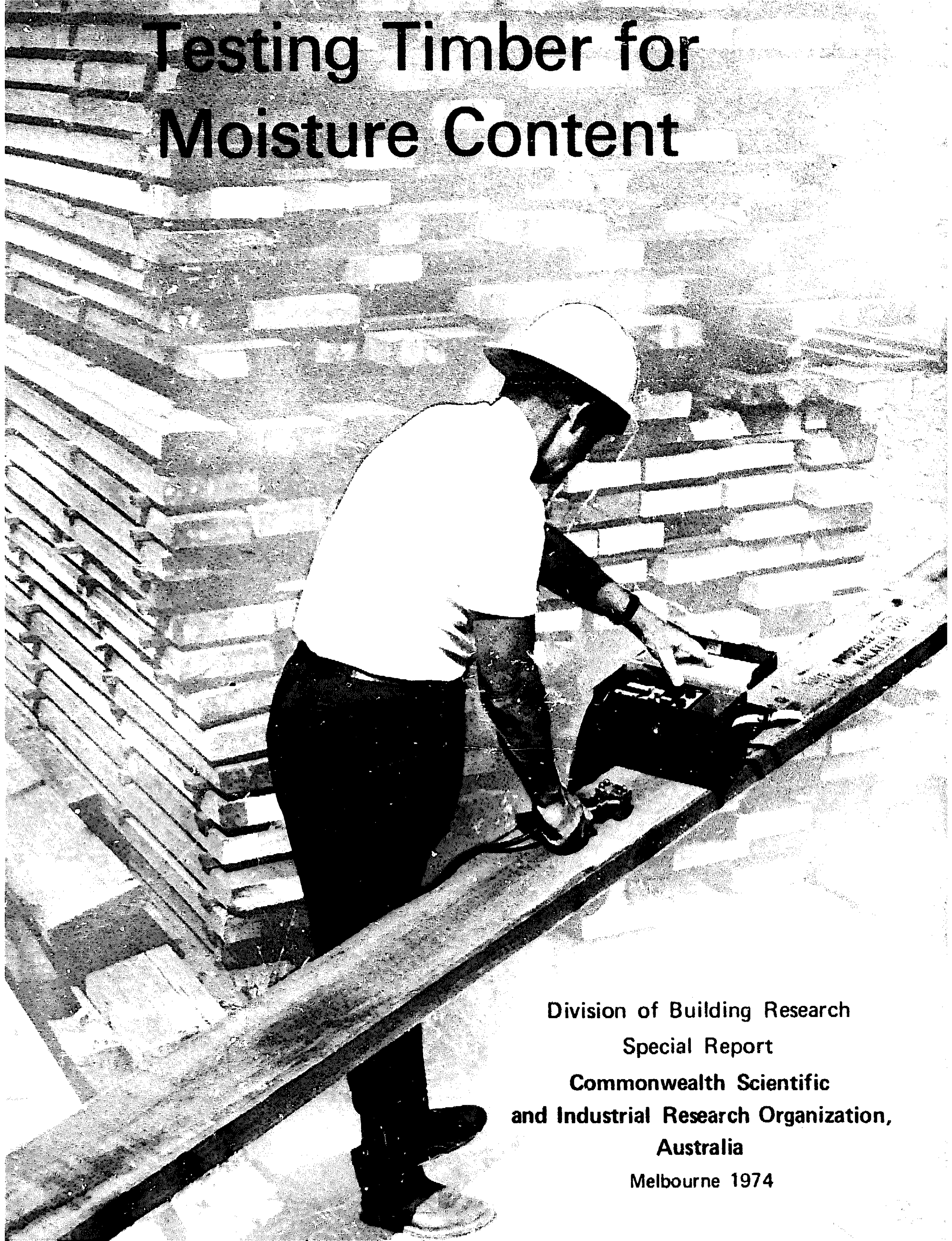

Division of Building Research

Special Report

Commonwealth Scientific and Industrial Research Organization, Australia

Melbourne 1974

This Special Report by the Division of Building Research replaces Trade Circular No. 50 on the methods commonly used for determining the moisture content of timber. New developments in electrodes and methods for measuring moisture content are described and more species have been added to the table of corrected moisture contents to be used with electrical moisture meters. Information on the use of sample boards in drying stacks as a means of checking the progress of drying is dealt with in Trade Circular No. 7.

The reader's attention is directed to the following Australian Standards which contain references to standard methods of testing the moisture content of solid timber, plywood, and particleboard. They are AS 1080, Part 1, (1972), AS O90.1 (1964) and AS O115 (1968) respectively.

Should further information be required on correction data, or on other aspects not covered in this report, inquiries will be welcomed and should be addressed:

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Testing Timber for Moisture Content

The importance of using wood at the correct moisture content should be recognized by woodworkers, particularly by those employed in the joinery and cabinet-making trades where dimensional changes due to changes in moisture content can produce serious defects in the product. When seasoned timber is used for purposes requiring small dimensional tolerances, fairly narrow limits must be placed on its moisture content because wood shrinks or swells with loss or gain of moisture. The ability to make accurate and rapid checks of moisture content, both during drying and immediately before use, will make possible its closer control and result in a better product.

A piece of wood exposed to the atmosphere will eventually reach a moisture content dependent on the temperature and relative humidity of the surrounding air. Both of these factors are governed by climate, but, as daily and seasonal fluctuations occur, the moisture content of correctly dried timber should be the average of the range produced by these fluctuations at the place where the wood is to be used. In this way, gross changes in moisture content are avoided and the remaining small fluctuations may be further reduced by the use of paint, varnish, or other surface treatment.

Oven drying is the most accurate and reliable method for finding the moisture content of timber unless it contains a high percentage of volatile oils, and it will always be used as a standard of reference. Its disadvantages lie in its time-consuming nature and the necessity for cutting samples.

Electrical moisture meters, depending for their operation on the effect of moisture on the passage of an electric current through the timber, have been developed to meet the need for instantaneous determination of moisture content and to avoid cutting the timber. Despite their limitations, these instruments are of great practical value and are used extensively.

Hygrometers are sometimes used to estimate the moisture content of veneer and wood particles. The readings obtained are almost independent of species and of the presence of preservatives in the wood. They do not provide rapid readings, and most types indicate surface moisture content only.

Other methods of moisture content determination either have serious weaknesses or are for laboratory application only. Included in the latter is the solvent distillation method which must be used on timbers containing a high percentage of volatile oils; it is not necessary for most timbers in common use in Australia.

Expression of Moisture Content

Whatever means are adopted for determining the moisture content of timber, it is necessary to have a standard basis for expressing the results of the tests.

In most countries the standard practice in the timber industry is to express the moisture content of wood as a percentage of the oven-dry weight, that is, the weight of wood substance. However, industries concerned with the chemical utilization of wood express moisture content as a percentage of the total weight of wood and water.

The formula for calculating the moisture content on the basis of percentage of oven-dry weight is:

$$\%\ \text{moisture content} = \frac{\text{Weight of moisture}}{\text{Oven-dry weight}} \times 100 = \left[\frac{\text{Total weight of wood and moisture}}{\text{Oven-dry weight}} - 1\right] \times 100.$$

The formula for calculating the moisture content on the basis of percentage of total weight is:

$$\%\ \text{moisture content} = \frac{\text{Weight of moisture}}{\text{Total weight of wood and moisture}} \times 100.$$

It should be noted that moisture content expressed as a percentage of oven-dry weight can be greater than 100% because there can be, especially in low-density species, more water than wood substance in a piece of green timber.

If expressed as a percentage of the total weight, the moisture will of course always be less than 100%.

The table below shows why the expression of moisture content as a percentage of the oven-dry weight is the more satisfactory of the two methods. It can be seen from the table that as a piece of wood dries, the loss of a given weight of water, repeated progressively, represents a uniform loss in percentage moisture content when the oven-dry weight is used as the basis of calculation, but not when the total weight basis is used.

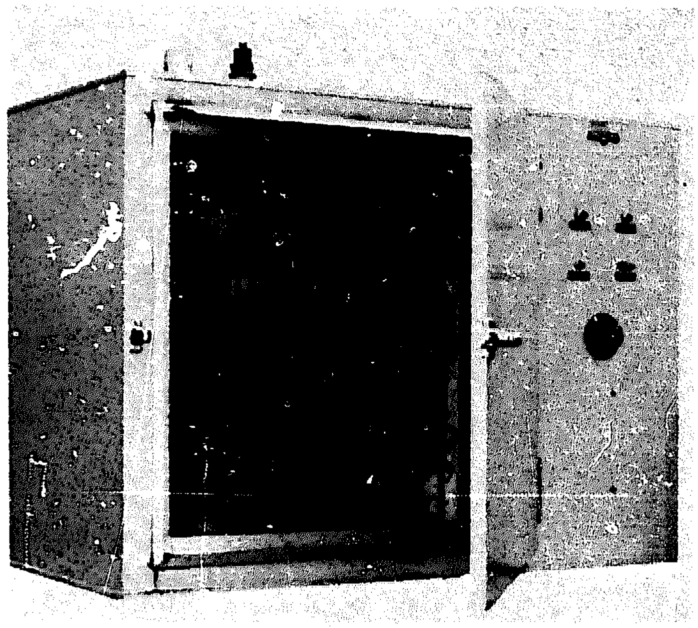
Calculation on the basis of oven-dry weight therefore, gives a much simpler and more direct picture of the progress of drying. This basis will be used throughout the remainder of this report.

Total weight (g)	Weight of dry wood substance (g)	Weight of moisture (g)	Loss of moisture (g)	Percentage moisture content: Oven-dry weight basis	Loss	Total weight basis	Loss
80	40	40	–	100	–	50	–
70	40	30	10	75	25	43	7
60	40	20	10	50	25	33	10
50	40	10	10	25	25	20	13
40	40	0	10	0	25	0	20

Testing by Oven Drying

Determination of moisture content by oven drying involves cutting a small piece of timber, weighing it, drying it in an oven until all the moisture is evaporated, reweighing it, and calculating the percentage moisture content. The following notes explain the equipment required, the details of procedure, and the precautions to be taken.

Equipment



Temperature controlled oven for drying sections.

The equipment required is simple, but must be maintained in good working order if accurate results are to be obtained.

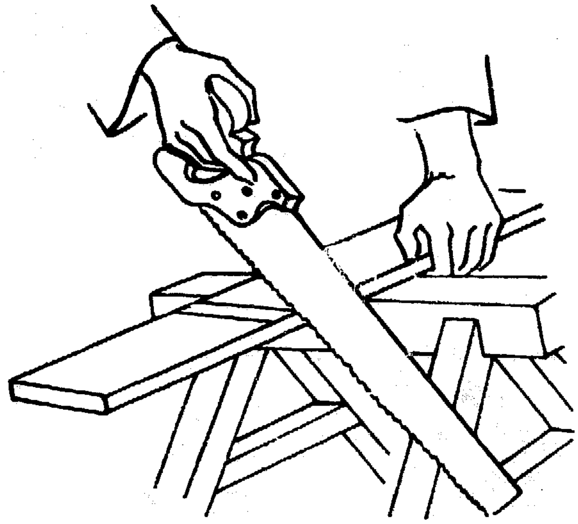
- **For cutting the sections** either a small hand or power saw may be used. It is important that the saw be sharp in order to avoid errors due to heating and partial drying while cutting.

- **For weighing the sections** a beam balance sensitive to 100 mg is satisfactory, together with a set of non-corrodible weights ranging from 100 g down to 100 mg. Use of the decimal system of weights simplifies calculations, and brass or stainless steel weights are less likely than iron weights to corrode and become inaccurate. If routine tests are to be carried out on many sections, much time can be saved by using a semi-automatic or fully automatic balance which eliminates partially or entirely the handling of weights. Such a balance must read to 100 mg and suitable types having a capacity of 500 g or more are readily available.

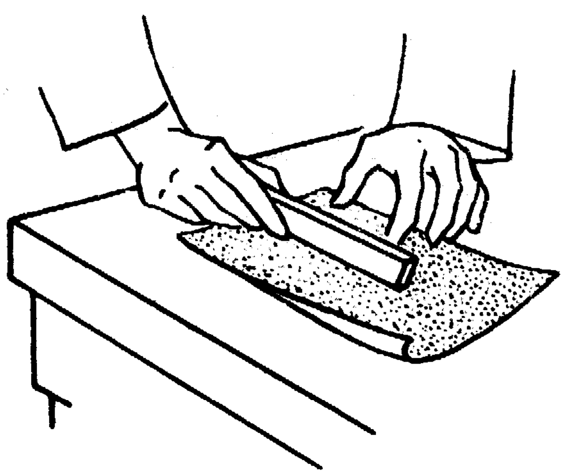
- **For drying the sections** a well-ventilated oven is needed, with shelves of wire mesh or other open material to allow free internal circulation of air, as otherwise the sections may not dry thoroughly. The temperature at any point inside the oven should neither exceed 105°C nor fall below 101°C; this degree of uniformity is generally achieved by using a double-shell construction or by the use of a circulating fan inside the oven.

Below 100°C the sections may not be dried completely, and above 105°C they may char.

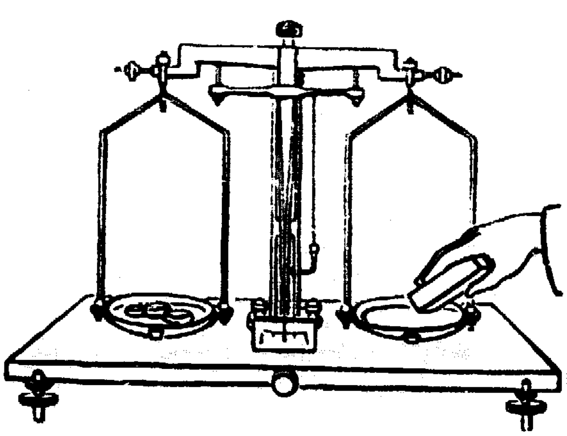
Suitable electrically heated ovens are available, and one with automatic temperature control should be obtained.



Cut a section.



Scrape the section.



Weigh the section.

Procedure and Precautions

- **To obtain an average moisture content of the board or piece to be tested, mark out a section across the full width of the piece and about 15 mm to 20 mm in length along the grain.**

The section should be at least 0.5 m from an end and not part of an overhanging end of the board in a drying stack. It is often less wasteful to cut the section from about the middle of the board, leaving two useful lengths instead of wasting 0.5 m or more. When using the type of balance recommended, the section should be sufficiently large to weigh at least 10 g *when dry* but preferably about 30 g.

- **Put an identifying number on the section and the same number on the adjacent material of the board.**

- **Saw the section off.**

- **Scrape all loose splinters and sawdust from the section.**

If not removed they may fall off during drying and cause error. Sandpapering may be substituted for scraping.

- **Weigh the section as soon as it is cut and scraped, and record the weight, together with the identifying number of the section.**

It is important that no drying should take place after the section is cut and before it is weighed. Green sections lose moisture rapidly in dry weather. A good rule is: 'Cut one section, weigh one section.' If sections have to be carried any distance to be weighed, they should be placed in a small air-tight container.

- **Place the section in an oven for drying.**

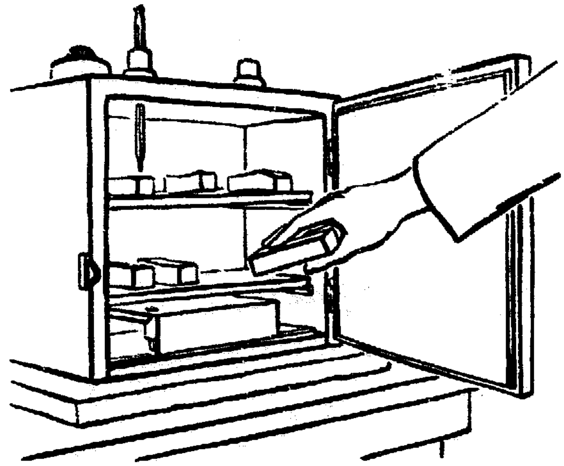
Be sure to maintain the oven temperature within the limits 101–105°C.

The time required to dry the sections will be greater for those cut from green than from partly dry timber, and greater if the oven is full than if it contains only a few sections. For sections of the size indicated, at least 24 hours will probably be necessary.

Do not overcrowd the oven, but leave spaces between the sections.

Do not add fresh sections to the oven if it contains sections almost ready for final weighing.

- **After 24 hours, remove the section from the oven, reweigh it, and record the weight.**



Place section in oven.

Sections must be weighed immediately after removal from the oven, as they re-absorb moisture from the air very quickly.

- **Replace the section in the oven and reweigh at intervals of 4 hours, until there is no further loss in weight. Record each weighing.**

Calculation of Moisture Content

In the procedure outlined, the initial weighing gives the total weight of wood substance and moisture in the section, and the final oven-dry weight is that of wood substance alone. By subtracting the oven-dry weight from the initial weight, the weight of moisture that was in the section when it was cut is obtained. Percentage moisture content is then calculated by the formula:

$$\%\ \text{moisture content} = \frac{\text{Weight of moisture}}{\text{Oven-dry weight}} \times 100 = \left[\frac{\text{Total weight of wood and moisture}}{\text{Oven-dry weight}} - 1\right] \times 100.$$

For example:

If initial weight = 63.7 g,
and oven-dry weight = 56.3 g,

Then weight of moisture = 7.4 g,
and moisture content = 7.4/56.3 x 100
= 13% (approx.).

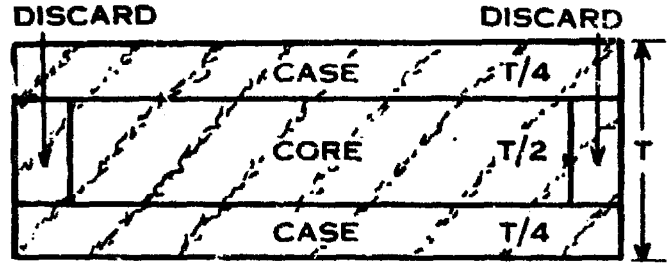
Alternatively, using the second formula,

moisture content = (63.7/56.3 – 1) x 100
= 13% (approx.).

Unless there is refinement of equipment and procedure beyond that suggested in this report the limit of accuracy of the results is about 0.5% to 1% moisture content. For ordinary purposes it is sufficient to know the moisture content to the nearest 1%, and so nothing is gained by calculating to a greater degree of accuracy.

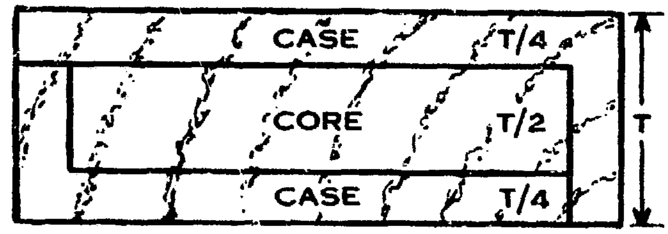
Testing

Moisture Distribution



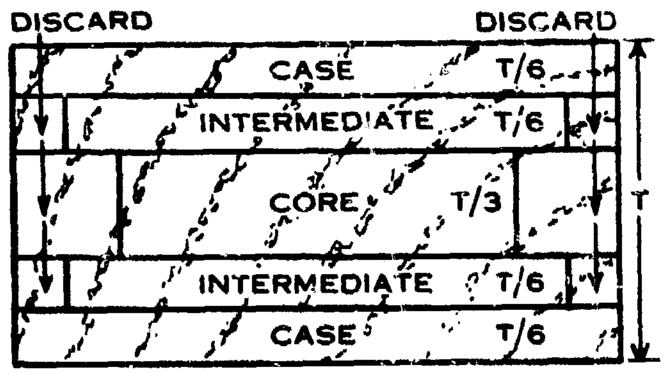
During drying, it is normal for the moisture content of the core of a board or plank to be higher than that of the surface layers. When the board is properly dried, however, the moisture content of the core and of the surface layers – or case – should be approximately the same.

To test the moisture distribution throughout the thickness of a board, the same general procedure as that already described is followed, but the test section is cut in the following manner.

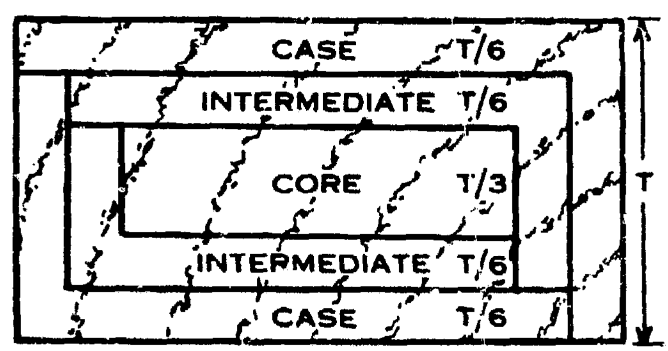


- **Cross-cut a section,** but make it about 30 mm in length along the grain instead of 15–20 mm as recommended for the normal test.

- **Mark out the section with pencil on the end grain,** as indicated in one of the accompanying diagrams, and identify each piece with a suitable number. It will be noted that different methods of marking are indicated; the one chosen will depend on the type of saw to be used and whether the moisture content of an intermediate zone is required in addition to the moisture content of the core and the case. Division into three zones is normally necessary only for fairly thick stock – say 40 mm or more in thickness.



- **Cut the sections along the marking lines** and proceed with scraping, weighing and drying as described previously. The two case pieces may be weighed separately or together depending on whether a comparison between the moisture contents of the two sides is required or simply an average case moisture content; this would also apply to the two intermediate pieces if these have been cut.



Electrical Moisture Meters

Determination of the moisture content of timber by electrical means can be made with instruments which fall into two main groups – those based on the relation of the moisture content to the electrical resistance of the timber (resistance-type) and those based on its relation to the dielectric properties of the timber (capacitance-type). Because their readings are influenced by the density of the board, capacitance-type meters are not as convenient as resistance-type meters for general use. However, they can be used at moisture contents below the range of the resistance-type meter.

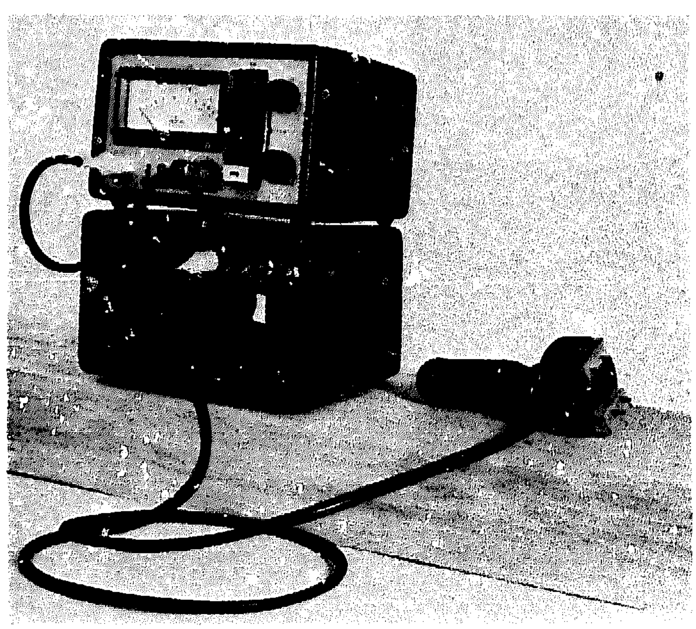
Both types lend themselves to permanent installation on machines or production lines where they can be arranged to check automatically each piece of timber moving through the machine or along a conveyor. In such an installation, timber above a chosen moisture content causes a lamp to flash, or the wet stock to be marked automatically. Permanent installations for monitoring the moisture content of the charge of a drying kiln are also available.

Resistance-type Meters

Oven-dry wood is an extremely good electrical insulator, but the electrical resistance falls rapidly as the moisture content increases until a moisture content of about 30% is reached. Above this, further decrease in electrical resistance is relatively small.

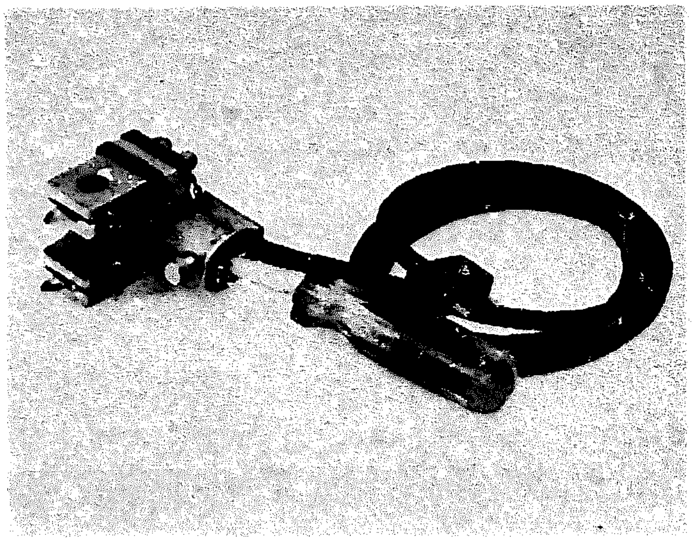
If the electrical resistance of a particular species of timber is known for different moisture contents, then the moisture content of any specimen of that species can be determined by measuring its electrical resistance. The relationship between electrical resistance and moisture content is, however, not identical for all species.

Because the electrical resistance of wood at normal air-dry moisture contents is very high, special instruments had to be developed to measure it. These instruments are portable, self-contained, and generally operate from batteries, although power supplies are available with some makes which can be plugged into an ordinary power point. They are simple to use, sufficiently robust for industrial use, and full details of procedure for operation, which vary slightly according to the make, are supplied by the makers.



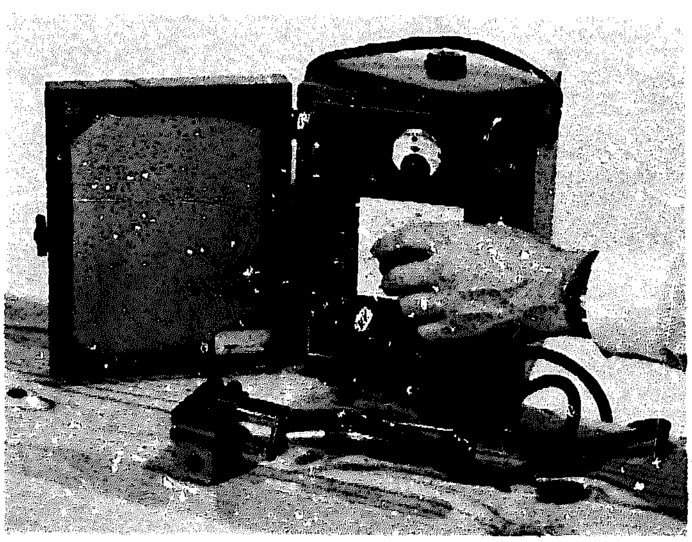
Resistance-type moisture meter with mains power unit.

The resistance is usually measured between probes or 'electrodes' driven into the wood. For ordinary use, especially when testing large quantities of timber, blade electrodes mounted on a special hammer are recommended.



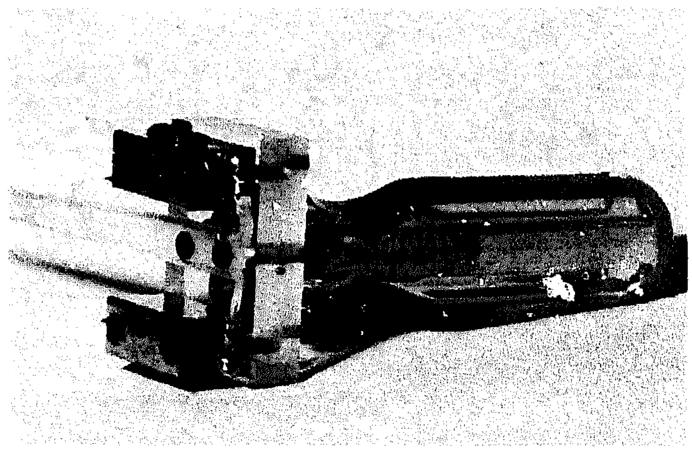
Blade electrode assembly.

The blades should be driven in to their full depth. They must be driven with their wide faces along the grain as shown and not across it, otherwise a good contact will not be obtained and this will result in a false reading.



Blade electrodes are driven with the grain of the timber.

For special purposes, needle electrodes using gramophone needles suitably tempered, may be found more satisfactory, particularly where it is desirable to minimize damage to the timber. Two styles of needle electrode assemblies are illustrated. The needles should be inserted so that the current flows in the direction specified in the instructions supplied with the meter. The direction of the flow of current between the needles can be ascertained by visual inspection. Looking at the end of the electrode assembly when the needles of the electrode are pointed towards the observer, it will be seen that the needles are mounted in pairs on two metal blocks. The current flows from the pair on one block to those on the other.



Needle electrode assembly.

Needles cannot be used on a hammer mounting like blade electrodes, because they would break when being driven. For use on soft timbers, a simple 'press-in' hand grip is used, but for harder timber it is necessary to use a light hammer.

A pair of nails driven into a piece of timber may be used as electrodes for a resistance-type meter. The nails should be spaced the same distance apart as the blades of the normal electrodes so that contact may be made with the nails by resting the tips of the blades on the heads of the nails, or

Moisture meter with needle electrodes and hammer.

alternatively a special nail electrode contactor like the one shown (top p. 10) may be obtained for this purpose.

Plain or insulated nail electrodes are used in special circumstances such as the measurement of core moisture contents of thick material or the carrying out of measurements on timber with moisture gradients. The depth to which the nails are driven will be governed by the depth at which the moisture content is to be measured.

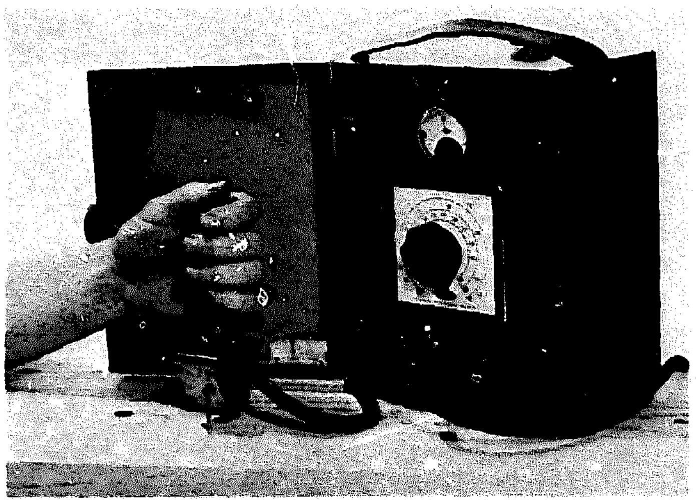
Insulation of the nails is necessary where it is desirable to avoid the effect of surface moisture. The insulation of a 3.75 X 75 mm nail is effected by slipping a 65 mm length of 3.50 mm inside diameter P.V.C. sleeving over the shank, leaving 10 mm of the pointed end exposed. Predrilling for the nails is necessary in this case. For 3.75 mm nails a hole should be drilled with a 2.8 mm bit to the depth where the moisture content is to be measured. The top of this hole should be enlarged with a 5.20 mm or larger bit to provide clearance for the P.V.C. sleeving, but leaving the last 10 mm at 2.8 mm diameter to contact the exposed tip of the nail. The partly insulated nail electrode is now inserted in the hole and gently driven the last 10 mm.

The sliding hammer electrode, which some manufacturers supply, affords a more convenient electrode system than the insulated nails. It consists of a sliding weight used to drive a pair of insulated steel spikes to a measurable depth in the timber as shown overleaf.

These spikes are coated with a tough enamel insulation, but the tips are left bare in order to perform the same function as the insulated nails. A gauge indicates the depth of penetration and the spikes may be readily extracted by means of the sliding weight.

Electrodes mounted in a compression cell are available for testing granular or finely divided material such as sawdust, chips, or fibre.

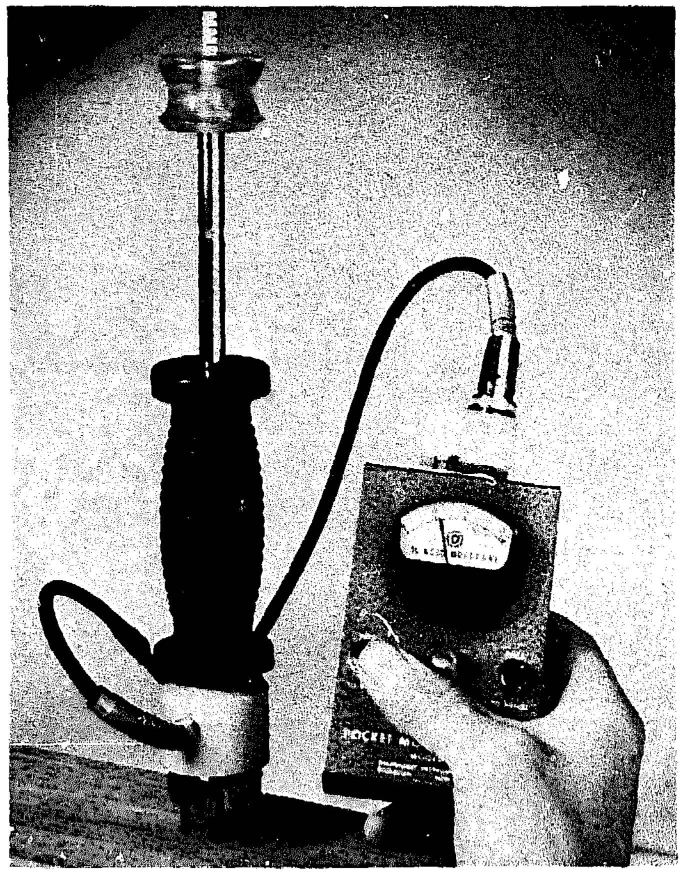
In the range below 24%, readings obtained directly from the moisture meter scale should be treated as approximate only, until corrected for species. Temperature corrections should also be applied if the temperature of the timber does not lie in the range 17°–23°C. Within the limits of 8 and 24%, results within 1% of the true value can normally be expected, provided that an average of several readings is obtained and corrected for temperature and species. (See the tables on pages 15 and 19–31). However, it should be borne in mind that at a given moisture content and temperature there is some variation of readings within a species, and that the calibration of instruments and the corrected moisture contents for various species are based on *average* figures for each species. Therefore, errors in excess of 1% may be obtained occasionally. If there is reason to suspect such an error, a check test by oven-drying can be made.



A special contactor is available for use with nail electrodes.

When measurements are made with a resistance-type meter in the low moisture content end of the range, i.e. below 8%, inaccuracies frequently occur because surface contamination of the insulation lowers its resistance. If any doubt exists regarding the resistance of the insulation, the electrodes should be plugged in and the meter turned on. Then, with the range selector set at the lowest range and the electrodes held free from any object, the indicated moisture content should be less than the minimum scale calibration. If the meter indicates some measurable value of moisture content, probably the insulation resistance is low as a result of moisture and/or dirt having accumulated on the insulation of the electrodes or plug and socket connecting them to the meter. Dirt and moisture may be removed with a clean dry cloth or, in bad cases, with a clean cloth dipped in anaesthetic ether (diethyl ether).

Above 30% moisture content the accuracy of measurements decreases markedly so that meter readings should be treated only as rough approximations to the true moisture content. At very high moisture contents, errors in the vicinity of 10% moisture content are to be expected.



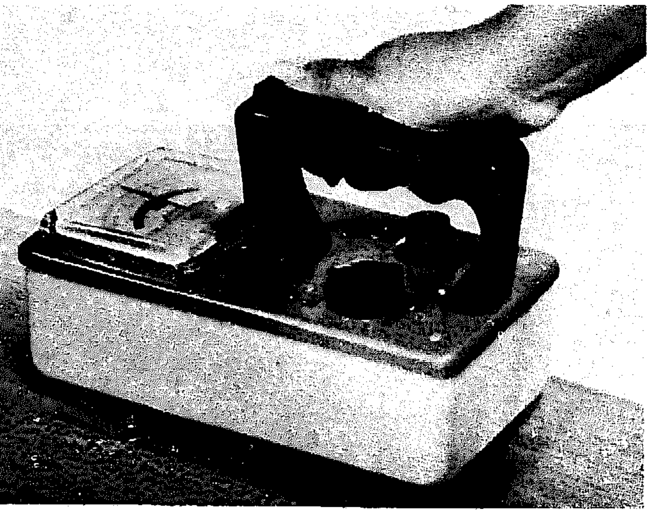
Sliding hammer electrode system and pocket size moisture meter.

;apacitance-type Meters

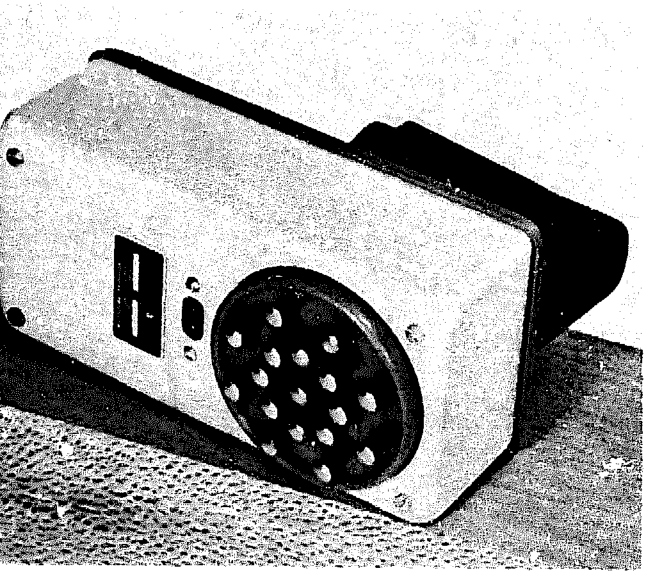
Moisture meters of the capacitance type ;pend for their operation on the change in ıe dielectric properties of timber with oisture content, and incorporate a radio-equency oscillator to supply the power to ırry out the measurements. These instru-ents are usually operated from batteries, ıt where portability is not required they ay be operated from power mains.

The electrodes of capacitance-type meters e usually in the form of four or more metal surfaces or buttons which are pressed against the timber to be tested. Electrodes mounted in a cell for testing granular or finely divided material are also available, as with resistance-type meters.

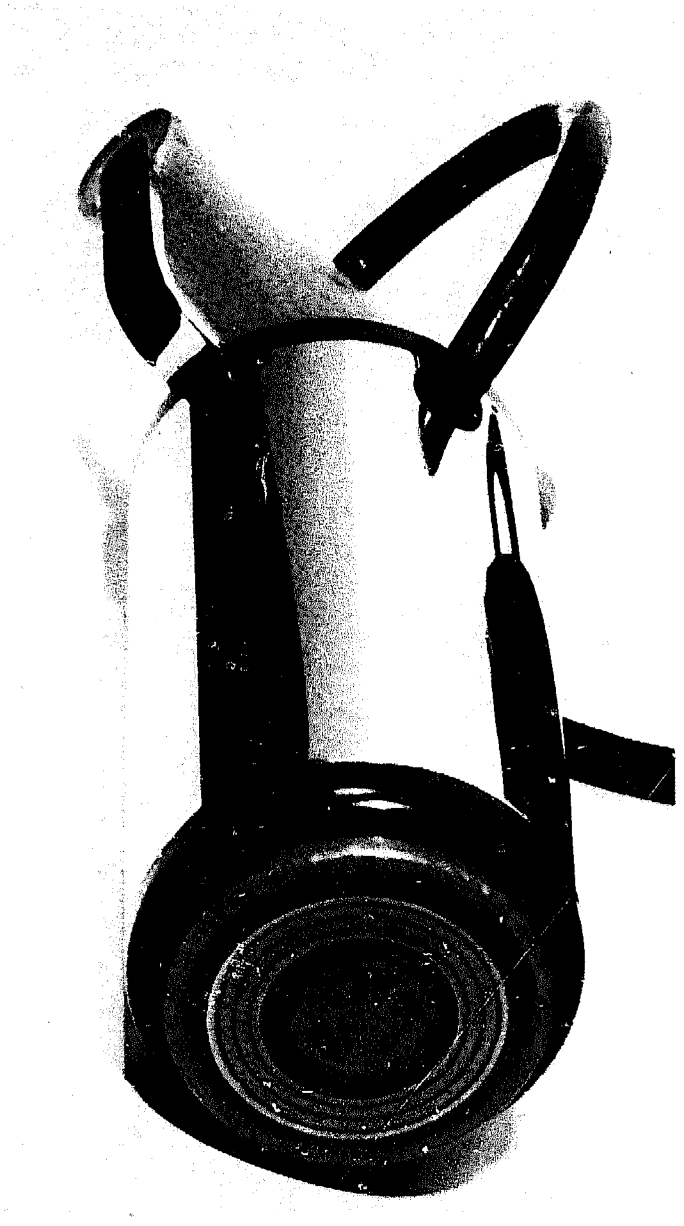
Capacitance meters are sometimes calibrated directly in percentage moisture contents, but usually the scales are marked with arbitrary numbers and reference tables for moisture content provided – but even so, calibration for a particular species is not as



Capacitance-type moisture meter.



Typical button electrodes on a capacitance-type moisture meter.



Low penetration electrode system of a capacitance moisture meter suitable for use with veneer.

satisfactory as with resistance-type meters. Readings given by capacitance-type meters depend on the density of the wood and there is commonly sufficient variation in density within a species to introduce errors if species calibration is adopted. However, some applications exist where the effects of variations in density are not large and readings can then be of real value. For example, when testing veneer at moisture contents below 6%, a capacitance-type meter is often the only type capable of giving a rapid indication. A few determinations made by the oven-drying method to calibrate the meter will enable the experienced operator to decide on two meter readings between which he knows a satisfactory product is achieved.

Whereas the lower limit of resistance-type moisture meters is about 6%, capacitance-type meters can be used to obtain readings down to zero moisture content. They may also be used over most painted or polished surfaces without error and without marking the finish.

Microwave moisture meters fall into the same group as capacitance meters but differ somewhat in that they use a very much higher frequency current to carry out the measurements. Their main advantage over the resistance and conventional capacitance meters lies in the fact that they do not respond to changes in resistance to the same degree as these meters, and so are less affected by the preservative salts used in treated timber. They are well suited to continuous monitoring of moisture content since there are no electrodes requiring physical contact with the timber being tested. However, their high cost limits their use to plants with a large throughput.

Factors Affecting Readings

Species and Density

The readings of resistance-type meters must be corrected for the species of timber being tested because the moisture content-resistance relationship varies from one species to another. This variation is not due so much to density changes but rather to changes in amount and type of extractives contained in the wood. On the other hand, capacitance-type meter readings are affected mainly by density variations because this meter measures the amount of water per unit volume in the wood, and, as moisture content is proportional to the amount of water per unit weight of the wood, the relationship between weight and volume, in other words, the density, is the property relating capacitance meter readings to moisture content. Species calibration is, therefore, satisfactory for the resistance type but not as satisfactory for the capacitance type, since there is commonly considerable variation in density between specimens of the same species.

In the past, a moisture content–resistance relationship for Douglas fir was established in the U.S.A. This relationship is still used both in Australia and the U.S.A. for the calibration of resistance-type meters. However, it should be remembered that this calibration is not accurate for locally grown Douglas fir, and the correction data for this timber are supplied in the main table of corrected moisture contents.

The correction data given in this table are applicable only to readings obtained from resistance-type meters calibrated for nominal resistance values for Douglas fir. As this basis of calibration is by no means universal, intending purchasers of resistance-type moisture meters calibrated on a different basis should satisfy themselves that adequate correction data are supplied by the manufacturers.

If correction data are required for a ecies of wood not listed in the tables or r meters not calibrated for Douglas fir, the llowing procedure will give reasonably liable results for a limited range of oisture contents.

) From sound material, free from moisture adients and at roughly the desired moisture ntent, cut four or five specimens to finish pproximately 125 mm long, 75 mm wide nd 15 mm thick. Each specimen should be ken from a different board, if possible, and n identifying mark added.

2) Take a moisture meter reading (M.M.R.) n each side of every specimen and note the verage reading for each specimen.

3) Obtain the moisture content (M.C.) of ach specimen by oven-drying as described reviously. It will not be necessary to ection the specimen unless its weight xceeds the range of the balance or weights vailable.

In the example given in the table below, he moisture contents calculated by oven-rying represent the corrected moisture meter eadings for each specimen. An average of

pec. no.	Average M.M.R. (%)	Original wt., a (g)	Oven-dry wt., b (g)	Corr. M.M.R. = M.C.(%) $= \frac{(a-b)}{b} \times 100$
1	12.4	120.0	104.9	14.4
2	13.2	118.5	103.7	14.3
3	12.8	120.7	105.6	14.3
4	12.8	118.4	103.5	14.4

he M.M.R.'s and these calculated moisture ontents, rounded off to the nearest whole umber, gives 14% as the actual or corrected alue for a meter reading of 13% and it vould be sufficiently accurate to assume that he 1% difference between these averages vould be valid at meter readings of 12–14% nclusive as indicated.

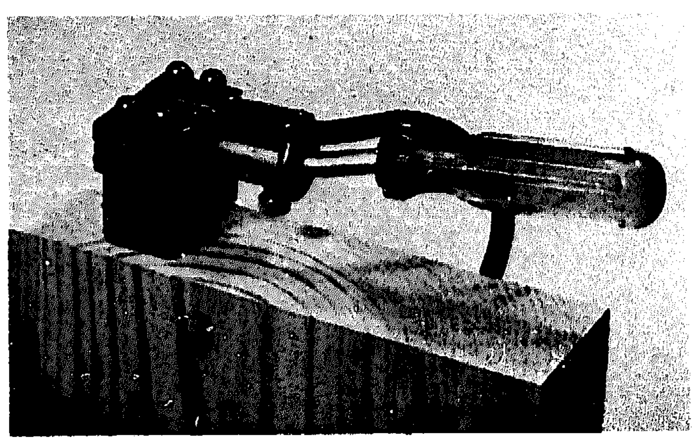
M.M.R.(%)	12	13	14
Corr. M.C.(%)	13	14	15

If extension of the range is required, further tests should be carried out with material at higher or lower moisture contents.

Moisture Distribution

The moisture in a board is not always distributed uniformly, and when the moisture content varies along the length, across the width, or through the thickness of the board, we say that a moisture gradient is present. Moisture gradients are produced during the drying of timber by the outer layers losing moisture more rapidly than the core. Surface wetting of an otherwise dry board will produce a reversed moisture gradient where the exterior layers are wetter than the core. Wet patches may also be present in otherwise dry material.

If the board to be tested has a severe moisture gradient or wet patches, readings taken in the ordinary way with either type of meter will be misleading. They will not be an average for the whole board, and this type of error tends to be greater as the



Measuring moisture gradients on a freshly cut cross section.

thickness of the board increases. Moisture gradients due to a wet core can be detected and measured with a resistance-type meter by driving a pair of nail electrodes, or the spikes of a sliding hammer electrode, into the board 5 mm or more at a time and taking meter readings as described previously at each penetration until the nails or spikes reach the centre of the board. Another method which will also detect and measure reversed moisture gradients depends on driving blade or nail electrodes into the end grain of a freshly cut cross section of the board. A series of readings taken at various positions between the outside and centre of the section will reveal the type and severity of a moisture gradient.

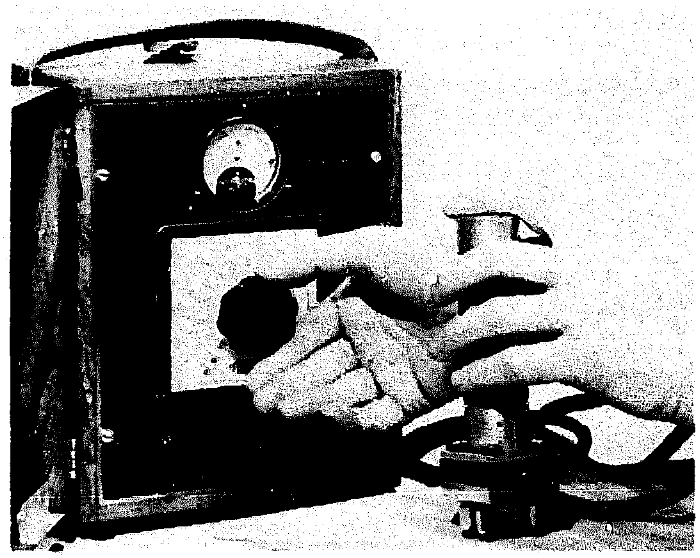
Readings can be obtained with a capacitance-type meter by resting the electrodes on nails driven into the timber. This is not recommended, however, as the calibration will no longer be valid and a separate investigation will be required to recalibrate the instrument. The question of which electrodes to rest on the nails could also become a problem, especially where button electrodes are used. For this reason moisture gradients are more easily determined with a resistance-type meter.

Unless the precautions described are taken, average readings may not be obtained on timber with severe moisture gradients, the reason being that resistance-type moisture meters indicate the highest moisture content with which the electrodes are in contact.

Thickness of Specimen

The electrodes for testing sawn timber usually have blades about 10 mm long, intended to give an average moisture content of stock about 25 mm thick. Tests of thicker stock should always be supplemented with tests of moisture distribution, but tests of thinner stock will give accurate readings provided the stock is thick enough to allow a firm contact and moisture gradients are not severe.

When veneer is to be tested, reliable results may be obtained by means of needle electrodes inserted in the sheet so that the current flow is along the grain. The electrodes should be lifted clear of the table or bench supporting the veneer and the corrections for temperature and species should be applied to the meter reading obtained as for thicker material.



Needle electrodes used for veneer measurements.

When veneer less than about 1.5 mm thick is to be tested, better contact will be obtained by stacking several sheets of similar moisture content and piercing them all with the needle electrodes as if they were a single sheet.

The effective depth of measurement of the electrodes of most capacitance-type moisture meters varies with different designs, and reference to the instructions should be made to obtain this information. Two types were shown on p. 11 – one for testing material up to 50 mm in thickness and one for testing veneer up to 3 mm thick.

Measurements with these electrodes are generally confined to one side of the board or sheet of veneer unless moisture gradients are suspected, then it would be advisable to take readings on both sides, especially when testing thick material. An alternating electric field, which penetrates the wood to a predetermined depth, is produced at the electrodes and the meter reading indicates the amount of water in the wood penetrated by

Temperature correction data for use with resistance-type moisture meters

Meter reading (%):	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
Temp. of wood when tested (°C)											**Meter reading corrected for temperature***											
0	8	9	10	11	12	14	15	16	17	18	20	21	22									
5	7	8	9	11	12	13	14	15	16	17	19	20	21	22								
10	7	8	9	10	11	12	13	14	15	17	18	19	20	21	22							
15	6	7	8	10	11	12	13	14	15	16	17	18	19	20	21	22						
20	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22					
25		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22				
30		6	7	8	9	10	11	12	12	13	14	15	16	17	18	19	20	21	22			
35			6	7	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22		
40			6	6	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	21	22	
45				6	7	8	9	9	10	11	12	13	14	15	16	17	18	18	19	20	21	22
50					6	7	8	9	10	11	11	12	13	14	15	16	17	18	19	19	20	21
55					6	6	7	8	9	10	11	12	13	13	14	15	16	17	18	19	20	20
60						6	7	8	8	9	10	11	12	13	14	15	15	16	17	18	19	20
65							6	7	8	9	10	10	11	12	13	14	15	16	16	17	18	19
70							6	6	7	8	9	10	11	12	12	13	14	15	16	16	17	18
75								6	7	8	8	9	10	11	12	12	13	14	15	16	17	17
80									6	7	8	9	10	10	11	12	13	13	14	15	16	17
85									6	7	7	8	9	10	11	11	12	13	14	14	15	16
90										6	7	8	8	9	10	11	11	12	13	14	15	15
95										6	6	7	8	9	9	10	11	12	12	13	14	15
100											6	7	7	8	9	10	10	11	12	13	13	14

* Advantage has been taken of the work of Keylwerth and Noack, published in *Holz als Roh- und Werkstoff* 14, 162 (May 1956) in the compilation of this data.

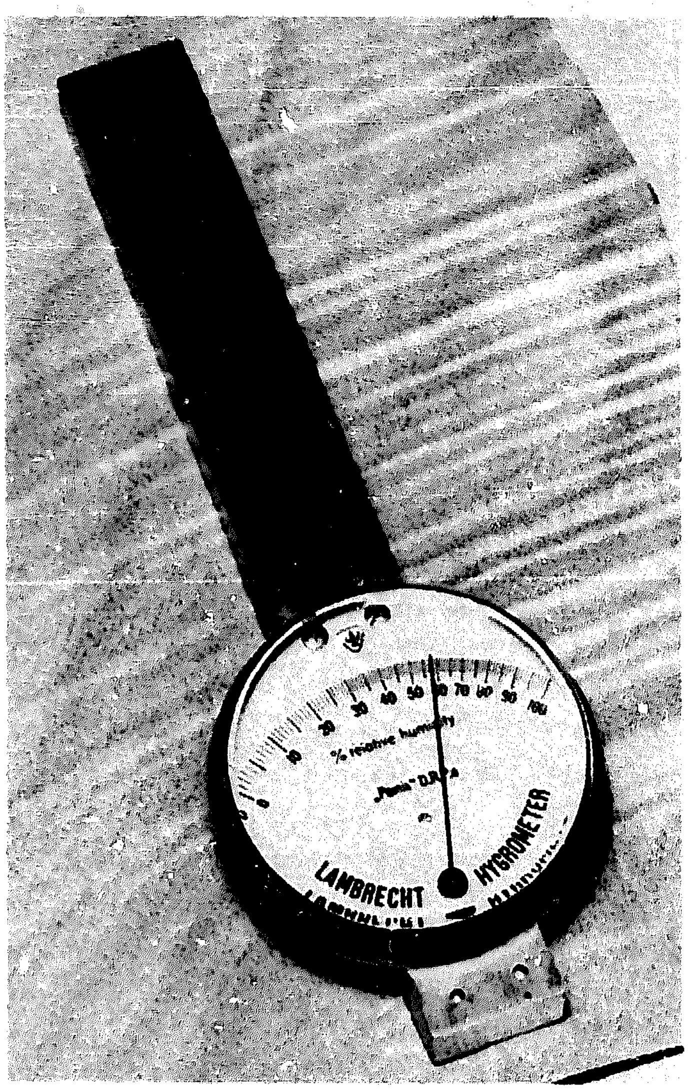
Temperature corrections should be applied before species corrections.

the field. However, the presence of moisture gradients or surface wetting can make these indications very misleading because the surface layer of the wood on which the electrodes rest will have a disproportionately large influence on the meter reading.

The button type of electrode, shown on p. 11, produces a field with a penetration of 25 mm, and therefore it will test to the centre of a 50-mm board. Tests on timber less than 25 mm thick can be carried out by stacking boards of the same moisture content to obtain a minimum thickness of 25 mm and applying sufficient pressure to the electrodes to hold the boards in close contact.

For testing thin material such as veneer, 3 mm or less in thickness, a capacitance-type moisture meter with a special veneer electrode (see p. 11) is available with which readings may be taken on single sheets of 3 mm veneer, or several thinner sheets of similar moisture content, stacked to a minimum thickness of 3 mm. Indications on 6 mm thick material would also be possible by averaging several readings taken on both sides of the sheets.

Another method of measuring moisture content which is applicable to veneer, is based on the measurement of the relative humidity of a small volume of air adjacent to the surface of the sheet. Hygrometers suitable for this purpose are available commercially. The readings of these meters are not appreciably affected by chemical treatment, and they require no species corrections, but in the tests conducted at this Division, approximately 10 minutes was required to obtain stable readings. It was also found that some means of sealing the air space enclosed by the instrument and the veneer during the time taken to obtain a reading was essential for accuracy.



Surface hygrometer in use on veneer.

As surface hygrometers measure case moisture contents only, the severe gradients which may be present in freshly dried veneers can lead to incorrect results.

Temperature

The electrical resistance of wood varies with temperature, and readings made with resistance-type moisture meters will be too high if the timber is hot, and too low if it is very cold. Most resistance-type meters are calibrated for testing timber at 20°C and corrected readings for other temperatures are set out in the table on p. 15. Readings should be corrected for temperature before being corrected for species.

Temperature corrections are important when moisture content measurements are being made in a kiln during drying. Under these circumstances, temperature measurements may be made with thermocouples embedded in holes drilled into the boards. The leads from the thermocouples are brought outside the kiln and connected to a suitable instrument in much the same way as leads are brought out to monitor the moisture content of boards in the kiln. In some instances, when drying is nearly complete, the dry-bulb temperature in the kiln may be sufficiently accurate for the purpose.

No temperature corrections have been established for capacitance-type moisture meters, and the instructions issued with some meters indicate that none are necessary at temperatures between 10 and 43°C. However, it would be well worthwhile to make an independent check. Choose a species commonly tested and take meter readings on several samples at room temperature and then at other temperatures at which measurements may be required. Care should be taken to prevent the gain or loss of moisture in the interim by sealing the samples in suitable air-tight wrappings of plastic or aluminium foil.

Contact

Firm contact is essential for reliable readings. In general, needle or blade electrodes should be driven to their full depth into sound wood. Pressure-type electrodes for either type of meter should be used on flat, machined surfaces only and adequate pressure applied to ensure good contact. Poor contact with any type of electrodes will ult in low readings.

servatives, Glues, etc.

Readings of resistance-type moisture eters will generally be inaccurate if the od has been treated with preservatives or the electrodes approach or penetrate glue es. However, many hot-pressed synthetic e lines have little effect provided they are ly cured and the moisture content of the rounding wood is less than 15%. It has o been found that veneer treated by the -diffusion process in a 3% solution of rax will still give reasonably accurate indi- tions at moisture contents below 15%. The e of the error will depend on the type of eservative or glue used, as well as on the isture content of the wood. If the timber s been treated with a preservative, the ror will depend partly on the quantity tained in the wood.

The table below shows the effect of essure treatment with a waterborne preser- tive salt solution on electrical resistance oisture meter readings. The effect of two ch salts was investigated using radiata pine the test species. The treatments consisted :

A copper-chromium-arsenic (CCA) preserva- ve salt. The average retention after treat- ent with this salt was 11.33 kg/m^3, or 707 lb/ft^3 of dry salt.

A fire retardant preservative for fence sts. The average retention after treatment with this salt was 12.67 kg/m^3, or 0.791 lb/ft^3 of dry salt.

No significant difference was detectable between the effects of the two treatments on electrical resistance moisture meter readings. However, compared with readings on untreated material the error produced by either of these preservative salts is quite marked. As can be seen from the table, it represents 2% at the lowest moisture content, and 4% at the highest.

In general, meter readings taken on timber treated with a waterborne preservative salt tend to be higher than those taken on the same untreated material at the same moisture content. In other words, the timber is generally drier than the meter readings would indicate. On the other hand, oily preserva- tives tend to produce the opposite effect.

If any doubt exists regarding the accuracy of moisture content determinations ascer- tained by means of a moisture meter, either the oven-drying method or the solvent distillation method should be used. Usually, the oven-drying method will provide sufficient accuracy if the instructions given in the section headed 'Testing by Oven Drying' are followed. The oven-drying method fails when volatile oils are present in significant quantities in the wood. Timber that has been pressure-treated with creosote or other oily preservatives would contain sufficient volatile oils to render the oven- drying method inaccurate.

eter reading (% moisture content)	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
orrected moisture content r untreated radiata pine	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
orrected moisture content r radiata pine treated ith CCA or fire retardant eservative salt	8	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22

Precautions in the Use of Moisture Meters

- Follow in detail the instructions for the particular instrument used.

- Test the electrode circuit regularly by bridging the electrodes with your hand; the meter should then show an apparent high moisture content. Handling of the insulation of the electrode assembly should, however, be avoided as perspiration and dirt will produce errors at low moisture contents.

- Switch off batteries when the instrument is not in use.

- Take care not to injure the insulation of the flexible leads. Check insulation resistance as described in the section headed 'Electrical Moisture Meters'.

- Straighten blade electrodes with a small pair of pliers as soon as they begin to bend.

- Do not take an instrument into a hot kiln.

- Keep the instrument dry and clean.

- Treat the instrument with every possible care and do not subject it to mechanical shock.

- Take special precautions when testing thick or very thin material.

- Take several readings in different parts of a board to check evenness of drying.

- Do not test over obvious surface checks.

- Do not test timber with a wet surface without using insulated electrodes.

- Place less reliance on readings obtained on plywood constructed with glues mixed with water even though the glue line may seem to be thoroughly dry.

- Place less reliance on readings obtained from timber suspected of having been treated with chemicals or having had prolonged contact with sea water; use the oven-drying method if greater accuracy is required.

- Apply the species correction if a resistance-type meter is used. Use the appropriate species scale of a capacitance-type meter.

Species correction data for electrical resistance moisture meters calibrated for Douglas fir

Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Meter reading (% moisture content):																				
		Corrected moisture content																		
albizzia, New Guinea	*Albizia falcataria*	7	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
albizzia, Solomon Is.	*Albizia falcataria* and *A. minahassae*	6	7	7	8	9	10	10	11	12	13	14	14	15	16	17	17	18	19	20
alder, blush	*Sloanea australis* syn. *Echinocarpus australis*	6	7	8	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	19
alder, brown	*Ackama paniculata* syn. *A. muelleri*	8	9	10	10	11	12	13	13	14	15	15	16	17	18	18	19	20	20	21
alder, rose	*Ackama australiensis* syn. *A. quadrivalvis*	7	8	9	10	10	11	12	13	13	14	15	16	16	17	18	18	19	20	21
almond, Indian	*Terminalia pterocarpa*	7	7	8	8	9	10	10	11	12	12	13	14	14	15	15	16	17	–	–
amberoi	*Pterocymbium beccarii*	6	7	7	8	9	9	10	11	12	12	13	14	14	15	16	17	17	18	19
amoora, New Guinea	*Amoora cucullata*	5	6	7	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
antiaris, New Guinea	*Antiaris toxicaria*	7	8	9	10	11	12	12	13	14	15	16	17	18	19	20	21	21	22	23
apple, black	*Planchonella australis* syn. *Sideroxylon australe*	9	9	10	10	11	12	12	13	14	14	15	15	16	17	17	18	19	19	20
ash, alpine	*Eucalyptus delegatensis* syn. *E. gigantea*	8	9	10	11	12	13	14	15	16	17	18	18	19	20	21	22	23	24	25
ash, Bennett's	*Flindersia bennettiana*	7	8	9	10	11	11	12	13	14	15	15	16	17	18	19	19	20	21	22
ash, Crow's	*Flindersia australis*	8	9	10	10	11	12	12	13	14	14	15	16	17	17	18	19	20	20	21
ash, European	*Fraxinus excelsior*	8	8	9	10	11	12	12	13	14	14	15	16	17	18	18	19	20	21	21
ash, hickory	*Flindersia ifflaiana*	8	8	9	10	11	12	12	13	14	14	15	16	17	18	18	19	20	20	21
ash, mountain	*Eucalyptus regnans*	8	9	10	11	12	13	14	15	16	17	18	18	19	20	21	22	23	24	25
ash, red	*Alphitonia excelsa*	6	7	8	8	9	10	11	11	12	13	14	14	15	16	16	17	18	18	19
ash, scaly	*Ganophyllum falcatum*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	23	24
ash, silver, New Guinea	*Flindersia amboinensis*	7	8	9	10	11	11	12	13	14	15	16	17	18	19	19	20	21	22	23
ash, silver, northern	*Flindersia pubescens*	8	9	10	10	11	12	13	13	14	15	16	16	17	18	18	19	20	20	21
ash, silver, Queensland	*Flindersia bourjotiana*	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24
ash, silver, southern	*Flindersia schottiana*	8	9	10	11	12	13	14	15	15	16	17	18	19	20	20	21	22	23	24
ash, silvertop	*Eucalyptus sieberi* syn. *E. sieberana*	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
aspen, hard	*Acronychia laevis*	6	7	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19

Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Standard trade common name (AS 1148, 1971) (AS O2, 1970)	**Trade reference name**	**Corrected moisture content**																		
Baltic, red	*Pinus sylvestris*	11	12	13	14	15	16	16	17	18	19	20	20	21	22	23	24	24	25	26
Baltic, white	*Picea abies* syn. *P. excelsa*	8	9	10	11	12	13	14	15	16	17	18	20	21	22	23	24	25	26	27
basswood, Fiji	*Endospermum macrophyllum*	6	6	7	8	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18
basswood, New Guinea	*Endospermum medullosum*	7	7	8	9	10	11	12	12	13	14	15	16	16	17	18	19	20	20	21
basswood, Solomon Is.	*Endospermum medullosum*	5	6	6	7	8	9	9	10	11	11	12	13	13	14	15	16	16	17	18
basswood, silver	*Tieghemopanax elegans* syn. *Panax elegans*	8	9	10	10	11	12	12	13	14	15	16	16	17	18	18	19	20	21	22
bauvudi	*Palaquium fidjiense* and *P. vitilevuense*	7	7	8	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	18
bean, black	*Castanospermum australe*	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	25
beech, European	*Fagus sylvatica*	7	8	9	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20	21
beech, myrtle	*Nothofagus cunninghamii*	7	8	9	10	11	11	12	13	14	14	15	16	17	18	18	19	20	21	22
beech, silky	*Citronella moorei* syn. *Villaresia moorei*	9	9	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
beech, silver	*Nothofagus menziesii*	9	9	10	10	11	12	12	13	13	14	14	15	16	16	17	17	18	19	19
beech, Wau	*Elmerrillia papuana*	8	9	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
beech, white (Queensland)	*Gmelina leichhardtii*	7	8	9	10	11	12	13	14	14	15	16	17	18	19	19	20	21	22	23
beech, white (Fiji)	*Gmelina vitiensis*	6	7	8	9	10	10	11	12	13	14	15	15	16	17	18	19	20	20	21
birch, white	*Schizomeria ovata*	8	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20	21	22	22
bishop wood	*Bischofia javanica*	6	7	8	8	9	10	11	12	12	13	14	15	16	16	17	18	19	19	19
blackbutt	*Eucalyptus pilularis*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
blackbutt, Western Australian	*Eucalyptus patens*	8	9	10	11	12	12	13	14	15	16	17	18	19	20	21	22	23	24	25
blackwood	*Acacia melanoxylon*	8	9	9	10	11	12	12	13	14	15	16	16	17	18	19	20	20	21	22
bloodwood, red	*Eucalyptus gummifera* syn. *E. corymbosa*	9	10	10	11	12	13	14	15	15	16	17	18	19	19	20	21	22	23	23
bollywood	*Litsea reticulata*	7	7	8	9	10	11	12	12	13	14	15	16	16	17	18	19	20	21	22
box, black	*Eucalyptus largiflorens* syn. *E. bicolor*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
box, brush (New South Wales)	*Tristania conferta*	5	6	7	7	8	8	9	9	10	11	11	12	12	13	14	–	–	–	–
box, brush (Queensland)	*Tristania conferta*	6	7	8	9	9	9	10	10	11	11	12	12	13	13	14	–	–	–	–
box, grey	*Eucalyptus hemiphloia*	9	10	11	12	12	13	14	14	15	16	17	17	18	19	20	20	21	22	23
box, grey, coast	*Eucalyptus bosistoana*	8	9	10	11	11	12	13	14	14	15	16	17	18	18	19	20	21	22	22
box, kanuka	*Tristania laurina*	8	8	9	10	11	12	12	13	14	15	16	16	17	18	19	20	20	21	22

Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Meter reading (% moisture content): → Corrected moisture content																			
boxwood, New Guinea	*Xanthophyllum papuanum*	7	7	8	9	9	10	11	12	12	13	14	15	15	16	17	17	18	19	20
boxwood, yellow	*Planchonella pohlmaniana* syn. *Sideroxylon pohlmanianum*	9	9	10	10	11	12	12	13	14	14	15	15	16	17	17	18	19	19	20
brachychiton, New Guinea	*Brachychiton carruthersii* syn. *Sterculia carruthersii*	6	7	7	8	8	9	9	10	11	11	12	12	13	13	14	15	–	–	–
bridelia	*Bridelia minutiflora*	7	8	9	10	12	13	14	15	16	17	18	19	21	22	23	24	25	26	27
brigalow	*Acacia harpophylla*	7	8	9	10	11	11	12	13	14	15	16	17	18	19	20	20	21	22	23
brownbarrel	*Eucalyptus fastigata*	6	7	8	9	10	11	12	12	13	14	15	16	17	18	18	19	20	21	22
buchanania	*Buchanania macrocarpa*	5	6	7	8	9	10	10	11	12	13	14	14	15	16	17	18	19	19	20
burckella, Solomon Is.	*Burckella obovata*	5	6	6	7	8	8	9	9	10	11	11	12	13	13	14	–	–	–	–
butternut, rose	*Blepharocarya involucrigera*	6	7	8	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19	19
calophyllum, Fiji	*Calophyllum leucocarpum* and *C. vitiense*	7	8	9	10	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23
calophyllum, New Guinea	*Calophyllum papuanum*	6	7	8	9	10	12	13	14	15	16	17	18	19	20	21	22	23	24	26
calophyllum, Solomon Is.	*Calophyllum kajewskii* and *C. vitiense*	6	6	7	8	9	10	10	11	12	13	14	14	15	16	17	18	18	19	20
camphorwood, New Guinea	*Cinnamomum* spp.	7	8	9	10	10	11	12	13	13	14	15	16	17	17	18	19	20	21	21
campnosperma, New Guinea	*Campnosperma brevipetiolata*	6	7	8	9	10	10	11	12	13	14	15	16	16	17	18	19	20	20	21
campnosperma, Solomon Is.	*Campnosperma brevipetiolata*	4	5	6	7	8	8	9	10	11	12	13	14	14	15	16	17	18	19	20
canarium, New Guinea	*Canarium oleosum*	6	7	8	9	9	10	11	12	13	13	14	15	16	17	17	18	19	20	21
canarium, Fiji	*Canarium vitiense, C. smithii* and *Canarium* spp.	6	7	8	9	10	11	11	12	13	14	15	16	16	17	18	19	20	20	21
canarium, Solomon Is.	*Canarium salomonense*	5	6	7	7	8	9	9	10	11	11	12	13	13	14	15	16	16	17	18
carabeen, yellow	*Sloanea woollsii*	7	8	9	9	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20
cathormion, New Guinea	*Cathormion umbellatum* subsp. *umbellatum*	5	6	6	7	8	8	9	9	10	10	11	12	12	13	–	–	–	–	–
cedar, red	*Toona australis* syn. *Cedrela toona* var. *australis*	8	9	10	11	12	13	14	16	17	18	19	20	21	22	23	25	26	27	27
cedar, western red	*Thuja plicata*	6	7	8	8	9	10	11	12	12	13	14	15	16	16	17	18	19	20	20
cedar, white	*Melia azedarach* var. *australasica* syn. *Melia dubia*	8	9	10	11	12	13	14	15	16	17	18	18	19	20	21	22	23	24	24
celtis, New Guinea	*Celtis nymanni* and *Celtis* spp.	7	7	8	9	9	10	11	12	12	13	14	14	15	16	17	17	18	19	19

Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Meter reading (% moisture content):																				
		Corrected moisture content																		
celtis, Solomon Is.	*Ceitis philippinensis*	5	6	7	7	8	8	9	9	10	11	11	12	12	13	14	–	–	–	–
cheesewood, white (New Guinea)	*Alstonia scholaris*	7	8	9	9	10	11	12	13	13	14	15	16	16	17	18	19	20	20	21
cheesewood, white (Queensland)	*Alstonia scholaris*	6	7	8	9	10	10	11	12	13	14	15	15	16	17	18	19	20	20	21
cheesewood, white (Solomon Is.)	*Alstonia scholaris*	5	6	7	7	8	9	10	10	11	12	12	13	14	15	15	16	17	17	18
cleistocalyx	*Cleistocalyx myrtoides*	7	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24
	syn. *Acicalyptus myrtoides*																			
coachwood	*Ceratopetalum apetalum*	5	6	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22
coondoo, blush	*Planchonella laurifolia*	6	7	8	9	10	10	11	11	12	12	13	14	14	15	15	16	17	17	18
	syn. *Sideroxylon richardii*																			
cordia, New Guinea	*Cordia dichotoma*	6	7	7	8	8	9	9	10	10	11	11	12	12	13	14	–	–	–	–
corkwood, grey	*Erythrina vespertilio*	7	8	9	9	10	10	11	12	12	13	13	14	14	15	15	16	17	17	18
cudgerie, brown	*Canarium australasicum*	8	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19	19	20	21
	syn. *Bursera australasica*																			
dacrydium (N.Z.) (heart)	*Dacrydium cupressinum*	9	10	10	10	11	11	11	12	12	12	13	13	13	14	14	–	–	–	–
dacrydium (N.Z.) (sap)	*Dacrydium cupressinum*	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	–	–	–	–
dakua salusalu	*Decussocarpus vitiensis*	8	9	10	11	11	12	13	14	15	16	17	18	19	19	20	21	22	23	24
	syn. *Podocarpus vitiensis*																			
dillenia (Solomon Is.)	*Dillenia salomonense*	6	6	7	8	8	9	10	10	11	12	13	13	14	15	15	16	17	17	18
doi	*Alphitonia zizyphoides*	6	7	7	8	9	10	10	11	12	13	14	14	15	16	17	17	18	19	20
drypetes, New Guinea	*Drypetes* spp.	8	9	10	10	11	11	12	13	13	14	15	15	16	16	17	18	18	19	20
duabanga, New Guinea	*duabanga moluccana*	6	6	7	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19	20
ebony, New Guinea	*Diospyros* spp.	7	8	8	9	9	10	10	11	12	12	13	13	14	14	15	16	16	–	–
erima	*Octomeles sumatrana*	7	8	8	9	10	11	12	12	13	14	15	15	16	17	18	19	19	20	21
evodia, white	*Euodia micrococca*	6	7	8	8	9	9	10	11	11	12	13	13	14	14	15	16	16	17	18
fig, Moreton Bay	*Ficus macrophylla*	7	8	9	10	10	11	11	12	12	13	13	14	14	15	16	16	17	17	18
fir, Douglas (Vic.)	*Pseudotsuga menziesii*	8	9	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
fir, Douglas (imported)	*Pseudotsuga menziesii*	7	8	9	10	11	12	12	13	14	15	16	17	18	18	19	20	21	22	23
galip	*Canarium indicum*	7	7	8	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19
garawa	*Anisoptera polyandra*	6	7	8	9	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20

Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Standard trade common name (AS 1148, 1971) (AS O2, 1970)	**Trade reference name**	**Corrected moisture content**																		
garo-garo	*Mastixiodendron pachyclados*	6	7	8	8	9	10	11	11	12	13	13	14	15	16	16	17	18	18	19
garuga	*Garuga floribunda*	7	8	8	9	9	10	10	11	12	12	13	13	14	14	15	15	16	16	17
giam	*Hopea iriana*	8	9	10	11	12	13	14	15	16	16	17	18	19	20	22	23	25	27	28
greenheart, Queensland	*Endiandra compressa*	9	10	11	12	12	13	14	15	16	17	18	18	19	20	21	22	23	24	24
gum, blue, Sydney	*Eucalyptus saligna*	8	9	10	11	12	12	13	14	15	15	16	17	18	19	19	20	21	22	23
gum, blue, Tasmanian	*Eucalyptus globulus*	7	8	9	10	11	12	12	13	14	15	16	17	17	18	19	20	21	22	22
gum, grey	*Eucalyptus punctata*	7	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
gum, grey, mountain	*Eucalyptus cypellocarpa* formerly *E. goniocalyx* auctt.	8	9	9	10	11	12	13	14	14	15	16	17	18	19	19	20	21	22	23
gum, lemon-scented	*Eucalyptus citriodora*	6	6	7	8	9	10	10	11	12	13	13	14	15	16	17	17	18	19	20
gum, Maiden's	*Eucalyptus maidenii*	9	10	11	11	12	13	14	15	16	16	17	18	19	20	20	21	22	23	24
gum, manna	*Eucalyptus viminalis*	6	7	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	21
gum, mountain	*Eucalyptus dalrympleana*	6	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23
gum, pink	*Eucalyptus fasciculosa*	8	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24
gum, red, forest	*Eucalyptus tereticornis*	9	10	11	12	12	13	14	15	16	17	18	18	19	20	21	22	23	24	24
gum, red, river	*Eucalyptus camaldulensis* syn. *E. rostrata*	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
gum, rose	*Eucalyptus grandis*	8	9	10	11	12	13	14	14	15	16	17	18	18	19	20	21	22	23	24
gum, shining	*Eucalyptus nitens*	7	8	9	10	11	11	12	13	14	15	16	17	18	19	20	20	21	22	23
gum, spotted (Vic.)	*Eucalyptus maculata*	7	8	9	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20	21
gum, spotted (N.S.W.)	*Eucalyptus maculata*	7	8	8	9	9	10	10	11	12	12	13	13	14	14	15	15	16	17	–
gum, sugar	*Eucalyptus cladocalyx*	8	9	10	10	11	12	13	14	15	16	16	17	18	19	20	20	21	22	23
gum, yellow	*Eucalyptus leucoxylon*	9	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20	21	21	22
handlewood, grey	*Aphananthe philippensis*	6	7	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19
handlewood, white	*Streblus brunonianus* syn. *Pseudomorus brunoniana*	8	9	9	10	10	11	12	12	13	13	14	14	15	16	16	17	17	18	19
hardwood, Johnstone River	*Backhousia bancroftii*	6	6	7	8	9	10	10	11	12	13	13	14	15	16	17	17	18	19	20
hemlock, Taiwan	*Tsuga chinensis*	7	8	8	9	10	11	11	12	13	13	14	15	16	16	17	18	18	19	20
heritiera, New Guinea	*Heritiera littoralis*	6	7	8	8	9	10	10	11	12	13	13	14	15	15	16	17	18	18	19
hollywood, yellow	*Premna lignum-vitae* syn. *Vitex lignum-vitae*	9	9	10	11	11	12	13	13	14	15	16	16	17	18	18	19	20	20	21
horizontal	*Anodopetalum biglandulosum*	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	22	23	24

Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	Corrected moisture content																		
incensewood	*Pseudocarapa nitidula* syn. *Amoora nitidula*	9	9	10	10	11	12	12	13	13	14	14	15	16	16	17	17	18	19	19
ironbark, grey	*Eucalyptus drepanophylla*	9	10	11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24	25
ironbark, grey	*Eucalyptus paniculata*	7	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22	23	24
ironbark, red	*Eucalyptus sideroxylon*	10	11	12	12	13	14	15	16	16	17	18	19	20	21	22	22	23	24	24
ironbark, red, broad-leaved	*Eucalyptus fibrosa* subsp. *fibrosa* formerly *E. siderophloia* auctt.	10	11	12	12	13	14	15	16	16	17	18	19	20	21	22	22	23	24	25
ironbark, red, narrow-leaved	*Eucalyptus crebra* formerly *E. racemosa* auctt.	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22	23	24
jarrah	*Eucalyptus marginata*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
jelutong	*Dyera costulata*	8	8	9	10	11	12	12	13	14	15	16	16	17	18	19	20	21	21	22
kamarere (Fiji, plantation)	*Eucalyptus deglupta*	6	7	8	8	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19
kamarere (New Guinea)	*Eucalyptus deglupta*	7	8	9	10	10	11	12	13	14	15	16	17	18	19	19	20	21	22	23
karri	*Eucalyptus diversicolor*	7	7	8	9	10	11	12	13	13	14	15	16	17	18	18	19	20	21	22
kauceti	*Kermadecia vitiensis*	6	6	7	8	8	9	9	10	11	11	12	12	13	14	14	15	–	–	–
kauri, New Zealand	*Agathis australis*	8	9	10	10	11	12	12	13	13	14	14	15	16	16	17	17	18	18	19
kauri, Vanikoro	*Agathis macrophylla*	10	11	12	13	13	14	14	15	15	15	16	16	17	17	18	18	18	19	19
kiso	*Chisocheton schumannii*	7	8	8	9	9	10	10	11	11	12	12	13	14	14	15	15	16	–	–
kwila (Fiji)	*Intsia bijuga*	7	8	9	10	10	11	12	13	14	14	15	16	17	18	18	19	20	21	21
kwila (Malaysia)	*Intsia* spp. principally *I. palembanica*	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	25
kwila (New Guinea)	*Intsia bijuga*	7	7	8	9	10	10	11	12	13	13	14	15	15	16	17	18	18	19	20
lacewood, yellow	*Polyalthia oblongifolia*	6	7	8	9	9	10	11	11	12	13	14	14	15	16	16	17	18	19	19
laran	*Anthocephalus chinensis* syn. *A. cadamba*	7	8	8	9	10	11	11	12	13	14	14	15	16	17	17	18	18	19	19
leatherwood	*Eucryphia lucida* syn. *E. billardieri*	8	9	10	10	11	12	13	14	15	15	16	17	18	19	20	20	21	22	23
lightwood	*Acacia implexa*	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	19
macadamia	*Macadamia praealta*	9	9	10	10	11	12	12	13	13	14	14	15	16	16	17	18	18	19	19

Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Meter reading (% moisture content):	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		Corrected moisture content																		
mahogany, American	*Swietenia macrophylla*	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22	23	23	24
mahogany, brush	*Geissois benthamii*	8	8	9	10	10	11	11	12	12	13	14	14	15	15	16	16	17	18	18
mahogany, miva	*Dysoxylum muelleri*	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20	20	21	22	23
mahogany, New Guinea	*Dysoxylum* spp.	8	9	9	10	11	12	12	13	14	15	16	16	17	18	19	19	20	21	22
mahogany, red	*Eucalyptus resinifera*	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24	25	26
mahogany, rose	*Dysoxylum fraseranum*	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20
mahogany, southern	*Eucalyptus botryoides*	7	8	9	10	11	12	12	13	14	15	16	17	18	19	20	20	21	22	23
mahogany, white	*Eucalyptus acmenioides*	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
mako	*Trichospermum richii*	5	5	6	7	8	8	9	10	11	11	12	13	14	14	15	16	17	17	18
malas	*Homalium foetidum*	6	7	8	9	9	10	11	12	12	13	14	15	15	16	17	18	19	19	20
malletwood	*Rhodamnia argentea*	6	7	8	9	10	10	11	12	13	13	14	15	15	16	17	17	18	19	19
malletwood, brown	*Rhodamnia trinervia*	6	7	8	8	9	10	11	11	12	13	14	14	15	16	17	17	18	19	20
mango	*Mangifera minor*	6	7	7	8	9	10	10	11	12	12	13	14	15	15	16	17	18	18	19
mangosteen	*Garcinia myrtifolia*	7	7	8	9	10	10	11	12	12	13	14	15	15	16	17	17	18	19	20
mangrove, cedar	*Xylocarpus australasicum* syn. *Carapa moluccensis*	8	9	10	11	12	12	13	14	15	16	17	18	18	19	20	21	22	23	24
manilkara	*Manilkara kanosiensis*	5	6	7	7	8	9	9	10	11	12	12	13	14	14	15	16	16	17	18
maniltoa (New Guinea)	*Maniltoa psilogyne*	7	7	8	9	9	10	10	11	12	12	13	13	14	15	15	16	16	17	18
maniltoa (Fiji)	*Maniltoa grandiflora, M. minor* and *Cynometra insularis*	7	7	8	9	9	10	10	11	12	12	13	13	14	15	15	16	16	17	18
maple, New Guinea	*Flindersia pimenteliana*	7	8	9	10	11	12	13	14	15	16	17	18	18	19	20	21	22	23	24
maple, Queensland	*Flindersia brayleyana* and *F. pimenteliana*	9	10	10	11	12	13	14	15	16	17	18	18	19	20	21	22	23	24	24
maple, rose	*Cryptocarya erythroxylon*	7	8	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19
maple, scented	*Flindersia laevicarpa* var. *laevicarpa*	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	22	23	24
maple, sugar	*Acer saccharum*	8	9	10	10	11	11	12	13	13	14	15	15	16	16	17	18	18	19	20
mararie	*Pseudoweinmannia lachnocarpa* syn. *Geissois lachnocarpa*	9	10	11	11	12	13	14	14	15	16	17	18	18	19	20	21	21	22	23
marri	*Eucalyptus calophylla*	7	7	8	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19
masiratu	*Degeneria vitiensis*	6	7	8	8	9	10	11	11	12	13	13	14	15	16	16	17	18	18	19
matai	*Podocarpus spicatus*	8	9	9	10	11	12	12	13	14	15	16	16	17	18	18	19	20	21	22
meranti, dark red (Malaysia)*	*Shorea curtisii*	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	24	27	–	–

* Data less reliable due to inadequate sampling.

Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	Corrected moisture content																		
meranti, dark red (Malaysia)*	*Shorea pauciflora*	8	9	10	12	13	14	15	17	18	19	20	21	23	24	25	–	–	–	–
meranti, light red (Malaysia)*	*Shorea acuminata*	8	9	10	11	12	13	15	16	17	18	19	21	22	23	25	–	–	–	–
meranti, light red (Malaysia)*	*Shorea leprosula*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
meranti, white (Indonesia)*	*Shorea* spp.	8	9	10	11	11	12	13	14	14	15	16	17	18	18	19	20	21	21	22
messmate (immature)	*Eucalyptus obliqua*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
messmate	*Eucalyptus obliqua*	9	10	11	12	12	13	14	15	16	16	17	18	18	19	20	21	22	22	23
moustiquaire	*Cryptocarya* spp.	6	7	8	8	9	10	11	12	13	13	14	15	16	17	18	18	19	20	21
neuburgia	*Neuburgia collina* syn. *N. corynocarpa* and syn. *Couthovia corynocarpa*	8	9	10	11	11	12	13	14	15	15	16	17	18	18	19	20	21	22	22
nutmeg (New Guinea)	*Myristica buchneriana* and *Horsfieldia irya*	7	8	8	9	10	11	12	13	13	14	15	16	17	18	18	19	20	21	22
nutmeg (Fiji)	*Myristica castanaefolia, M. hypargyrea, M. chartacea, M. gillespieana*	7	7	8	9	10	11	11	12	13	14	14	15	16	17	18	18	19	20	21
oak, New Guinea	*Castanopsis acuminatissima*	7	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
oak, silky, northern	*Cardwellia sublimis*	7	8	8	9	10	11	12	13	14	15	16	17	17	18	19	20	21	22	23
oak, silky, red	*Stenocarpus salignus*	7	8	9	9	10	11	11	12	13	13	14	15	16	16	17	18	18	19	20
oak, silky, southern	*Grevillea robusta*	7	7	8	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19
oak, silky, white	*Stenocarpus sinuatus*	7	8	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19	19
oak, tulip, blush	*Argyrodendron actinophyllum* subsp. *actinophyllum* syn. *Tarrietia actinophylla*	8	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	17	18	19
oak, tulip, brown	*Argyrodendron trifoliolatum* syn. *Tarrietia argyrodendron*	10	10	11	12	12	13	13	14	14	15	16	16	17	18	18	19	19	20	20
oak, tulip, red	*Argyrodendron peralatum* syn. *Tarrietia argyrodendron* var. *peralata*	10	11	12	13	14	15	16	17	18	18	19	20	21	22	23	24	25	25	26
obah	*Eugenia* spp.	6	7	8	8	9	10	10	11	12	12	13	14	15	15	16	17	17	18	19

* Data less reliable due to inadequate sampling.

Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
		Corrected moisture content																		
palaquium, Fiji	*Palaquium hornei*	7	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	17	–	–
palaquium, Solomon Is.	*Palaquium* spp.	5	6	7	8	8	9	10	11	11	12	13	14	15	15	16	17	18	18	19
papuacedrus	*Papuacedrus papuanu:*	8	9	10	11	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
parinari, Fiji	*Parinari insularum*	6	7	8	9	9	10	11	12	13	14	14	15	16	17	18	19	20	20	21
peppermint, broad-leaved	*Eucalyptus dives*	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
peppermint, narrow-leaved	*Eucalyptus australiana*	9	10	11	11	12	13	14	14	15	16	17	18	18	19	20	21	22	22	23
persimmon, grey	*Diospyros pentamera*	8	8	9	10	10	11	11	12	13	13	14	14	15	16	16	17	18	18	19
pine, Aleppo	*Pinus halepensis*	9	10	11	11	12	13	14	14	15	16	17	18	18	19	20	21	22	22	23
pine, black	*Podocarpus amarus*	6	7	8	9	10	11	12	12	13	14	15	16	16	17	18	19	19	20	21
pine, bunya	*Araucaria bidwillii*	9	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	21	21	22
pine, Canary Island	*Pinus canariensis*	8	8	9	10	11	12	13	14	14	15	16	17	18	19	19	20	21	22	23
pine, Caribbean (immature)	*Pinus caribaea*	5	7	8	10	11	12	14	15	17	18	20	21	22	24	25	–	–	–	–
pine, celery-top	*Phyllocladus asplenifolius* syn. *P. rhomboidalis*	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19	19	20	21	21
pine, cypress, northern	*Callitris columellaris* sens. lat. (= *C. intratropica*)	7	8	9	10	11	12	12	13	14	15	16	17	17	18	19	20	21	21	22
pine, cypress, Rottnest Island	*Callitris preissii* subsp. *preissii*	9	10	11	11	12	13	14	15	16	16	17	18	19	20	21	21	22	23	24
pine, cypress, white	*Callitris columellaris* sent. lat. (= *C. glauca*)	8	9	10	10	11	12	13	14	15	16	17	18	19	20	21	22	22	23	24
pine, hoop	*Araucaria cunninghamii*	9	10	11	12	12	13	14	15	16	16	17	18	19	20	21	22	22	23	24
pine, Huon	*Dacrydium franklinii*	9	10	10	11	12	13	13	14	15	15	16	17	18	18	19	20	20	21	22
pine, kauri	*Agathis palmerstonii*	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	24	25
pine, King William	*Athrotaxis selaginoides*	9	9	10	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20	21
pine, klinki	*Araucaria hunsteinii* syn. *A. klinkii*	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
pine, loblolly (Qld.)	*Pinus taeda*	8	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
pine, loblolly (immature)	*Pinus taeda*	5	6	8	9	11	12	14	15	17	18	19	20	22	23	24	–	–	–	–
pine, maritime	*Pinus pinaster*	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20	21	21	22	23
pine, Parana	*Araucaria angustifolia*	6	7	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23
pine, radiata (N.Z.) (immature)	*Pinus radiata*	6	7	8	10	11	12	13	14	16	17	18	19	20	22	23	24	25	27	28
pine, radiata (S.A.)	*Pinus radiata*	9	10	11	11	12	13	14	15	16	17	18	19	20	21	22	24	25	26	27
pine, radiata (Vic.)	*Pinus radiata*	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
pine, slash (Qld.)	*Pinus elliottii*	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	21	22	23	24

Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	Corrected moisture content																		
pine, slash (immature)	*Pinus elliottii*	6	7	8	9	10	11	12	14	15	17	18	20	21	22	24	–	–	–	–
pine, stone	*Pinus pinea*	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	25
pine, sugar (imported)	*Pinus lambertiana*	7	8	9	10	11	12	13	14	15	16	17	18	20	21	22	23	24	25	26
pine, white, New Zealand	*Dacrycarpus dacrydioides* syn. *Podocarpus dacrydioides*	10	11	11	12	13	13	14	14	15	16	16	17	18	18	19	20	20	21	22
pittosporum (Tas.)	*Pittosporum bicolor*	5	6	7	8	9	10	11	12	12	13	14	15	16	17	18	19	20	20	21
planchonella, Fiji	*Planchonella vitiensis*	7	7	8	9	9	10	11	11	12	13	13	14	14	15	16	16	17	18	18
planchonella, New Guinea	*Planchonella kaernbachiana*	6	6	7	8	9	9	10	11	12	12	13	14	15	16	16	17	18	19	19
planchonella, New Guinea	*Planchonella torricellensis*	4	5	6	6	7	8	8	9	10	11	11	12	13	13	–	–	–	–	–
planchonella, Solomon Is.	*Planchonella thyrsoidea*	5	5	6	7	7	8	8	9	10	10	11	11	12	13	–	–	–	–	–
planchonia	*Planchonia papuana* and *P. timorensis*	7	8	8	9	10	11	12	12	13	14	15	15	16	17	18	19	19	20	21
pleiogynium	*Pleiogynium timorense*	8	8	9	9	10	11	11	12	12	13	13	14	15	15	16	16	17	18	18
podocarp, Fiji	*Podocarpus neriifolius*	8	9	9	10	11	12	13	14	14	15	16	17	18	19	20	20	21	22	23
podocarp, red	*Decussocarpus vitiensis* syn. *Podocarpus vitiensis*	8	9	10	11	12	13	13	14	15	16	17	18	19	20	20	21	22	23	24
poplar, pink	*Euroschinus falcata* var. *falcata*	8	8	9	10	10	11	12	12	13	14	14	15	16	17	17	18	19	19	20
quandong, silver	*Elaeocarpus grandis*	7	7	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19
quandong, Solomon Is.	*Elaeocarpus sphaericus*	5	6	6	7	8	9	9	10	11	11	12	13	14	14	15	16	17	17	18
qumu	*Acacia richii*	7	7	8	9	9	10	11	12	12	13	14	14	15	16	17	17	18	19	19
raintree	*Samanea saman*	6	6	7	7	8	8	9	9	10	10	11	11	12	–	–	–	–	–	–
ramin, Fiji	*Gonystylus punctatus*	7	8	9	10	10	11	12	12	13	14	15	15	16	17	17	18	19	20	20
ramin, Sarawak	*Gonystylus* spp.	6	7	8	9	10	10	11	12	13	14	15	15	16	17	18	19	20	20	21
redwood	*Sequoia sempervirens*	8	9	10	10	11	12	13	14	15	16	16	17	18	19	20	20	21	22	23
rosarosa	*Heritiera ornithocephala*	8	8	9	10	10	11	12	13	13	14	15	15	16	17	18	18	19	–	–
rosewood, New Guinea	*Pterocarpus indicus*	6	7	8	8	9	10	10	11	12	13	13	14	15	15	16	17	17	18	19
sasauira	*Dysoxylum quercifolium* syn. *D. pilosum* and *Dysoxylum richii*	6	7	7	8	9	10	10	11	12	13	13	14	15	–	–	–	–	–	–
sassafras sassafras, socket	*Doryphora sassafras* *Daphnandra micrantha*	8	8	9	10	10	11	12	13	13	14	15	16	16	17	18	18	19	20	21

Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Standard trade common name (AS 1148, 1971) (AS O2, 1970)	**Trade reference name**	**Corrected moisture content**																		
sassafras, southern	*Atherosperma moschatum*	9	9	10	11	11	12	13	13	14	15	15	16	17	17	18	19	19	20	21
satinash, blush	*Eugenia hemilampra*	5	6	7	8	9	10	11	12	13	14	14	15	16	17	18	19	20	21	22
satinash, grey	*Eugenia gustavioides*	7	8	9	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23
satinash, New Guinea	*Syzygium buettneranum*	6	7	8	8	9	10	11	11	12	13	13	14	15	16	16	17	18	19	19
satinash, rose	*Eugenia francisii*	6	7	7	8	8	9	10	10	11	12	12	13	13	14	15	15	16	–	–
satinay	*Syncarpia hillii*	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
satinbox	*Phebalium squameum*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
satinheart, green	*Geijera salicifolia*	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	–	–
satinwood, tulip	*Rhodosphaera rhodanthema*	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26
scentbark	*Eucalyptus aromaphloia*	6	7	8	9	9	10	11	12	13	14	15	16	16	17	17	18	18	18	19
schizomeria, New Guinea	*Schizomeria serrata* syn. *S. floribunda*	7	8	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22	22
schizomeria, Solomon Is.	*Schizomeria serrata* syn. *S. floribunda*	5	6	6	7	8	8	9	9	10	11	11	12	13	13	14	15	–	–	–
she-oak, beach, Fiji	*Casuarina* spp.	7	8	9	10	10	11	12	13	13	14	15	16	16	17	18	18	19	20	21
sheoak, river	*Casuarina cunninghamiana*	8	8	9	10	10	11	11	12	12	13	14	14	15	16	16	17	17	18	19
sheoak, rose	*Casuarina torulosa*	9	9	10	11	11	12	13	13	14	14	15	15	16	16	17	18	18	19	19
sheoak, Western Australian	*Casuarina fraserana*	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20	20
silkwood, bolly	*Cryptocarya oblata*	9	9	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18	18
silkwood, red	*Palaquium galactoxylum* syn. *Lucuma galactoxylon*	5	6	7	7	8	9	10	10	11	12	12	13	14	14	15	16	17	17	18
silkwood, silver	*Flindersia acuminata*	9	9	10	11	12	12	13	14	15	15	16	17	18	18	19	20	20	21	22
siris, white	*Ailanthus peekelii*	6	7	8	9	10	10	11	12	13	13	14	15	16	17	17	18	19	20	21
siris, white	*Ailanthus triphysa* syn. *A. imberbiflora*	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19	19	20	21	22
sloanea	*Sloanea* spp. including *S. forbesii*	7	7	8	9	10	11	12	12	13	14	15	16	17	17	18	19	20	21	21
spondias	*Spondias dulcis*	6	7	7	8	9	10	10	11	12	13	13	14	15	16	17	17	18	19	20
spruce (Canada)	*Picea* spp.	7	8	9	9	10	11	12	12	13	14	14	15	16	16	17	18	19	19	20
spruce, Sitka (Vic.)	*Picea sitchensis*	7	8	9	10	11	12	14	15	16	17	18	19	20	21	22	–	–	–	–
sterculia, Fiji	*Sterculia vitiensis*	6	7	7	8	9	9	10	10	11	12	12	13	14	14	15	15	16	17	–
sterculia, New Guinea	*Sterculia conwentzii* syn. *S. shillinglawii*	6	6	7	8	8	9	10	10	11	11	12	13	13	14	15	15	16	17	–
stringybark, brown	*Eucalyptus capitellata*	8	9	10	11	11	12	13	14	15	16	17	18	19	19	20	21	22	23	24

Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
	Meter reading (% moisture content): → Corrected moisture content																			
stringybark, Darwin	*Eucalyptus tetrodonta*	7	8	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22	22
stringybark, yellow	*Eucalyptus muellerana*	10	11	12	13	14	14	15	16	17	18	18	19	20	21	21	22	23	24	24
sycamore, satin	*Ceratopetalum succirubrum*	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	20
sycamore, silver	*Cryptocarya glaucescens*	9	9	10	10	11	12	12	13	13	14	14	15	16	16	17	17	18	19	19
tallowwood	*Eucalyptus microcorys*	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
taun (New Guinea)	*Pometia tomentosa* and *P. pinnata*	8	9	10	11	12	13	15	16	17	18	19	20	22	23	24	25	26	26	27
taun (Solomon Is.)	*Pometia pinnata*	6	7	7	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19	19
tawa	*Beilschmiedia tawa*	9	9	10	10	11	11	12	12	13	13	14	14	15	15	16	16	17	17	18
terminalia, brown (New Guinea)	*Terminalia brassii*	6	7	7	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22
terminalia, brown (Solomon Is.)	*Terminalia brassii*	5	6	7	7	8	9	9	10	11	12	12	13	14	15	15	16	17	17	18
terminalia, yellow (New Guinea)	*Terminalia complanata*	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	20	21	22
terminalia, yellow (Solomon Is.)	*Terminalia calamansanai*	5	6	7	7	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19
terminalia (New Guinea)	*Terminalia* spp.	7	8	8	9	10	11	11	12	13	14	14	15	16	16	17	18	19	19	20
tetrameles	*Tetrameles nudiflora*	6	7	8	8	9	10	11	11	12	13	14	14	15	16	17	17	18	19	19
tingle, red	*Eucalyptus jacksonii*	7	9	10	11	12	13	15	16	17	18	19	21	22	23	24	25	27	28	29
tingle, yellow	*Eucalyptus guilfoylei*	7	9	10	11	12	13	14	15	17	18	19	20	21	22	23	25	26	27	28
totara	*Podocarpus totara*	8	8	9	10	10	11	12	12	13	14	14	15	16	16	17	18	18	19	19
touriga, red	*Calophyllum costatum*	10	11	11	12	13	14	14	15	16	17	17	18	19	20	20	21	22	23	23
tristiropsis, New Guinea	*Tristiropsis canarioides*	8	8	9	10	11	11	12	13	14	14	15	16	16	17	18	19	19	20	21
tuart	*Eucalyptus gomphocephala*	9	9	10	11	12	12	13	14	15	15	16	17	17	18	19	20	20	21	22
tulipwood	*Harpullia pendula*	9	9	10	11	12	12	13	14	15	16	16	17	18	19	20	20	21	22	23
turpentine	*Syncarpia glomulifera* syn. *S. laurifolia*	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	24
vaivai-ni-veikau	*Serianthes myriadenia*	6	7	7	8	9	9	10	11	11	12	12	13	14	14	15	16	16	17	18
vitex, New Guinea	*Vitex cofassus*	7	8	8	9	10	11	12	13	13	14	15	16	17	18	18	19	20	21	22
vuga	*Metrosideros collina* vars. *vitiensis, glaberrima, villosa*	7	8	8	9	9	10	10	11	12	12	13	13	14	14	15	16	16	–	–
vutu	*Barringtonia edulis*	5	6	7	7	8	8	9	9	10	11	11	12	12	13	–	–	–	–	–
walnut, blush	*Beilschmiedia obtusifolia*	9	10	11	11	12	12	13	14	14	15	16	16	17	18	18	19	19	20	21

Meter reading (% moisture content):		6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Standard trade common name (AS 1148, 1971) (AS O2, 1970)	Trade reference name	Corrected moisture content																		
walnut, New Guinea	*Dracontomelum* spp.	6	7	8	9	10	11	12	13	14	15	16	17	17	18	19	20	–	–	–
walnut, Queensland	*Endiandra palmerstonii*	7	9	10	11	12	13	14	15	16	17	18	19	20	22	23	24	25	26	27
walnut, rose	*Endiandra discolor*	4	5	6	7	8	9	10	10	11	12	13	14	15	16	16	17	18	19	20
walnut, white	*Cryptocarya obovata*	8	9	9	10	11	11	12	13	13	14	14	15	16	16	17	18	18	19	20
walnut, yellow	*Beilschmiedia bancroftii*	6	7	8	8	9	10	10	11	12	12	13	14	14	15	16	17	17	18	19
wandoo	*Eucalyptus wandoo* syn. *E. redunca* var. *elata*	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23	24	25	25
wattle, hickory	*Acacia penninervis*	8	8	9	10	11	11	12	13	13	14	14	15	16	16	17	18	18	19	20
wattle, silver	*Acacia dealbata*	8	9	10	10	11	12	13	13	14	15	16	16	17	18	19	20	20	21	22
woollybutt	*Eucalyptus longifolia*	9	10	10	11	12	13	14	15	15	16	17	18	19	20	20	21	22	23	24
yaka	*Dacrydium nausoriensis* and *D. nidulum* var. *nidulum*	8	9	9	10	11	12	12	13	14	14	15	16	17	17	18	19	19	20	20
yasi-yasi I*	*Syzygium effusum* syn. *Eugenia effusa*	6	6	7	8	8	9	10	11	11	12	13	14	14	15	16	16	17	17	18
yasi-yasi I*	*Syzygium nidie*	6	7	8	9	10	11	12	12	13	14	15	16	17	18	18	19	20	21	21
yasi-yasi II*	*Cleistocalyx ellipticus* syn. *Acicalyptus elliptica*	7	8	9	10	11	12	13	14	15	15	16	17	18	19	20	21	22	23	24
yasi-yasi II*	*Cleistocalyx eugenioides* syn. *Acicalyptus eugenioides*	7	8	8	9	10	11	12	13	14	15	16	16	17	18	19	20	21	22	23
yasi-yasi II*	*Cleistocalyx longiflorus* syn. *Acicalyptus longiflora*	6	7	8	9	10	10	11	12	13	14	15	15	16	17	18	19	20	20	21
yasi-yasi II*	*Syzygium brackenridgei*	7	8	9	10	11	11	12	13	14	15	16	17	17	18	19	20	21	22	23
yasi-yasi II*	*Syzygium curvistylum*	6	7	8	9	10	11	12	13	14	15	15	16	17	18	19	20	20	21	22
yasi-yasi II*	*Syzygium fijiense*	5	6	7	8	8	9	10	11	11	12	13	14	14	15	16	17	18	18	19
yate	*Eucalyptus cornuta*	8	9	10	10	11	12	12	13	14	15	16	16	17	18	19	19	20	21	22
yertchuk	*Eucalyptus consideniana*	9	10	11	12	13	14	15	16	17	18	19	20	20	21	22	23	24	25	26

* Data less reliable due to inadequate sampling.

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