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Shrinkage and density of timbers used in the Republic of South Africa

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SHRINKAGE AND DENSITY OF TIMBERS USED IN THE REPUBLIC OF SOUTH AFRICA

INTRODUCTION

Data on the density and shrinkage of South African-grown timbers and of timbers used in South Africa have been published from time to time by a number of authors. The data have appeared in articles on the properties and uses of one or more species or were tabulated in *Weights of South African grown timbers* and *Weights of timbers used in South Africa*, both by M.H. Scott and published in 1935 and 1949, respectively.

In this revision of Scott's latest work, metric units have been used where applicable and additional data have been incorporated with regard to both moisture content and density and more especially to shrinkage, values now being shown in Table 3 under twelve as against only four headings in the past. The information has been supplemented during the intervening 28 years by the results of additional tests and of tests on new species so that the number of species dealt with has increased from 302 to 391. The present publication will be brought up to date from time to time as additional or more accurate results become available.

NOMENCLATURE

The botanical names of the timbers are given in the first column of the table and the vernacular names in an appendix. The vernacular or common names given are for the most part the standard names applied to the species.

MOISTURE CONTENT

A list of the densities of timbers is of little value unless the corresponding moisture contents are given. Timber in its green state contains much water and even when air or kiln dried a significant amount of bound water is retained in its cell structure. The amount of water can most conveniently be expressed as a percentage of its oven-dry mass, i.e. its mass when completely free of moisture. This conventional method of expressing moisture content has been universally adopted and has been found to correlate closely with most of the physical properties of timber.

When timber is green or freshly felled it contains on the average about equal masses of wood and water. Some of the softer and lighter pine timbers may have an average moisture content of as much as 200 %, that is to say twice the mass of the dry wood, while on the other hand some of the denser indigenous timbers such as tambotie *(Spirostachys africana)* when green have only a 30 % moisture content or about a third of the dry mass.

The green moisture contents of the species are given in the second column of Table 3.

Air or kiln dried timber is never devoid of moisture. Timber without moisture can exist only inside a drying oven. Timber is hygroscopic and as green timber dries it loses moisture until it assumes a state of equilibrium in moisture and therefore also in mass, depending on the temperature and relative humidity of the surrounding air. In very damp localities this state, known as the equilibrium moisture content, may not be attained below a moisture content of 16 %, while in the driest localities it may be as low as 6 %. In the Republic the average figure for thoroughly air-dried wood is 10,5 %, which has been rounded off to the convenient figure of 10 % and adopted as the moisture content against which relative densities in the table are referred. Changes in humidity cause slight changes in moisture content, but, within the normal range of 9 to 12 % moisture, the change in the relative density of timber with a mean density of 700 kg/m^3 is only about 12 kg/m^3.

From what has been said above, it will be appreciated that the degree of seasoning (drying) directly affects freights charged on a mass basis. Timber dries very slowly indeed in the log, and from every point of view the conversion of logs to planks should be done as soon as possible after felling. Kiaat *(Pterocarpus angolensis)* logs with a diameter of 300 to 450 mm have shown no appreciable loss of moisture at the centre after eight years' exposure, drying being restricted to the outer 50 or 75 mm layer of timber. On the other hand, 25 mm thick boards properly stacked will air-dry completely in three or four months.

DENSITY

The density or specific gravity (columns 3 to 6) of actual wood substance is about 1,56 and is for all practical purposes the same for all species. The amount of wood substance varies from species to species and also within a single species. Owing to differences in anatomical structure, one wood contains a greater proportion of cells with small cavities and relatively thicker walls than another and, therefore, a correspondingly greater amount of wood substance per unit of volume. Apart from the effect of extraneous materials or extractives such as resins, gums and oils, this is why clear timber has a greater density and strength.

The density of timber in the air-dry condition, commonly taken as 10 or 12 % moisture content, is undoubtedly the most important single factor in determining the use to which a species may be put. Given this density, it is possible in most cases to deduce fairly accurately much other useful knowledge of the physical and mechanical properties of the species. A heavy timber is normally strong and hard, wears well and polishes easily, but is difficult to nail or work. Conversely a light timber generally nails and works easily, but is softer and weaker and does not wear well or take a polish readily. The lighter timber will, as a rule, contain a higher percentage of moisture when

green, but will dry more readily.

In nearly all species, but especially in locally grown exotics such as pines, wattles, poplars and eucalypts, the timber may vary considerably in density, even at a fixed moisture content. This variation may be due to the age of the tree or the position in the stem from which the specimen is taken, but may equally well be due to some inherent property not yet fully accounted for. In Scott's earlier publication it is shown that the wood from the outer (older) portion of the stems of locally grown *Pinus taeda* is 96 kg/m^3 heavier than wood from the remaining inner (juvenile) portion of the tree at the same height and that wood from whole basal transverse sections is 128 kg/m^3 heavier than that from top sections.

In the case of pine species, wood laid on during a tree's youth, commonly known as juvenile wood and constituting approximately the first ten growth rings in a tree cross section, is both lighter and weaker than that produced in subsequent years. In any cross section from the basal portion of a tree the radial density gradient is much steeper than the vertical density gradient for the tree as a whole. However, the steepness of the radial density gradient in the stem decreases with increase in tree height, with the result that only small radial differences in density occur in the upper portion of a tree. Work on thirty-year old stems of *Pinus patula* and *Pinus radiata* indicated that the extreme outer wood at approximately 7 m from ground level may be as much as 160 to 192 kg/m^3 heavier than the wood from the centre.

The density of wood laid on during a tree's growth is relatively unaffected by growth rate, but increases with increase in the age of the tree. Young trees of a size equal to that of older ones will, because of the difference in age, have a lower density. For the same reason, if two poles are of equal diameter but differ in age (and hence in rate of growth), the pole with the most growth rings (i.e. greater age and slower rate of growth) will, generally speaking, be denser and hence stronger than the other.

Work done on *Eucalyptus grandis* shows a radial density gradient in the timber like that in pines, and a vertical density gradient that generally increases from butt to top. The timber laid on after thirty years by a few locally grown eucalypts is almost as dense as mature timber of the species in Australia. Indigenous species and most tropical African species also show considerable variation in the density of timber from the same species.

Apart from age, position in the stem and the presence of infiltrates of various kinds, the density of timber may be influenced by the arrangement of individual cells or the physico-chemical composition of the cell walls, by shrinkage, or by environmental factors associated with growth such as the presence of reaction (compression or tension) wood.

No two pieces of timber of the same species, nor for that matter from the same tree or even log, can therefore be relied upon to have exactly the same

density. There is, however, an average density for each species which may be used and the probability is that most samples will be within an acceptable range of this figure, particularly if they are of reasonable size.

The green or wet densities are given in Table 3 (columns 3 and 4) and are important mainly for calculating the transport masses of freshly felled logs. The densities at 10 % moisture content (columns 5 and 6) apply to seasoned material, whether air dried or kiln dried.

DETERMINATION OF DENSITY OR MASS OF TIMBER AT DIFFERENT MOISTURE CONTENT LEVELS

Since the air-dry density values given in the tables are only applicable at a moisture content of 10 %, it may frequently be necessary to know the density of timber at higher or lower moisture content values. Because of the shrinkage or volumetric change in timber when dried below its fibre saturation point, generally taken as between 25 and 30 % moisture content, a change in moisture content below this point will effect a change in wood density that is dependent on the amount of shrinkage that has taken place. Shrinkage values differ between species, but in all cases there is an approximately linear increase in shrinkage values with a decrease in moisture content below 30 %. The maximum shrinkage values are attained at a moisture content of 0 % when the wood is devoid of all moisture.

From the density values as given in the tables at a moisture content of 10 %, the density of the species can fairly accurately be calculated at any moisture content between 0 and 30 % by using the formula given below:

i) Density at a moisture content below 10 %

$$Da = Db \times \frac{(100+a)}{(100+b)} \times \frac{100}{100-(\frac{c}{d} \times e)}$$

ii) Density at a moisture content above 10 %

$$Da = Db \times \frac{(100+a)}{(100+b)} \times \frac{100-(\frac{c}{d} \times e)}{100}$$

where

Da = Density of timber with a moisture content of a %

Db = Density at 10 % moisture content as extracted from tables

a = Moisture content value at which density is to be determined

b = 10 %

c = Difference in moisture content between a and b

d = Fibre saturation point, taken as 30 %

e = Volumetric shrinkage from green to oven-dry as extracted from tables. However, where a large difference occurs between the volumetric and the sum of the radial and tangential shrinkage, the latter values should be used for greater accuracy.

Example

P. patula has a mean relative density of 0,45 at a moisture content of 10 % and a volumetric shrinkage of 9,7 % from green to oven-dry (see tables). We require the density of the timber at a moisture content of -

i) 8 %

ii) 15 %

i) Density of the timber at 8 % moisture content:

$$D_8 = 0{,}45 \times \frac{108}{110} \times \frac{100}{100-(\frac{2}{30} \times 9{,}7)}$$

$$= 0{,}445 \text{ or } 445 \text{ kg/m}^3$$

ii) Density of the timber at 15 % moisture content:

$$D_{15} = 0{,}45 \times \frac{115}{110} \times \frac{100-(\frac{5}{30} \times 9{,}7)}{100}$$

$$= 0{,}463 \text{ or } 463 \text{ kg/m}^3$$

DENSITY - STRENGTH RELATIONSHIPS

These relationships for various timber properties of the different species have been determined by many research workers. Most of them have been found to conform to an equation of the form $S = kR^n$, the graph of which passes through the origin (where S is the strength value, R the relative density and k and n are constants). Some research workers found, however, that maximum crushing strength and modulus of elasticity in bending vary directly with relative density. These approximate relationships cannot, however, be used to give exact results for all species, mainly because some of them contain extraneous materials which add to their mass and density but contribute little, if anything, to their strength. In addition, other characteristics, such as the disposition and arrangement of fibres, may cause two species of the same density to exhibit quite different strength characteristics.

Factors for use in calculating strength as related to relative density within a species are given in Table 2. Strength at any particular density may be computed if the proper value for n is substituted in the equation:

$$\frac{S}{S_1} = (\frac{R}{R_1})^n$$

where S = strength corresponding to relative density R,
S_1 = strength corresponding to relative density R_1, and
n = exponent, values for which are given in Table 1.

Values for S of a number of timbers grown or used in the Republic of South Africa are given in Bulletin No. 48.

TABLE 1: EFFECT OF VARIATION IN SPECIFIC GRAVITY ON STRENGTH PROPERTIES WITHIN A PARTICULAR SPECIES*. VALUES FOR "n".

Static bending	
Modulus of rupture	1,50
Fibre stress at proportional limit	1,50
Modulus of elasticity	1,25
Compression parallel to grain	
Maximum crushing strength	1,25
Compression perpendicular to grain	
Fibre stress at proportional limit	1,25
Hardness	
End, side	2,50

* From Forest Products Laboratory, Design of wood aircraft structures, ANC Bul. 18, Army-Navy-Civil Comm. on Aircraft Design Criteria, Aero. Board, Washington, 1944, Table 2 - 1

EQUILIBRIUM MOISTURE CONTENT

All freshly felled timber contains moisture, which is usually greatly in excess of the amount acceptable for commercial use. The main object of seasoning the timber is to remove the surplus moisture in such a way that the timber suffers as little degradation in quality as possible. In practice it is found that, apart from special uses, timber is not in a fit state for use until all the free moisture in the cell cavities and about two thirds of the bound moisture contained in the cell walls has been removed. This normally entails drying the timber until its moisture content reaches a value equal to the relative humidity of the atmosphere. This value, which is known as the equilibrium moisture content (EMC), is approximately 15 % at the coast and 8 % inland.

Some knowledge of the effect of changes in the moisture content on the

properties of wood is necessary to ensure that the wood is used properly. For particular uses, such as in the manufacture of musical instruments, furniture, and flooring, wood carving, pattern making and the like, it is essential that the wood dimensions remain stable, whereas for other uses, e.g. structural timber, wooden containers, sleepers, poles and fencing, a greater degree of dimensional change can be allowed. If wood gives trouble in service, the cause is often improper seasoning or a misunderstanding of the influence of changes in moisture content on the behaviour of a particular species.

The relationship between moisture content and shrinkage is depicted graphically in Figure 1, which illustrates what happens when a piece of timber dries without collapse.

RELATION BETWEEN DRYING AND SHRINKAGE

The free moisture is the first moisture to be lost from the cells of green wood during the early stages of drying. The loss occurs without any change of practical consequence in the dimensions of the material. A point is eventually reached where the cells have lost all free moisture. This is called the fibre saturation point - the moisture content varying from about 25 to 35 % according to species. As drying proceeds beyond this point, the wood will shrink to an extent which is more or less proportional to the loss in bound moisture, if it is free from constraint.

In actual practice, however, the surface layers of a piece of wood dry and shrink in advance of the centre, so that a moisture gradient is set up which, if severe, can create stresses that may cause the wood to check and warp. Collapse, which is not true shrinkage and which can also cause dimensional changes and stresses in the wood, occurs in the early stages of drying. These seasoning defects can be partly relieved or prevented by the application of proper drying techniques.

SHRINKAGE

It is customary to distinguish between shrinkage caused by seasoning, i.e. the loss in dimensions that occurs in the drying of green wood to the equilibrium moisture content, and shrinkage and swelling that occurs in seasoned wood in service due to changes in atmospheric conditions, i.e. the fluctuating dimensional changes commonly referred to as "movement" or "working".

Shrinkage due to drying is important because it affects the behaviour of wood during seasoning, such as its tendency to check and warp. The extent of the shrinkage, allowance for which must be made when sawing green sizes, generally indicates whether the movement in service will be large or small.

Wood is an anisotropic material, and generally shrinks about twice as much tangentially as it does radially, and very little longitudinally. Most pieces of wood, however, unless specially sawn, are neither truly tangentially sawn (flat or plain sawn) nor truly radially sawn (quarter or rift sawn) but are sawn

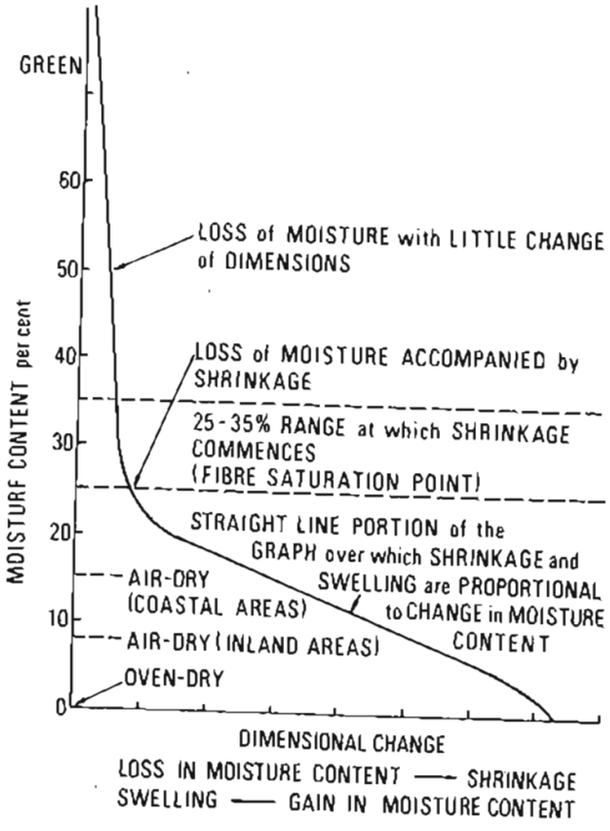


FIG. 1
THE SHRINKAGE - MOISTURE CONTENT RELATION (WITHOUT COLLAPSE)

intermediately between these positions.

The radial, tangential and volumetric shrinkage were determined from wedge-shaped sectors cut from 50 mm thick discs, as described by Van Wyk (1963). The rectangular-shaped samples for determining longitudinal shrinkage were cut from discs 150 mm thick. These discs were removed in a region of the stem free of knots about 3,7 m above the ground in broadleaf trees and 6 m above the ground in conifers.

The shrinkage values (columns 7 to 13) were determined by measuring the distance, by means of a caliper, between pairs of pins placed radially, tangentially and longitudinally. The shrinkage value was calculated by expressing the loss in size in drying to the air-dry (10 % moisture content) and to the oven-dry (0 % moisture content) condition as a percentage of the original green dimension. The volumetric shrinkage was obtained by displacement in water of samples in the green and oven-dry conditions.

It will be observed in the tables that generally small differences occur between the sum of the radial and tangential shrinkage and the volumetric shrinkage. This is because the shrinkage values of the former were determined between specific measuring points on the wedge, whereas the latter is the total shrinkage of the wedge as a whole. Where these differences are great, it is a good indication that the timber has generally poor seasoning qualities.

Distortional changes, such as cupping, springing, bowing and twisting, may well prove as troublesome in service as straightforward shrinkage and swelling, but an attempt to assess the magnitude of these changes from shrinkage values alone may prove misleading. Certain inherent defects that occur in a growing tree tend to have a greater influence on distortion than on radial and tangential dimensional changes.

DISTORTION

The inherent defects referred to above are principally spiral grain, reaction wood, knots, and juvenile and fast-grown wood, which, coupled with the fact that wood does not shrink equally in all directions, tend to cause distortion or warp during drying.

A tangentially-sawn board is likely to cup in drying owing to the differential shrinkage between the wide faces; the face nearer the pith, being more nearly radial, tends to shrink less than the reverse side so that the board curves in the opposite direction to the curvature of the growth rings.

Both juvenile wood and reaction wood (compression and tension wood) are characterised by excessive longitudinal shrinkage, and if these are included on one edge or face of a piece of timber, the piece will often develop spring or bow when it dries out.

Irregular grain caused by spiral growth and knots has been found to be the

direct cause of twist in timber, and the degree of twist is also closely related to moisture content, increasing as the timber dries out. This relationship must be taken into account if trouble with twist in timber in service is to be avoided, particularly if the material is at a moisture content of three or more degrees above the equilibrium moisture content when installed.

Uneven drying, which results in a steep moisture gradient and the development of stresses within the timber, may also cause warp if the timber is subsequently resawn and the stresses are released unevenly. It is therefore most important that timber should be obtained in the cross-sectional dimensions in which it is to be used, and that cutting timber in the length should be avoided. Cross-cutting is of little consequence and will not affect the subsequent behaviour of the timber.

Careful stacking and some form of restraint to keep the boards flat during drying are essential if distortion is to be minimised. Since wood is a semi-plastic material, particularly at kiln temperatures, it will to some extent yield to the restraining forces, and most if not all of the distortion can be eliminated in this way. This can, however, be accomplished only at the expense of some increase in splitting, but generally this is far outweighed by the overall improvement in shape.

Restraint may be applied by placing weights directly on top of the stacked timber.

MOVEMENT

Movement is the term used to describe the seasonal variation in dimension that occurs in seasoned wood, and which is caused by environmental changes. The basic cause is a change in moisture content and the most common factor contributing to this is (a) the periodic wetting or drying of the wood in exposed positions, or (b) a change in the relative humidity of the surrounding atmosphere due either to normal climatic changes or to the effects of artificial heating or cooling, e.g. central heating and air-conditioning.

In both cases the changes can be of a short-term or long-term nature; those of short duration such as a day or a week being superimposed on those of a longer, seasonal type. On a short-term basis the resultant fluctuations in moisture content are usually relatively small and may be discernible only in very thin material, but on a long-term basis they can be appreciable even in thick timbers.

The movement within a species may vary from indiscernible to extensive, depending on factors other than the extent and duration of changes in the atmosphere, e.g. the presence or absence of surface coatings, preservatives or infiltrates; the dimensions of the piece concerned; the amount of end-grain; the way in which it has been seasoned; and the density of the wood. These

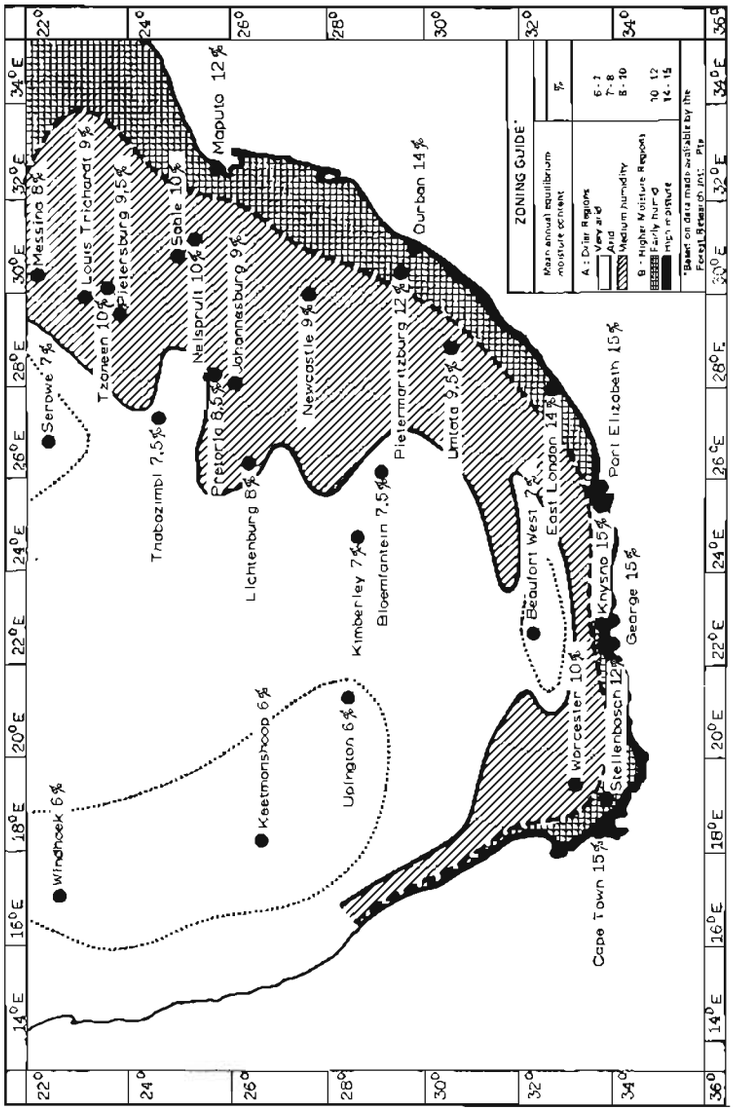
factors all affect the rate of moisture absorption or loss, and hence subsequent movement.

The accompanying map (Figure 2) shows the approximate equilibrium moisture content (EMC) for wood in various areas of Southern Africa. Table 2 lists the mean EMC values as well as the total variation that can occur for some of the major centres in the Republic and South-West Africa.

TABLE 2 : AVERAGE AND SEASONAL VARIATION OF EMC IN DIFFERENT LOCALITIES

Locality	Equilibrium moisture content per cent	
	Average	Seasonal variation
Beaufort West	7,0	2 - 3
Bloemfontein	7,5	3 - 4
Cape Town	15,0	2 - 3
Durban	14,0	3 - 4
East London	14,0	4 - 5
Johannesburg	9,0	3 - 4
Keetmanshoop	6,0	2 - 3
Kimberley	7,0	2 - 3
Lichtenburg	8,0	3 - 4
Nelspruit	10,0	3 - 4
Newcastle	9,0	4 - 5
Pietermaritzburg	12,0	4 - 5
Pietersburg	9,5	2 - 3
Port Elizabeth	15,0	2 - 3
Pretoria	8,5	3 - 4
Sabie	10,0	3 - 4
Stellenbosch	12,0	2 - 3
Thabazimbi	7,5	4 - 5
Umtata	9,5	3 - 4
Upington	6,0	2 - 3
Windhoek	6,0	4 - 5
Worcester	10,0	2 - 3

In areas where the seasonal variation is low, shrinkage and movement should give no trouble provided that the timber has been seasoned in advance to the



APPROXIMATE EMC FOR WOOD IN VARIOUS AREAS OF SOUTHERN AFRICA

average EMC it will attain in use and that the effect of any form of heating to be installed has been taken into account. But where the seasonal variation is high, better service will be obtained by selecting a species with low shrinkage or by using material that has been quarter-sawn.

For some uses surface treatments that retard the interchange of moisture from or to the atmosphere can help counter the effects of relatively short-term atmospheric changes. Such coatings, however, do not usually affect the basic moisture characteristics of timber under long-term conditions, and therefore do not affect the ultimate moisture content attained by the timber under prolonged exposure to a particular set of atmospheric conditions.

Other means of controlling the shrinkage and/or movement of timber include preheating; treatment with resins and other chemical agents; acetylation; the use of penetrating liquids and compounds; and impregnation with bulking agents such as polyethylene glycol (PEG) or a plastic monomer which when irradiated becomes a hard polymer. Both PEG and the plasticisation technique inhibit shrinkage most effectively, but they are expensive and their use is at present restricted to wood used for special purposes.

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Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to ovendry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volume-trically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Anthocleista grandiflora	-	1,09	-	0,61	0,59-0,64	-	-	-	-	-	-	4,0
Apodytes dimidiata	69	1,04	0,91-1,20	0,79	0,66-0,91	17,0	5,99	9,25	0,31	4,28	6,93	5,61
Araucaria angustifolia	179	1,09	1,06-1,10	0,46	0,42-0,50	9,1	3,23	5,43	0,30	2,12	3,62	2,87
Araucaria columnaris	53	0,72	0,61-0,83	0,54	0,50-0,58	7,4	3,36	4,39	0,38	1,67	2,22	1,95
Araucaria cunninghamii	85	0,94	0,88-1,02	0,60	0,54-0,72	9,3	4,36	5,00	0,21	2,18	3,24	2,71
Aucomea klaineana	21	0,45	0,35-0,48	0,42	0,34-0,48	7,9	3,1	4,8	-	1,9	3,0	2,45
Baikiaea minor	58	1,06	0,96-1,14	0,79	0,74-0,83	10,7	3,73	6,52	0,31	2,09	4,00	3,05
Baikiaea plurijuga	45	1,09	1,02-1,22	0,89	0,82-0,98	7,8	3,0	4,5	0,54	1,6	2,6	2,10
Bequaertiodendron magalismontanum	66	0,93	-	0,69	-	13,2	3,62	9,42	0,25	2,53	7,26	4,90
Berchemia zeyheri	44	1,24	1,17-1,28	1,04	0,99-1,10	11,3	4,82	7,24	0,40	3,51	5,56	4,54
Berlinia ledermannii	31	0,88	0,85-0,94	0,83	0,82-0,85	13,7	4,56	7,87	-	3,77	5,72	4,75
Bersama stayneri	-	1,02	-	0,72	0,64-0,80	-	-	-	-	-	-	4,0
Bischofia javanica	94	1,01	0,98-1,04	0,64	0,54-0,72	13,7	3,09	7,92	0,26	1,58	4,70	3,14

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to ovendry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volume-trically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Bolusanthus speciosus	43	1,14	1,02-1,25	0,96	0,93-0,99	11,5	4,13	6,11	0,20	2,76	4,20	3,48
Boscia albitrunca	58	1,06	1,02-1,10	0,80	0,77-0,86	11,7	3,29	6,65	1,63	1,96	4,40	3,18
Brabeium stellatifolium	-	-	-	0,48	0,45-0,51	-	-	-	-	-	-	-
Brachylaena discolor	56	1,04	1,01-1,10	0,82	0,70-0,90	14,7	4,66	9,33	0,10	3,08	6,84	4,96
Brachystegia spiciformis (syn. *randii*)	54	1,01	0,91-1,14	0,78	0,70-0,91	10,3	4,06	5,80	-	2,51	3,49	3,00
Bridelia micrantha	90	1,02	0,85-1,15	0,65	0,58-0,70	10,8	2,38	6,95	0,21	1,64	5,37	3,51
Burkea africana (from S.W.A.)	72	1,07	0,90-1,20	0,71	0,59-0,80	6,9	2,90	4,21	0,29	1,57	2,36	1,92
Burkea africana	58	1,10	0,77-1,26	0,82	0,69-0,93	10,4	4,1	6,4	-	2,4	4,2	3,30
Buxus macowanii	38	1,08	0,94-1,17	0,94	0,86-1,02	10,9	4,57	6,24	0,43	2,78	3,54	3,16
Callitris arenosa	80	0,88	0,74-0,98	0,58	0,51-0,62	9,9	3,66	5,48	0,20	2,42	3,90	3,16
Callitris calcarata	69	0,94	0,86-1,02	0,68	0,61-0,72	11,4	4,68	5,82	0,08	2,95	3,80	3,38
Callitris cupressiformis	64	0,83	0,74-0,91	0,60	0,58-0,61	11,0	3,86	5,71	-	2,60	4,10	3,35
Callitris glauca	56	0,86	0,70-1,06	0,64	0,59-0,67	8,6	4,37	5,64	0,13	2,80	3,82	3,31

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to ovendry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Callitris robusta	-	0,86	-	0,54	0,53-0,56	-	-	-	-	-	-	3,00
Calodendrum capense	63	0,93	0,86-0,98	0,70	0,66-0,74	15,4	4,83	7,30	0,26	3,18	5,15	4,17
Canthium mundianum	63	1,10	1,09-1,14	0,85	0,83-0,90	16,0	5,31	8,78	0,24	3,53	6,13	4,83
Canthium obovatum	39	1,07	0,94-1,18	0,93	0,85-1,04	13,3	5,60	7,10	0,20	3,48	4,27	3,88
Canthium ventosum	81	1,10	1,09-1,14	0,76	0,72-0,82	14,5	7,07	8,49	0,23	5,03	6,29	5,66
Carya ovata	-	-	-	0,80	-	-	-	-	-	-	-	6,00
Cassine crocea	48	0,99	0,85-1,09	0,81	0,70-0,88	13,4	5,43	8,10	0,22	3,44	5,48	4,46
Cassine peragua syn. *kraussiana*	64	1,09	1,06-1,10	0,80	0,80-0,82	14,8	5,14	7,81	-	3,02	4,61	3,82
Cassipourea congensis	-	0,96	-	0,78	0,59-0,88	-	-	-	-	-	-	5,00
Cassipourea gummiflua var. *verticillata*	-	-		0,59	0,54-0,67	-	-	-	-	-	-	6,00
Cassipourea malosana	-	-	-	0,70	0,64-0,83	-	-	-	-	-	-	-
Cassipourea gerrardii	89	1,09	1,07-1,14	0,71	0,70-0,72	12,6	2,61	7,24	-	1,76	5,18	3,47

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Castanea sativa	-	1,02	-	0,67	0,61-0,72	-	-	-	-	-	-	6,00
Casuarina cunninghamiana	-	1,12	-	0,85	0,80-0,94	-	-	-	-	-	-	4,00
Casuarina equisetifolia	38	1,15	1,12-1,22	1,04	1,01-1,15	16,5	6,33	10,51	-	3,78	6,96	5,37
Cedrela microcarpa	73	0,58	0,46-0,66	0,38	0,32-0,45	8,7	2,33	6,90	0,23	1,39	4,84	3,17
Cedrela odorata	-	0,82	-	0,48	0,45-0,58	-	-	-	-	-	-	4,00
Cedrela serata	63	0,90	0,86-0,94	0,66	0,64-0,69	12,3	3,60	6,71	0,17	2,02	4,97	3,50
Cedrela toona	72	0,86	0,82-0,93	0,61	0,54-0,67	12,2	3,58	7,88	0,26	2,24	5,77	4,01
Cedrus deodara	111	0,96	0,69-1,09	0,53	0,48-0,59	8,8	3,17	5,53	0,18	1,89	3,53	2,71
Cedrus libani	117	0,96	0,90-1,04	0,53	0,53-0,56	12,0	4,03	6,27	-	2,58	4,17	3,38
Ceiba pentandra	-	-	-	0,32	-	-	-	-	-	-	-	-
Celtis africana	58	0,99	0,93-1,06	0,76	0,70-0,82	12,9	4,38	7,86	-	3,04	5,93	4,49
Chamaecyparis lawsoniana	115	0,85	0,72-0,93	0,46	0,43-0,48	10,7	3,58	8,01	0,20	2,03	5,23	3,63
Chlorophora excelsa	-	1,09	-	0,66	0,56-0,77	-	-	-	-	-	-	2,00
Chuckrasia tabularis	54	0,99	0,94-1,04	0,76	0,72-0,82	9,3	3,68	5,76	0,08	2,57	4,28	3,43

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Cinnamomum camphora	77	0,77	0,64-0,90	0,51	0,48-0,54	9,7	4,72	7,55	-	2,43	5,78	4,11
Cola natalensis	54	1,15	1,14-1,22	0,97	0,91-1,02	19,1	6,42	9,84	-	4,56	7,09	5,83
Colophospermum mopane	38	1,26	1,15-1,33	1,09	1,01-1,23	10,8	4,02	5,19	-	2,71	3,63	3,17
Combretum apiculatum subsp. *apiculatum*	39	1,26	1,25-1,28	1,09	1,06-1,12	11,3	2,99	5,58	0,56	2,04	3,68	2,86
Combretum collinum subsp. *suluense*	50	1,12	1,10-1,14	0,91	0,88-0,94	14,2	4,69	6,87	-	2,87	3,79	3,33
Combretum erythrophyllum	69	1,02	0,99-1,06	0,77	0,62-0,86	14,8	3,30	8,26	0,21	2,25	5,93	4,09
Combretum imberbe	39	1,38	1,36-1,41	1,18	1,17-1,22	10,8	2,77	5,21	-	1,88	3,56	2,72
Combretum kraussii	59	1,04	0,99-1,10	0,80	0,72-0,90	13,6	2,58	10,14	0,26	1,60	7,31	4,46
Combretum zeyheri	60	1,22	1,20-1,23	0,96	0,94-0,98	15,8	4,68	8,11	-	3,28	5,85	4,57
Commiphora lugardae	-	0,75	-	0,40	0,35-0,42	-	-	-	-	-	-	3,50
Cordia caffra	65	1,09	0,93-1,17	0,81	0,64-0,92	13,9	5,65	8,00	0,35	3,99	5,96	4,98

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Cordyla africana	26	0,85	0,72-0,91	0,77	0,67-0,83	9,0	4,40	5,67	-	2,15	3,01	2,58
Croton sylvaticus	77	0,90	0,80-1,01	0,58	0,51-0,61	11,0	2,88	6,69	0,26	1,91	4,93	3,42
Cryptocarya liebertiana	97	0,98	0,91-1,04	0,61	0,56-0,67	12,6	3,41	6,99	0,19	2,34	5,08	3,71
Cryptocarya myrtifolia	-	-	-	0,83	0,80-0,86	-	-	-	-	-	-	-
Cryptomeria japonica	114	0,64	0,53-0,88	0,35	0,24-0,46	8,7	2,27	6,19	0,19	1,48	2,43	1,96
Cunninghamiana sinensis	116	0,69	0,62-0,74	0,38	0,30-0,45	10,2	2,83	7,31	0,13	1,80	5,02	3,41
Cunonia capensis	66	0,94	0,91-1,12	0,71	0,66-0,91	15,0	4,73	9,26	0,24	3,46	7,32	5,39
Cupressus benthamii	121	0,86	0,70-0,94	0,45	0,41-0,53	8,4	2,99	5,72	0,22	1,89	3,77	2,83
Cupressus forbesii	62	0,89	0,82-0,86	0,66	0,59-0,73	11,0	4,17	5,90	-	2,90	4,35	3,63
Cupressus glabra	112	0,96	0,78-1,10	0,54	0,48-0,61	9,3	3,71	4,87	0,18	2,27	3,14	2,71
Cupressus goveniana	89	0,80	0,61-1,02	0,51	0,43-0,59	9,9	3,35	5,15	0,12	2,30	3,61	2,96
Cupressus lusitanica	118	0,87	0,66-1,06	0,47	0,35-0,56	9,0	3,04	5,72	0,14	1,95	3,83	2,89
Cupressus macrocarpa	89	0,83	0,61-1,04	0,53	0,48-0,56	10,0	3,44	5,63	0,15	2,24	3,79	3,02

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Cupressus sempervirens var. *horizontalis*	64	0,80	0,69-0,86	0,59	0,53-0,66	10,2	3,61	6,16	0,14	2,39	4,20	3,30
Cupressus torulosa	76	0,77	0,59-0,93	0,51	0,48-0,56	9,3	2,92	5,48	0,14	1,91	3,81	2,86
Curtisia dentata	57	1,06	0,94-1,17	0,90	0,83-0,94	19,7	6,57	10,27	0,21	4,78	8,18	6,48
Cussonia spicata	126	0,93	-	0,52	0,50-0,53	15,5	5,31	8,77	0,12	3,74	6,64	5,19
Dalbergia melanoxylon	-	-	-	1,28	1,09-1,33	-	-	-	-	-	-	-
Diospyros mespiliformis	64	1,04	1,01-1,09	0,77	0,77-0,80	12,7	3,64	7,34	-	2,23	4,72	3,48
Dombeya rotundifolia	54	1,09	1,01-1,14	0,87	0,82-0,98	14,4	5,22	7,32	0,34	3,33	4,75	4,04
Drypetes gerrardii	-	1,12	-	0,91	0,88-1,04	-	-	-	-	-	-	5,00
Ekebergia capensis	74	0,82	0,66-0,93	0,56	0,43-0,62	10,7	3,89	5,92	0,25	2,55	3,97	3,26
Entandrophragma caudatum	71	1,02	-	0,74	0,69-0,80	10,1	3,10	5,50	-	1,93	3,71	2,82
Entandrophragma utile	-	-	-	0,67	-	-	-	-	-	-	-	-
Erythrina caffra	211	0,72	0,54-0,80	0,28	0,22-0,32	10,1	2,26	5,02	0,38	1,44	4,17	2,81
Erythrina lysistemon	228	0,85	0,77-0,90	0,32	0,24-0,37	9,1	1,79	4,92	0,13	1,00	3,06	2,03

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Erythrophloeum africanum	71	0,99	-	0,69	-	10,1	3,10	5,50	-	1,93	3,71	2,82
Eucalyptus acmenioides	51	1,22	1,14-1,26	0,99	0,96-1,04	15,4	5,78	7,79	0,15	3,62	5,04	4,33
E. baileyana	59	1,04	0,99-1,09	0,82	0,79-0,87	16,6	5,64	9,24	-	3,94	6,60	5,27
E. beyeri	41	1,15	1,02-1,25	1,00	0,91-1,07	14,7	6,00	8,33	0,22	3,70	5,34	4,52
E. blakelyi	-	1,22	-	1,04	0,98-1,12	-	-	-	-	-	-	7,00
E. bosistoana	46	1,23	1,18-1,28	1,06	0,97-1,14	17,3	6,50	8,70	0,18	4,40	6,00	5,20
E. botryoides	60	1,10	1,01-1,17	0,91	0,85-0,95	20,9	7,29	9,41	-	4,69	7,16	5,93
E. bauerana	49	1,22	1,10-1,28	1,04	0,91-1,13	16,4	5,43	7,30	0,23	3,94	5,43	4,69
E. camaldulensis	62	1,09	1,01-1,14	0,93	0,89-0,96	24,7	8,53	10,37	0,48	6,83	8,48	7,66
E. capitellata	66	1,10	1,01-1,22	0,89	0,82-1,00	21,3	7,25	8,22	-	5,85	6,45	6,15
E. cinerea	65	0,94	0,72-1,04	0,73	0,60-0,88	17,0	4,77	9,68	-	4,17	8,22	6,20
E. citriodora	41	1,14	1,04-1,20	1,00	0,85-1,09	14,9	6,51	7,93	0,19	4,40	5,72	5,06
E. cladocalyx	44	1,12	1,02-1,26	0,99	0,85-1,10	17,2	6,85	7,93	0,25	4,94	5,81	5,38
E. cloeziana	48	1,02	0,90-1,14	0,86	0,70-0,99	14,9	5,89	9,24	0,26	4,04	6,78	5,41
E. cornuta	-	-	-	1,04	0,94-1,12	-	-	-	-	-	-	-
E. cypellocaspa	54	1,15	1,14-1,17	0,99	0,92-1,07	22,1	8,03	10,74	0,18	5,84	8,00	6,92
E. dalrympleana	133	1,06	1,02-1,10	0,64	0,52-0,75	27,6	6,71	15,15	0,30	5,81	13,49	9,65
E. delegatensis	116	1,06	1,04-1,09	0,75	0,74-0,78	35,7	15,54	13,52	-	13,58	11,03	12,31
E. diversicolor	64	1,09	0,90-1,17	0,88	0,79-1,00	21,7	7,92	12,14	0,24	5,70	9,50	7,60
E. elata	103	1,06	0,98-1,09	0,72	0,64-0,79	22,9	6,36	7,67	-	4,90	5,32	5,11

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
E. fastigata	98	1,04	0,90-1,14	0,67	0,49-0,84	18,9	5,16	13,70	0,27	3,92	11,35	7,64
E. fraxinoides	90	1,02	0,77-1,17	0,69	0,57-0,94	17,5	5,56	9,86	0,21	3,87	7,14	5,51
E. globoidea	75	1,10	0,90-1,28	0,80	0,62-1,02	17,0	6,32	7,95	0,29	4,43	5,46	4,95
E. globulus	67	1,12	1,02-1,22	0,90	0,79-1,02	24,1	8,87	12,12	0,23	6,93	9,63	8,28
E. gompho-cephala	42	1,18	1,14-1,25	1,01	0,94-1,10	16,4	5,20	10,10	0,31	3,36	7,58	5,47
E. grandis (12 - 15 years old)	88	0,86	0,77-0,94	0,57	0,50-0,80	14,8	5,48	9,98	-	3,07	6,49	4,78
E. grandis (35 years)	97	1,02	-	0,66		18,8	6,32	12,05	0,23	4,24	9,40	6,82
E. gummifera	70	0,99	0,72-1,10	0,72	0,54-0,96	14,5	4,65	8,06	0,20	3,38	6,11	4,75
E. kirtoniana	57	1,09	1,01-1,15	0,88	0,81-0,93	18,1	6,60	10,10	-	4,90	8,30	6,60
E. laevopinea	76	1,18	1,15-1,22	0,85	0,77-0,91	16,6	5,84	8,85	0,19	4,25	6,55	5,40
E. leucoxylon	-	1,20	-	0,93	0,86-0,96	-	-	-	-	-	-	7,00
E. longifolia	58	1,07	1,02-1,09	0,93	0,91-0,96	23,8	7,11	11,10	0,22	4,51	8,76	6,64
E. macarthurii	86	1,12	1,06-1,18	0,86	0,72-0,92	28,1	8,53	11,12	0,32	6,85	9,06	7,96
E. macrorhyncha	73	1,02	0,94-1,09	0,79	0,69-0,85	20,6	8,20	6,56	-	4,34	6,32	5,33
E. maculata	66	1,12	0,93-1,25	0,83	0,69-1,07	15,4	6,69	8,77	0,23	4,42	6,24	5,33
E. maidenii	69	1,20	1,10-1,25	0,91	0,87-0,94	18,5	6,08	7,88	-	4,66	6,10	5,38
E. marginata	98	1,15	1,10-1,18	0,72	0,66-0,77	15,3	5,70	7,69	0,21	3,86	5,64	4,75
E. melanophloia	44	1,22	1,18-1,26	1,07	1,01-1,10	16,9	6,26	7,18	0,21	4,05	4,74	4,40
E. melliodora	48	1,21	1,14-1,26	1,01	0,94-1,07	14,9	5,05	7,45	0,22	3,25	4,88	4,07
E. microcarpa	-	-	-	0,96	-	-	-	-	-	-	-	5,50

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
E. microcorys	57	1,10	1,02-1,18	0,88	0,72-1,04	16,5	6,23	9,22	0,24	4,35	6,82	5,59
E. muellerana	79	1,09	0,83-1,22	0,78	0,65-0,99	18,4	5,97	9,06	0,27	4,50	7,15	5,83
E. nitens	89	0,99	0,69-1,14	0,71	0,52-0,92	18,5	5,84	8,86	0,28	4,30	8,69	6,50
E. obliqua	85	1,06	0,99-1,26	0,72	0,58-0,80	16,9	5,66	10,10	0,22	4,28	7,18	5,73
E. oreades	93	1,04	0,94-1,17	0,67	0,54-0,82	15,7	5,20	9,38	0,35	3,84	7,87	5,86
E. ovata	-	1,25	-	1,01	0,93-1,06	-	-	-	-	-	-	8,00
E. paniculata	39	1,15	1,09-1,20	1,07	0,99-1,14	19,8	8,44	10,30	0,21	5,55	7,12	6,34
E. pellita	-	1,20	-	0,88	0,82-0,94	-	-	-	-	-	-	6,00
E. pilularis	71	1,07	1,01-1,17	0,84	0,74-0,97	22,9	8,69	10,26	0,30	6,66	7,76	7,21
E. piperita	-	1,12	-	0,85	0,78-0,88	-	-	-	-	-	-	8,50
E. polyanthemos	43	1,20	1,17-1,26	1,03	0,98-1,12	14,0	5,53	6,51	0,28	3,96	4,60	4,28
E. propinqua	55	1,17	1,06-1,25	0,93	0,85-1,01	16,1	6,21	8,26	0,18	4,09	5,64	4,87
E. punctata	46	1,14	1,06-1,23	1,01	0,90-1,14	19,3	8,14	9,32	0,21	5,93	6,31	6,12
E. quadrangulata	56	1,15	1,09-1,23	0,98	0,84-1,10	21,8	7,78	12,26	0,18	5,83	9,82	7,83
E. radiata	78	1,07	0,98-1,10	0,80	0,73-0,88	22,1	7,35	9,09	0,28	5,60	6,37	5,99
E. regnans	-	-	-	0,51	0,46-0,62	-	-	-	-	-	-	11,00
E. resinifera	66	1,12	1,06-1,18	0,89	0,78-1,01	21,7	8,04	9,72	0,25	6,02	7,43	6,73
E. robusta	61	1,02	1,01-1,06	0,82	0,77-0,88	17,9	7,22	8,13	0,24	5,47	6,11	5,79
E. rubida	115	1,07	1,02-1,17	0,69	0,57-0,75	25,0	6,29	14,25	-	5,31	12,54	8,93
E. rummeryi	36	1,09	1,04-1,14	0,99	0,93-1,07	16,4	6,77	9,41	0,15	4,64	6,98	5,81
E. saligna (Average of all consignments received)	81	0,93	0,62-1,14	0,66	0,43-0,96	16,3	6,27	9,75	0,27	4,47	7,41	5,94

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volume-trically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
E. saligna (35 years)	79	1,09	-	0,76	-	19,8	7,45	11,45	0,25	5,08	8,76	6,92
E. siderophloia	39	1,25	1,18-1,30	1,14	1,09-1,19	17,4	6,90	7,56	-	4,94	5,36	5,15
E. sideroxylon	40	1,17	1,06-1,28	1,02	0,91-1,12	14,3	5,48	6,71	-	3,60	4,21	3,91
E. sieberi	83	1,17	1,12-1,22	0,84	0,71-0,93	20,0	7,49	10,74	0,30	5,92	8,84	7,38
E. smithii	68	1,07	1,02-1,10	0,86	0,78-0,91	23,8	9,13	12,67	0,42	6,58	9,51	8,05
E. tasmanica	-	1,12	-	0,83	-	-	-	-	-	-	-	8,00
E. tereticornis	57	1,12	1,06-1,18	0,96	0,85-1,01	22,1	8,22	8,54	0,23	6,39	6,57	6,48
E. trachyphloia	61	1,12	0,94-1,25	0,87	0,59-1,06	14,1	5,40	8,37	0,22	3,51	5,59	4,55
E. umbra	63	1,20	1,12-1,25	0,91	0,80-1,01	16,0	5,96	8,90	0,20	3,98	6,22	5,10
E. viminalis	76	1,10	1,04-1,18	0,84	0,72-0,96	22,8	8,47	9,61	0,31	6,66	7,66	7,16
E. yarraensis	-	1,20	-	1,04	0,94-1,09	-	-	-	-	-	-	8,00
Euclea crispa	62	1,07	0,98-1,14	0,82	0,78-0,85	16,0	4,72	9,72	0,40	2,92	6,93	4,93
Euphorbia ingens	157	0,78	0,77-0,82	0,37	0,32-0,42	8,9	2,28	6,39	0,28	1,58	4,86	3,22
Fagara capensis	48	1,11	1,02-1,18	0,92	0,82-1,02	14,8	4,37	8,25	0,54	2,78	5,72	4,25
Fagara davyi	51	1,07	1,04-1,14	0,85	0,77-0,93	15,6	4,09	8,35	0,41	2,56	5,62	4,09
Faurea macnaughtonii	49	1,12	1,02-1,17	0,93	0,86-0,98	15,2	4,12	10,38	0,19	2,61	7,57	5,09
Faurea saligna	57	1,00	0,93-1,14	0,74	0,69-0,78	7,0	1,46	5,72	0,44	1,17	4,39	2,78
Ficus capensis	146	0,88	0,64-1,07	0,45	0,32-0,66	11,2	4,51	7,58	-	3,52	6,22	4,87
Ficus petersii	150	1,09	1,06-1,10	0,51	0,50-0,53	10,5	3,40	5,56	0,23	2,29	3,67	2,98
Ficus sycomorus	155	0,99	0,94-0,96	0,48	0,45-0,46	13,9	2,80	5,70	-	1,84	4,09	2,97

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volume-trically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Flindersia australis	37	1,10	1,06-1,14	0,95	0,90-0,99	11,6	6,12	7,74	0,12	3,87	5,02	4,45
Flindersia brayleyana	55	0,70	0,64-0,85	0,54	0,48-0,67	10,3	3,73	6,19	0,17	2,63	4,76	3,70
Flindersia oxleyana	50	1,02	0,96-1,07	0,84	0,78-0,88	14,8	5,05	9,20	0,18	3,04	6,27	4,66
Fraxinus pennsylvanica var. *lanceolata*	47	0,96	0,93-0,98	0,82	0,75-0,85	15,3	4,99	6,46	0,45	3,68	4,73	4,21
Garcinia gerrardii	-	-	-	0,94	0,91-0,99	-	-	-	-	-	-	-
Gmelina arborea	153	1,01	0,85-1,10	0,47	0,40-0,61	8,3	2,75	5,27	0,20	1,61	3,54	2,58
Gonioma kamassi	65	1,14	1,10-1,17	0,88	0,85-0,91	18,0	6,14	11,28	0,22	3,64	8,39	6,02
Gossweilerodendron balsamiferum	-	-	-	0,48	-	-	-	-	-	-	-	-
Grevillea robusta	116	1,07	0,98-1,15	0,60	0,53-0,66	11,7	2,46	7,39	0,22	1,87	6,00	3,94
Guibourtia coleosperma	52	0,91	0,86-0,94	0,67	0,66-0,70	5,2	2,00	3,24	0,31	0,94	1,70	1,32
Halleria lucida	-	-	-	0,77	0,74-0,78	-	-	-	-	-	-	-
Harpephyllum caffrum	86	0,89	0,77-1,01	0,56	0,49-0,65	9,4	2,85	5,53	0,35	1,77	3,81	2,79
Heeria argentea	-	-	-	0,72	0,64-0,77	-	-	-	-	-	-	-
Heywoodia lucens	51	1,09	1,01-1,14	0,86	0,80-0,96	13,6	4,69	7,01	0,24	2,64	4,24	3,44

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Homalium rufescens	-	0,99	-	0,72	0,69-0,77	-	-	-	-	-	-	4,00
Ilex mitis	86	0,86	0,62-0,98	0,60	0,50-0,74	16,1	3,10	9,16	0,38	2,58	7,37	4,98
Isoberlinia angolensis	57	1,06	1,04-1,07	0,82	0,82-0,83	13,8	5,58	6,86	-	4,02	4,85	4,44
Jacaranda mimosaefolia	75	0,80	0,70-0,90	0,53	0,48-0,58	8,8	3,16	5,77	0,25	1,63	3,19	2,41
Juniperus bermudiana	50	0,69	0,59-0,78	0,53	0,50-0,56	7,1	2,82	5,31	0,23	1,62	3,60	2,61
Juniperus virginiana	69	0,78	0,72-0,83	0,53	0,50-0,58	7,9	2,79	5,43	0,14	1,54	3,44	2,49
Khaya anthotheca	-	-	-	0,56	0,51-0,72	-	-	-	-	-	-	-
Khaya ivorensis	-	-	-	0,56	0,51-0,72	-	-	-	-	-	-	-
Khaya nyasica	44	-	-	0,66	0,56-0,83	8,0	3,37	4,23	0,43	1,81	2,26	2,04
Kigelia africana	-	-	-	0,61	0,58-0,64	-	-	-	-	-	-	-
Kiggelaria africana	80	1,04	0,96-1,10	0,73	0,66-0,83	17,2	3,60	7,92	0,23	2,27	5,73	4,00
Kirkia acuminata	116	0,99	0,93-1,07	0,54	0,50-0,61	7,2	2,02	4,33	0,47	1,19	2,87	2,03
Kirkia wilmsii	86	1,06	-	0,66	-	8,5	2,35	4,89	-	1,38	3,06	2,22
Lachynostylis hirta	59	1,02	1,01-1,04	0,84	0,82-0,86	18,2	4,73	9,64	0,15	3,09	7,18	5,14
Leucadendron argenteum	-	-	-	0,62	0,61-0,66	-	-	-	-	-	-	-

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Linociera foveolata subsp. *foveolata*	46	0,90	0,86-0,91	0,75	0,70-0,82	13,8	4,60	10,50	-	3,10	8,20	5,65
Liquidambar styraciflua	84	0,93	0,82-1,07	0,63	0,58-0,74	15,4	5,41	10,46	-	3,52	7,69	5,61
Lonchocarpus capassa	69	1,18	1,14-1,23	0,84	0,74-0,98	12,3	4,10	7,03	0,44	2,63	4,28	3,46
Lophira procera	-	-	-	1,07	0,99-1,12	-	-	-	-	-	-	-
Lovoa klaineana	-	-	-	0,56	-	-	-	-	-	-	-	3,50
Macaranga capensis	89	0,66	0,64-0,70	0,41	0,35-0,43	7,5	2,27	5,96	0,19	1,28	3,90	2,59
Macrolobium sp.	-	-	-	0,90	-	-	-	-	-	-	-	-
Manilkara cuneifolia	44	1,23	1,20-1,26	1,04	0,98-1,14	14,7	5,75	7,85	0,25	3,68	5,16	4,42
Mansoniana altissima	-	-	-	0,59	-	-	-	-	-	-	-	2,00
Maytenus acuminata	54	1,12	1,06-1,25	0,93	0,77-1,05	17,2	6,07	9,60	0,25	3,78	6,50	5,14
Maytenus peduncularis	35	1,02	0,96-1,07	1,00	0,94-1,06	18,4	6,18	9,84	0,18	3,94	6,70	5,32
Melia azedarach	67	0,83	0,58-0,98	0,60	0,45-0,70	12,2	4,44	7,04	0,27	3,34	5,49	4,42
Millettia grandis	-	1,28	-	1,18	1,10-1,18	-	-	-	-	-	-	4,00
Millettia stuhlmannii	60	1,23	-	0,90	0,83-1,01	9	3,1	5,8	-	1,3	2,2	1,75

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Milletria sutherlandii	-	1,15	-	0,85	0,80-0,91	-	-	-	-	-	-	6,00
Mimusops heckelii	-	-	-	0,75	0,64-0,80	-	-	-	-	-	-	-
Mimusops obovata	50	1,09	1,01-1,15	0,90	0,85-0,96	13,5	4,37	7,33	0,29	3,25	5,73	4,49
Mimusops zeyheri	57	1,13	1,12-1,14	0,87	0,83-0,88	11,5	4,03	7,13	-	2,26	4,10	3,18
Mitrangyna stipulosa	-	-	-	0,56	0,46-0,70	-	-	-	-	-	-	5,00
Morus alba	99	1,17	1,14-1,20	0,75	0,74-0,75	15,8	4,82	10,18	0,32	3,80	8,51	6,16
Nectronda puberula	-	-	-	0,72	0,56-0,64	-	-	-	-	-	-	-
Nuxia congesta	-	1,02	-	0,82	0,80-0,85	-	-	-	-	-	-	4,00
Nuxia floribunda	78	1,06	-	0,72	-	12,1	3,03	6,53	-	1,77	3,95	2,86
Ochna arborea	46	1,09	1,06-1,12	0,90	0,88-0,93	14,3	4,55	8,42	-	2,49	4,88	3,69
Ochna holstii	-	-	-	0,86	0,83-0,90	-	-	-	-	-	-	-
Ochroma lagopus (Tropical America)	-	-	-	0,144	0,048-0,32	-	-	-	-	-	-	-
Ocotea bullata	73	1,09	1,01-1,14	0,76	0,61-1,01	14,9	4,85	7,87	-	3,27	5,86	4,57
Ocotea usambarensis	-	-	-	0,58	-	-	-	-	-	2,20	3,56	2,88
Olea africana	36	1,20	1,17-1,23	1,08	1,02-1,14	13,7	4,93	7,74	-	3,45	5,51	4,48
Olea capensis (subsp. *macrocarpa*)	48	1,18	0,99-1,30	1,02	0,88-1,15	19,1	6,48	10,30	0,27	4,69	7,91	6,30

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Olea hochstetteri	-	-	-	0,90	-	-	-	-	-	-	-	5,00
Olinia cymosa	60	1,17	1,17-1,18	0,90	0,85-0,94	12,9	3,57	8,66	0,33	2,29	6,47	4,38
Pachylobus edulis	-	-	-	0,64	0,59-0,70	-	-	-	-	-	-	4,00
Parinari curatellifolia subsp. *mobola*	96	1,15	1,12-1,17	0,71	0,66-0,78	12,2	3,63	6,50	-	2,57	4,73	3,65
Peltophorum africanum	66	1,01	0,98-1,06	0,71	0,69-0,74	8,5	3,35	4,95	-	1,79	2,68	2,24
Pericopsis angolensis	39	1,12	1,09-1,17	0,95	0,93-0,99	9,5	3,70	5,11	-	2,60	3,66	3,13
Persea gratissima	57	0,67	0,61-0,74	0,51	0,48-0,56	9,1	2,68	6,29	0,21	1,47	3,94	2,71
Phoebe porosa	104	1,14	-	0,66	0,59-0,85	9,2	3,47	5,71	-	2,07	3,69	2,88
Phyllanthus discoideus	-	1,20	-	0,91	0,88-0,96	-	-	-	-	-	-	5,00
Picea glauca	-	-	-	0,45	-	-	-	-	-	-	-	4,00
Pinus arizonica	98	0,70	0,46-1,01	0,43	0,35-0,50	9,8	2,78	6,32	0,27	1,79	4,13	2,96
P. ayacahuite	91	0,69	0,45-1,01	0,42	0,35-0,50	8,0	1,83	6,15	0,23	1,15	4,21	2,68
P. canariensis	74	1,07	0,91-1,14	0,77	0,64-0,90	14,1	5,33	8,29	0,18	3,37	5,52	4,45
P. caribaea (10-13 yrs.)	167	0,98	0,83-1,06	0,43	0,40-0,46	8,4	2,37	5,81	0,30	1,57	4,06	2,82
P. caribaea	151	1,00	0,77-1,09	0,47	0,42-0,56	8,6	2,86	5,67	0,21	1,90	3,89	2,90
P. cembroides	105	1,06	1,01-1,10	0,61	0,53-0,69	8,5	2,88	5,09	0,42	1,67	3,08	2,38

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
P. douglasiana	185	1,01	0,85-1,06	0,42	0,39-0,45	8,1	2,49	6,53	0,29	1,59	4,34	2,97
P. echinata	-	1,02	-	0,51	0,45-0,58	-	-	-	-	-	-	4,50
P. elliottii	115	0,93	0,74-1,06	0,52	0,41-0,65	10,5	3,96	6,66	0,23	2,66	4,28	3,47
P. engelmannii	131	1,04	-	0,54	0,51-0,58	12,2	3,71	7,47	0,22	2,15	4,29	3,22
P. glabra	150	1,04	0,99-1,09	0,50	0,42-0,58	10,8	3,41	7,18	0,19	2,20	4,89	3,55
P. greggii	159	0,93	0,66-1,04	0,41	0,35-0,50	8,57	2,32	7,10	0,41	1,40	4,43	2,92
P. halepensis	69	0,80	0,74-0,90	0,56	0,51-0,62	10,9	3,51	6,13	0,26	1,44	3,08	2,26
P. insularis	120	0,90	0,69-1,04	0,48	0,38-0,58	9,1	2,97	6,86	0,22	1,84	4,51	3,18
P. kesiya	121	0,94	0,77-1,06	0,52	0,49-0,61	10,2	3,12	7,76	0,27	2,13	5,43	3,78
P. lawsonii	137	0,99	-	0,50	-	9,2	2,34	6,60	-	1,19	3,63	2,41
P. leiophylla	90	0,67	0,48-0,99	0,42	0,35-0,51	8,9	2,92	6,28	0,34	1,88	4,26	3,07
P. luchuensis	122	0,98	0,61-1,10	0,53	0,38-0,66	9,4	3,19	7,34	0,29	2,00	4,88	3,44
P. lumholtzii	127	0,88	0,70-1,09	0,45	0,40-0,50	8,8	2,93	6,54	0,27	1,70	4,08	2,89
P. lutea	171	0,98	0,82-1,06	0,42	0,38-0,46	8,1	2,73	6,08	0,32	1,47	3,43	2,45
P. massoniana	139	0,91	0,86-0,98	0,46	0,37-0,51	10,9	2,60	8,72	0,19	1,74	6,26	4,00
P. merkusii	149	0,86	0,67-1,09	0,40	0,30-0,50	7,2	2,25	5,66	0,32	1,35	3,54	2,45
P. michoacana	124	0,96	0,66-1,06	0,51	0,43-0,70	9,7	3,22	6,90	0,22	2,39	4,58	3,49
P. montezumae	163	0,94	0,61-1,09	0,43	0,37-0,61	9,1	2,62	6,36	0,28	1,57	4,11	2,84
P. muricata	78	0,78	0,70-0,83	0,53	0,50-0,56	10,4	4,18	5,44	-	2,70	3,65	3,18
P. oocarpa	124	0,88	0,67-1,04	0,46	0,37-0,54	8,3	2,75	6,05	0,28	1,80	4,20	3,00
P. palustris	113	1,02	0,93-1,10	0,53	0,50-0,61	11,6	3,86	7,17	0,19	2,53	4,84	3,69
P. patula	128	0,88	0,64-1,14	0,45	0,35-0,61	9,7	3,04	7,19	0,25	1,92	4,79	3,36
P. pinaster	85	0,93	0,74-1,06	0,61	0,50-0,74	12,1	4,48	7,24	0,28	2,70	4,75	3,73

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
P. pinea	65	0,99	0,75-1,09	0,74	0,56-0,86	13,1	5,37	7,59	0,32	3,45	5,40	4,43
P. pringlei	98	0,90	0,86-0,96	0,53	0,53-0,56	12,2	3,03	8,45	-	1,89	5,67	3,78
P. pseudostrobus	135	0,88	0,61-1,04	0,45	0,38-0,54	10,6	3,11	7,14	0,23	1,95	4,79	3,37
P. radiata	81	0,82	0,58-1,02	0,53	0,35-0,66	10,8	3,91	6,52	0,34	2,43	4,26	3,35
P. roxburghii	125	0,98	0,75-1,09	0,51	0,40-0,62	10,0	3,55	6,57	0,13	2,20	4,28	3,24
P. sylvestris	-	0,83	-	0,50	0,38-0,61	-	-	-	-	-	-	-
P. taeda	130	0,91	0,72-1,04	0,48	0,37-0,62	10,9	3,30	7,05	0,25	2,20	4,88	3,54
P. thunbergii	125	1,01	0,99-1,02	0,56	0,53-0,58	14,7	4,12	8,32	-	2,43	5,12	3,78
P. wallichiana	114	0,80	0,48-0,93	0,45	0,37-0,58	9,0	2,68	7,12	0,18	1,79	4,86	3,33
Piptadeniastrum africanum	-	-	-	0,74	0,56-0,88	-	-	-	-	-	-	4,00
Piptadenia buchananii	106	0,98	0,88-1,06	0,56	0,53-0,62	10,4	3,40	6,51	-	-	-	-
Platanus acerifolia	79	1,10	1,06-1,14	0,78	0,77-0,78	15,7	4,47	8,80	0,16	3,33	7,03	5,18
Platylophus trifoliatus	98	0,86	0,72-0,94	0,53	0,48-0,82	11,6	3,39	5,88	0,29	2,17	4,16	3,17
Pleurostylia capensis	54	1,09	1,02-1,09	0,86	0,78-0,95	14,1	5,08	6,90	0,19	3,77	4,70	4,24
Podocarpus falcatus	58	0,72	0,50-1,01	0,54	0,42-0,61	9,4	3,64	5,35	0,24	2,25	3,54	2,90
Podocarpus latifolius	71	0,82	0,69-1,06	0,56	0,54-0,61	10,2	3,85	6,06	0,21	2,45	3,94	3,20

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Poga oleosa	-	-	-	0,45	0,40-0,54	-	-	-	-	-	-	3,00
Populus alba	95	0,77	0,74-0,83	0,48	0,46-0,51	11,5	3,84	8,32	0,29	2,97	6,59	4,78
Populus canescens	-	0,88	-	0,58	0,46-0,67	-	-	-	-	-	-	4,00
Populus deltoides	128	0,86	0,64-1,06	0,45	0,37-0,53	10,7	2,65	7,10	0,20	1,84	5,27	3,56
Populus wislizenii		0,96	-	0,53	0,48-0,50	-	-	-	-	-	-	4,00
Populus serotina	107	0,80	0,74-0,88	0,48	0,45-0,53	12,5	3,51	8,95	0,21	2,63	7,35	4,99
Protea arborea	64	1,18	1,10-1,22	0,88	0,74-0,98	11,4	1,16	5,89	-	-	-	-
Protorhus longifolia	90	1,09	1,07-1,12	0,70	0,66-0,72	12,7	3,54	5,24	0,29	2,28	3,66	2,97
Prunus africana	65	1,11	1,04-1,18	0,88	0,83-0,96	18,5	4,45	9,63	0,18	3,16	7,43	5,30
Pseudotsuga menziesii (N. America)	-	-	-	0,53	0,45-0,61	-	-	-	-	-	-	3,00
Ptaeroxylon obliquum	22	1,07	0,98-1,22	1,03	0,93-1,15	10,3	3,62	5,57	26,00	2,17	3,42	2,80
Pterocarpus angolensis (S.W.Africa)	70	0,68	0,50-1,01	0,44	0,35-0,59	3,7	1,42	2,21	0,23	0,77	1,17	0,97
Pterocarpus angolensis	69	0,97	0,77-1,18	0,66	0,56-0,78	5,9	2,15	3,59	-	1,26	1,84	1,55
Pterocelastrus tricuspidatus	49	1,15	1,06-1,22	0,99	0,90-1,04	19,0	6,14	10,32	0,17	4,11	7,84	5,98
Pycnanthus kombo	-	-	-	0,42	-	-	-	-	-	-	-	-

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	$\frac{R+T}{2}$
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Quercus alba	-	-	-	0,77	-	-	-	-	-	-	-	7,00
Quercus incana	76	1,11	1,09-1,15	0,82	0,80-0,86	18,9	4,53	10,25	0,20	2,94	7,65	5,30
Quercus mexicana	63	1,12	1,10-1,14	0,88	0,83-0,96	15,9	4,22	9,81	0,11	2,68	7,21	4,95
Quercus pedunculata	-	1,12	-	0,77	0,53-0,99	-	-	-	-	-	-	6,00
Quercus palustris	76	1,00	0,90-1,10	0,72	0,66-0,82	16,7	3,96	10,93	0,33	2,62	8,72	5,67
Quercus robur	85	1,05	0,93-1,14	0,73	0,61-0,86	17,7	4,72	9,23	0,22	3,20	7,19	5,20
Quercus rubra	-	-	-	0,70	-	-	-	-	-	-	-	6,00
Rapanea melanophloeos	81	1,05	0,86-1,15	0,74	0,67-0,83	16,6	3,21	11,40	0,29	2,01	8,85	5,43
Rauvolfia caffra	102	0,86	0,77-0,90	0,50	0,46-0,56	9,4	3,00	3,68	0,25	2,00	4,06	3,03
Rhus chirindensis forma *legatii*	-	1,14	-	0,82	0,77-0,93	-	-	-	-	-	-	4,00
Rhus gueinzii	29	1,22	-	1,10	-	6,9	2,40	4,27	-	1,50	2,77	2,14
Rhus lancea	39	1,17	1,12-1,18	1,04	0,98-1,07	13,0	3,12	7,22	0,89	2,05	5,39	3,72
Ricinodendron africanum	-	-	-	0,35	-	-	-	-	-	-	-	-
Ricinodendron rautanenii	-	0,56	-	0,18	0,16-0,22	-	-	-	-	-	-	2,00
Rothmannia capensis	-	1,04	-	0,82	0,75-0,91	-	-	-	-	-	-	5,00
Royena lucida	67	1,00	0,93-1,04	0,72	0,69-0,78	12,9	4,26	7,87	0,60	2,71	5,52	4,12

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Salix babylonica	76	0,72	0,62-0,80	0,51	0,46-0,54	12,0	2,04	8,80	-	1,53	7,95	4,74
Sarcocephalus diderrichii	-	-	-	0,75	0,67-0,80	-	-	-	-	-	-	-
Schefflera umbellifera	141	0,91	0,77-1,01	0,48	0,40-0,53	15,6	6,70	8,78	0,15	5,28	7,34	6,31
Schinus molle	159	1,11	-	0,57	-	23,4	5,71	16,0	0,21	4,42	14,46	9,44
Schotia brachypetala	70	1,13	1,12-1,14	0,80	0,78-0,82	11,7	2,45	5,54	0,31	1,35	3,30	2,33
Schotia latifolia	45	1,00	0,88-1,06	0,84	0,78-0,86	13,0	4,66	7,28	0,38	3,11	5,23	4,17
Sclerocarya caffra	105	1,04	0,88-1,14	0,60	0,53-0,67	10,1	3,19	5,16	-	2,16	4,13	3,15
Scolopia mundii	64	1,14	1,10-1,17	0,89	0,85-0,97	19,7	4,42	10,83	-	3,08	8,54	5,81
Sequoia sempervirens (S.A. grown)	102	0,73	0,62-0,93	0,43	0,34-0,62	9,1	2,23	5,82	0,13	1,58	3,67	2,63
Sideroxylon inerme	47	1,20	1,18-1,22	1,04	0,99-1,09	17,8	6,45	9,35	-	4,51	6,63	5,57
Spirostachys africana	20	0,98	0,90-1,07	0,97	0,83-1,07	8,5	2,73	5,20	0,42	2,11	3,90	3,01
Sterculia murex	131	1,09	-	0,58	-	12,7	3,27	7,21	-	2,27	5,28	3,78
Strychnos cocculoides	28	0,84	-	0,78	-	12,2	3,60	9,04	-	1,89	4,60	3,25
Strychnos decussata	54	1,10	1,02-1,15	0,89	0,90-0,93	16,4	5,54	8,87	0,17	3,70	6,14	4,92

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry				Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Strychnos henningsii	36	1,20	1,17-1,26	1,06	1,04-1,08	11,5	4,48	6,74	0,18	2,84	4,51	3,68
Strychnos mitis	46	1,10	0,98-1,22	0,92	0,86-0,99	11,8	3,81	6,87	0,22	2,33	4,76	3,55
Strychnos spinosa	67	1,06	1,01-1,10	0,78	0,75-0,80	14,9	4,12	7,97	0,12	2,32	5,04	3,68
Syncarpia hillii	79	1,13	1,09-1,18	0,79	0,74-0,83	14,1	5,17	7,13	0,22	3,99	5,61	4,80
Syncarpia laurifolia	79	1,04	0,94-1,14	0,71	0,66-0,77	13,6	4,66	6,76	0,29	2,86	4,42	3,64
Syzygium cordatum	66	0,98	0,94-1,01	0,72	0,72-0,74	15,2	4,01	10,12	-	2,24	6,67	4,45
Syzygium gerrardii	72	1,01	0,90-1,09	0,78	0,74-0,86	19,1	4,92	12,86	0,33	3,57	10,80	7,19
Tectona grandis (S.A. Grown)	78	1,05	0,78-1,14	0,69	0,66-0,75	9,0	2,23	5,75	-	1,34	3,91	2,63
Terminalia chebula	56	1,16	1,14-1,18	0,93	0,90-0,99	15,6	5,23	7,19	-	3,41	4,75	4,08
Terminalia ivorensis	-	-	-	0,58	-	-	-	-	-	-	-	2,00
Terminalia sericea	41	1,04	0,99-1,09	0,87	0,82-0,90	10,6	3,78	6,40	0,31	1,82	3,60	2,71
Terminalia superba	48	0,65	0,46-0,77	0,53	0,37-0,66	9,6	3,80	6,00	-	3,00	4,90	3,95
Trema orientalis	98	0,72	0,66-0,83	0,44	0,40-0,48	9,5	2,84	6,89	-	2,00	5,35	3,68
Trichilia emetica	86	0,92	0,86-0,98	0,59	0,50-0,64	8,9	2,20	4,70	0,22	1,42	3,05	2,24
Trimeria grandifolia	-	1,04	-	0,74	0,69-0,77	-	-	-	-	-	-	5,00

Botanical name	Green moisture content	Green density		Density at 10 % moisture content		Percentage shrinkage from green to oven-dry			Percentage shrinkage from green to 10 % moisture content		
		Average	Range	Average	Range	Shrinkage volumetrically determined	Radial	Tangential	Longitudinal	Radial (R)	Tangential (T)	R + T / 2
1	% 2	g/cm3 3	g/cm3 4	g/cm3 5	g/cm3 6	7	8	9	10	11	12	13
Triplochiton scleroxylon	-	-	-	0,38	-	-	-	-	-	-	-	2,50
Tristania conferta	25	0,94	-	0,89	-	13,1	4,20	6,59	-	1,75	3,02	2,39
Tsuga heterophylla	-	-	-	0,46	-	-	-	-	-	-	-	4,00
Turraeanthus africanus	-	-	-	0,51	-	-	-	-	-	-	-	-
Vepris undulata	41	1,02	0,86-1,17	0,90	0,74-1,06	15,8	5,51	9,29	0,39	3,47	6,53	5,00
Virgilia oroboides	120	1,07	1,02-1,10	0,60	0,58-0,66	11,9	3,60	7,34	0,43	2,44	5,28	3,86
Vitex kentensi	-	-	-	0,56	-	-	-	-	-	-	-	-
Widdringtonia cedarbergensis	55	0,69	0,61-0,75	0,52	0,50-0,56	9,7	3,40	5,85	0,25	2,18	4,09	3,14
Widdringtonia nodiflora	30	0,63	0,56-0,67	0,57	0,53-0,61	11,0	3,35	6,63	0,24	1,97	4,18	3,08
Xymalos monospora	95	0,95	0,93-0,99	0,62	0,59-0,66	16,8	3,21	10,29	0,13	2,05	7,95	5,00
Xanthocercis zambesiaca	60	1,20	-	0,91	-	11,3	4,08	5,40	-	2,89	4,02	3,46
Zelkova serrata	67	1,11	1,06-1,17	0,83	0,77-0,88	15,9	4,99	7,94	-	2,66	4,85	3,76
Ziziphus mucronata	66	1,08	1,06-1,09	0,80	0,75-0,83	13,6	4,26	7,09	0,22	2,82	5,08	3,95

APPENDIX

LIST OF VERNACULAR NAMES WITH THEIR BOTANICAL EQUIVALENTS

Vernacular name	Softwood or Hardwood	Botanical name
Acmenioides gum	HW	*Eucalyptus acmenioides*
Afara	HW	*Terminalia superba*
African ebony	HW	*Diospyros mespiliformis*
African homalium	HW	*Heywoodia lucens*
African mahogany	HW	*Khaya anthotheca*
		Khaya ivorensis
		Khaya nyasica
African walnut	HW	*Lovoa klaineana*
African wattle	HW	*Peltophorum africanum*
Afzelia	HW	*Afzelia cuanzensis*
Agba	HW	*Gossweilerodendron balsamiferum*
Aleppo pine	SW	*Pinus halepensis*
Altior-gum	HW	*Eucalyptus oreades*
Alumbi	HW	*Berlinia ledermanii*
American ash	HW	*Fraxinus pennsylvanica* var. *lanceolata*
American pitch pine	SW	*Pinus echinata*
		Pinus elliottii
		Pinus palustris
		Pinus taeda
American red gum	HW	*Liquidambar styraciflua*
American red oak	HW	*Quercus rubra*
American white oak	HW	*Quercus alba*
Anaboom	HW	*Acacia albida*
Ana tree	HW	*Acacia albida*
Andreana gum	HW	*Eucalyptus andreana*
Apache pine	SW	*Pinus engelmannii*
Apiesdoring	HW	*Acacia galpinii*
Appelblaar	HW	*Lonchocarpus capassa*
Apple-ring acacia	HW	*Acacia albida*
Arizona cypress	SW	*Cupressus glabra*
Arizona pine	SW	*Pinus arizonica*

Vernacular name	Softwood or Hardwood	Botanical name
Assegai	HW	*Curtisia dentata*
Assié	HW	*Entandrophragma utile*
Australian blackwood	HW	*Acacia melanoxylon*
Avocado pear wood	HW	*Persea gratissima*
Avodiré	HW	*Turraeanthus africanus*
Ayacahuite-pine	SW	*Pinus ayacahuite*
Bailey's gum	HW	*Eucalyptus baileyana*
Bailey's stringybark	HW	*Eucalyptus baileyana*
Bangalay	HW	*Eucalyptus botryoides*
Ban oak	HW	*Quercus incana*
Basboom	HW	*Acacia mearnsii*
Bastard ironwood	HW	*Linociera foveolata*
Bastard onionwood	HW	*Cassipourea gerrardii*
Bastard saffronwood	HW	*Cassine peragua*
Bastard white iron	HW	*Drypetes gerrardii*
Bastergeelhout	SW	*Podocarpus falcatus*
Bastersaffraan	HW	*Cassine peragua*
Basterswartpopulier	HW	*Populus serotina*
Basterwitysterhout	HW	*Drypetes gerrardii*
Basterysterhout	HW	*Linociera foveolata*
Beefwood	HW	*Casuarina equisetifolia*
Bekungu	HW	*Androstachys johnsonii*
Berg cypress	SW	*Widdringtonia nodiflora*
Bergsering	HW	*Kirkia wilmsii*
Bergsipres	SW	*Widdringonia nodiflora*
Bermuda cedar	SW	*Juniperus bermudiana*
Bersama	HW	*Bersama stayneri*
Beyer's gum	HW	*Eucalyptus beyeri*
Beyer's ironbark	HW	*Eucalyptus beyeri*
Bhutan pine	SW	*Pinus wallichiana*
Bishop pine	SW	*Pinus muricata*
Bishopwood	HW	*Bischofia javanica*
Black butt	HW	*Eucalyptus pilularis*
Black ironwood	HW	*Olea capensis* subsp. *macrocarpa*
Black monkey thorn	HW	*Acacia burkei*
Black pine	SW	*Pinus thunberghii*
Black stinkwood	HW	*Ocotea bullata*

Vernacular name	Softwood or Hardwood	Botanical name
Black stinkwood	HW	*Ocotea bullata*
Black wattle	HW	*Acacia mearnsii*
Blackwood	HW	*Acacia melanoxylon*
Blinkblaar-wag-'n-bietjie	HW	*Ziziphus mucronata*
Bloekom	HW	*Eucalyptus globulus*
Blougom	HW	*Eucalyptus globulus*
Blue box	HW	*Eucalyptus bauerana*
Blue gum	HW	*Eucalyptus globulus*
Bobbejaanklapper	HW	*Strychnos spinosa*
Boekenhout	HW	*Rapanea melanophloeos*
Boerboon	HW	*Schotia brachypetala*
Bokdrol	HW	*Canthium ventosum*
Boomgrysappel	HW	*Parinari curatellifolia* subsp. *mobola*
Bosisto's gum	HW	*Eucalyptus bosistoana*
Bosvaalbos	HW	*Brachylaena discolor*
Bosvaderlandswilg	HW	*Combretum kraussii*
Bosvlier	HW	*Nuxia floribunda*
Boswilg	HW	*Combretum kraussii*
Botryoides gum	HW	*Eucalyptus botryoides*
Boxwood	HW	*Buxus macowanii*
Brachystegia	HW	*Brachystegia spiciformis*
Brazilian pine	SW	*Araucaria angustifolia*
Buffalo thorn	HW	*Ziziphus mucronata*
Buig-my-nie	HW	*Buxus macowanii*
Buksboom	HW	*Buxus macowanii*
Burma cedar	HW	*Cedrela toona*
Bush gwarri	HW	*Euclea crispa*
Bush willow	HW	*Combretum zeyheri*
Cabbage wood (Lowveld)	HW	*Cussonia spicata*
	HW	*Cussonia umbellifera*
Californian cypress	SW	*Cupressus goveniana*
Californian redwood	SW	*Sequoia sempervirens*
Camdeboo stinkwood	HW	*Celtis africana*
Camel-thorn	HW	*Acacia erioloba*
Camphor tree	HW	*Cinnamomum camphora*
Canary Island pine	SW	*Pinus canariensis*
Canary pine	SW	*Pinus canariensis*

Vernacular name	Softwood or Hardwood	Botanical name
Candelabra tree	SW	*Araucaria angustifolia*
Candelabra tree	HW	*Euphorbia ingens*
Cape ash	HW	*Ekebergia capensis*
Cape beech	HW	*Rapanea melanophloeos*
Cape blackwood	HW	*Maytenus peduncularis*
Cape box	HW	*Buxus macowanii*
Cape chestnut	HW	*Calodendrum capense*
Cape date	HW	*Canthium ventosum*
Cape ebony	HW	*Heywoodia lucens*
Cape laurel	HW	*Ocotea bullata*
Cape plane	HW	*Ochna arborea*
Cape teak	HW	*Strychnos decussata*
Captain Cook's pine	SW	*Araucaria columnaris*
Caribaea pine		
(ex Honduras)	SW	*Pinus caribaea*
(ex U.S.A.)	SW	*Pinus elliottii*
Caribean pitch pine	SW	*Pinus caribaea*
Cat thorn	HW	*Acacia caffra*
Cedar	SW	*Cedrus deodara*
Cedar of Lebanon	SW	*Cedrus libani*
Cedar pine	SW	*Pinus glabra*
Cedrela	HW	*Cedrela toona*
Ceiba	HW	*Ceiba pentandra*
Chamfuta	HW	*Afzelia cuanzensis*
Chamfuti	HW	*Afzelia cuanzensis*
Cherry wood	HW	*Pterocelastrus tricuspidatus*
Chickrassy	HW	*Chukrasia tabularis*
Chir pine	SW	*Pinus roxburghii*
Christmas-bells	HW	*Trichilia emetica*
Cigar-box cedar	HW	*Cedrela serrata*
Cinerea gum	HW	*Eucalyptus cinerea*
Cladocalyx gum	HW	*Eucalyptus cladocalyx*
Clanwilliam cedar	SW	*Widdringtonia cedarbergensis*
Cloeziana gum	HW	*Eucalyptus cloeziana*
Cluster pine	SW	*Pinus pinaster*
Coalwood	HW	*Lachnostylis hirta*
Coastal beefwood	HW	*Casuarina equisetifolia*
Coastal redwood	SW	*Sequoia sempervirens*

Vernacular name	Softwood or Hardwood	Botanical name
Coffee pear	HW	*Pleurostylia capensis*
Common cypress pine	SW	*Callitris glauca*
Common yellowwood	SW	*Podocarpus falcatus*
Cornuta gum	HW	*Eucalyptus cornuta*
Croton	HW	*Croton sylvaticus*
Crow's ash	HW	*Flindersia australis*
Cryptomeria	SW	*Cryptomeria japonica*
Cuban pine	SW	*Pinus caribaea*
Currant	HW	*Protorhus longifolia*
Cypress pine	SW	*Callitris arenosa*
Dahoma	HW	*Piptadeniastrum africanum*
Dalrympleana gum	HW	*Eucalyptus dalrympleana*
Delegatensis gum	HW	*Eucalyptus delegatensis*
Deltoides poplar	HW	*Populus deltoides*
Deodar	SW	*Cedrus deodara*
Dibétou	HW	*Lovoa klaineana*
Dikbas	HW	*Dombeya rotundifolia*
Dog plum	HW	*Ekebergia capensis*
Dolf(-kiaat)	HW	*Pterocarpus angolensis*
Douglas fir	SW	*Pseudotsuga menziesii*
Douglas pine	SW	*Pinus douglasiana*
Douka	HW	*Mimusops africana*
East African mahogany	HW	*Khaya nyasica*
Eastern cottonwood	HW	*Populus deltoides*
Eastern red cedar	SW	*Juniperus virginiana*
Ebbehout	HW	*Diospyros mespiliformis*
Echinata pine	SW	*Pinus echinata*
Ekhimi	HW	*Piptadeniastrum africanum*
Eko	HW	*Berlinia ledermanii*
Elliot's pine	SW	*Pinus elliottii*
Embuia	HW	*Phoebe porosa*
Engelmann's pine	SW	*Pinus engelmannii*
Engelsedoring	HW	*Acacia robusta* subsp. *robusta*
Erun	HW	*Erythrophloeum africanum*
Essehout	HW	*Ekebergia capensis*
Essenhout	HW	*Ekebergia capensis*
European plane	HW	*Platanus acerifolia*

Vernacular name	Softwood or Hardwood	Botanical name
False Weymouth pine	SW	*Pinus pseudostrobus*
Fastigata gum	HW	*Eucalyptus fastigata*
Fever tree	HW	*Acacia xanthophloea*
Flat crown	HW	*Albizia adianthifolia*
Forest red gum	HW	*Eucalyptus tereticornis*
Forest silver tree	HW	*Brachylaena discolor*
Fraxinoides gum	HW	*Eucalyptus fraxinoides*
Fuma	HW	*Ceiba pentandra*
Fynblaarysterhout	HW	*Linociera foveolata*
Gaboon	HW	*Aucoumea klaineana*
Gamari	HW	*Gmelina arborea*
Gmelina	HW	*Gmelina arborea*
Gomphocephala gum	HW	*Eucalyptus gomphocephala*
Grandis gum	HW	*Eucalyptus grandis*
Green ash	HW	*Fraxinus pennsylvanica* var. *lanceolata*
Green wattle	HW	*Acacia decurrens*
Gregg's pine	SW	*Pinus greggi*
Grevillea	HW	*Grevillea robusta*
Grey ironbark	HW	*Eucalyptus paniculata*
Gummifera gum	HW	*Eucalyptus gummifera*
Haak-en-steek	HW	*Acacia tortilis* subsp. *heteracantha*
Halepensis pine	SW	*Pinus halepensis*
Hardepeer	HW	*Olinia cymosa*
Hard pear	HW	*Olinia cymosa*
Hemlock	SW	*Tsuga heterophylla*
Henkel's yellowwood	SW	*Podocarpus henkelii*
Hickory	HW	*Carya* sp.
Hill's turpentine tree	HW	*Syncarpia hillii*
Hondurensis pine	SW	*Pinus caribaea*
Hoop pine	SW	*Araucaria cunninghamii*
Hophout	HW	*Trema orientalis*
Huilboerboon	HW	*Schotia brachypetala*
Huilboom	HW	*Peltophorum africanum*
Hybrid black poplar	HW	*Populus serotina*
Ili-tenenende	HW	*Cola natalensis*

Vernacular name	Softwood or Hardwood	Botanical name
Imbuia	HW	*Phoebe porosa*
Impepe	HW	*Albizia adianthifolia*
Indian mahogany	HW	*Cedrela toona*
Insignis	SW	*Pinus radiata*
Iroko	HW	*Chlorophora excelsa*
Ironbark	HW	*Eucalyptus paniculata*
		Eucalyptus sideroxylon
Ironwood	HW	*Androstachys johnsonii*
Jacaranda	HW	*Jacaranda mimosaefolia*
Jakkalsbessie	HW	*Diospyros mespiliformis*
Japanese cedar	SW	*Cryptomeria japonica*
Jarrah	HW	*Eucalyptus marginata*
Jerusalem pine	SW	*Pinus halepensis*
Jumping-bean tree	HW	*Spirostachys africana*
Kaapse ebbehout	HW	*Heywoodia lucens*
Kafferboom	HW	*Erythrina lysistemon*
Kafferpruim	HW	*Harpephyllum caffrum*
Kaffer-wag-'n-bietjie	HW	*Acacia caffra*
Kaffir plum	HW	*Harpephyllum caffrum*
Kaffir thorn	HW	*Acacia caffra*
Kaffir tree	HW	*Erythrina lysistemon*
Kalandergeelhout	SW	*Podocarpus falcatus*
Kamassi	HW	*Gonioma kamassi*
Kamdeboo-stinkhout	HW	*Celtis africana*
Kameeldoring	HW	*Acacia erioloba*
Kamferboom	HW	*Cinnamomum camphora*
Karee	HW	*Rhus lancea*
Karri	HW	*Eucalyptus diversicolor*
Katdoring	HW	*Acacia caffra*
Kerkhofsipres	SW	*Cupressus sempervirens*
Kershout	HW	*Pterocelastrus tricuspidatus*
Keur	HW	*Virgilia oroboides*
Khasya pine	SW	*Pinus kesiya*
Kiaat	HW	*Pterocarpus angolensis*
Kiepersol (Lowveld)	HW	*Cussonia spicata*
Kiepersol	HW	*Cussonia umbellifera*
Klipels	HW	*Canthium mundianum*

Vernacular name	Softwood or Hardwood	Botanical name
Knobthorn	HW	*Acacia nigrescens*
Knobwood	HW	*Fagara davyi*
Knoppiesdoring	HW	*Acacia nigrescens*
Knysna boxwood	HW	*Gonioma kamassi*
Koffiepeer	HW	*Pleurostylia capensis*
Koolhout	HW	*Lachnostylis hirta*
Koorsboom	HW	*Acacia xanthophloea*
Korenteboom	HW	*Protorhus longifolia*
Kroonden	SW	*Pinus pinea*
Kuskasuarishout	HW	*Casuarina equisetifolia*
Laeveldkastaiing	HW	*Sterculia murex*
Laevopinea gum	HW	*Eucalyptus laevopinea*
Lawson cypress	SW	*Chamaecyparis lawsoniana*
Lawson's pine	SW	*Pinus lawsonii*
Lemoenhout	HW	*Xymalos monospora*
Lemon-scented gum	HW	*Eucalyptus citriodora*
Lemon thorn	HW	*Fagara capensis*
Lemonwood	HW	*Xymalos monospora*
Leucoxylon gum	HW	*Eucalyptus leucoxylon*
Limba	HW	*Terminalia superba*
Limbo	HW	*Terminalia superba*
Liquidambar	HW	*Liquidambar styraciflua*
Loblolly pine	SW	*Pinus taeda*
London plane	HW	*Platanus acerifolia*
Longifolia gum	HW	*Eucalyptus longifolia*
Longifolia pine	SW	*Pinus roxburghii*
Long-leafed Indian pine	SW	*Pinus roxburghii*
Long-leaf pine	SW	*Pinus palustris*
Lowveld chestnut	HW	*Sterculia murex*
Luchu-pine	SW	*Pinus luchuensis*
Ludulio	HW	*Manilkara cuneifolia*
Lumholtz' pine	SW	*Pinus lumholtzii*
Lusitanica cypress	SW	*Cupressus lusitanica*
Lutea pine	SW	*Pinus palustris*
Macaranga	HW	*Macaranga capensis*
Macarati	HW	*Burkea africana*
Macarthur's gum	HW	*Eucalyptus macarthurii*

Vernacular name	Softwood or Hardwood	Botanical name
Macrorrhyncha gum	HW	*Eucalyptus macrorrhyncha*
Maculata gum	HW	*Eucalyptus maculata*
Maiden's gum	HW	*Eucalyptus maidenii*
Maksering	HW	*Melia azedarach*
Mansonia	HW	*Mansonia altissima*
Maritime pine	SW	*Pinus pinaster*
Maroela	HW	*Sclerocarya caffra*
Marula	HW	*Sclerocarya caffra*
Masson's pine	SW	*Pinus massoniana*
Match poplar	HW	*Populus deltoides*
Matoma	HW	*Diospyros mespiliformis*
Matoomba	HW	*Diospyros mespiliformis*
Matumi	HW	*Adina microcephala*
Mawa	HW	*Trichilia emetica*
Mbaua	HW	*Khaya nyasica*
Mecrusse	HW	*Androstachys johnsonii*
Mediterranean cypress	SW	*Cupressus sempervirens*
Melliodora gum	HW	*Eucalyptus melliodora*
Merkus pine	SW	*Pinus merkusii*
Messanda	HW	*Erythrophloeum africanum*
Messas	HW	*Brachystegia spiciformis*
Messasa	HW	*Brachystegia spiciformis*
Messmate stringybark	HW	*Eucalyptus obliqua*
Mexican cypress	SW	*Cupressus benthami*
Mexican nut pine	SW	*Pinus cembroides*
Mexican white pine	SW	*Pinus ayacahuite*
Michoacana pine	SW	*Pinus michoacana*
Microcorys gum	HW	*Eucalyptus microcorys*
Mingerhout	HW	*Adina microcephala*
Missaca	HW	*Brachystegia spiciformis*
Missanda	HW	*Erythrophleum africanum*
Mmolela	HW	*Acacia albida*
Mobola plum	HW	*Parinari curatellifolia* subsp. *mobola*
Moepel	HW	*Mimusops zeyheri*
Moerbei	HW	*Morus alba*
Monkey apple	HW	*Strychnos spinosa*
Monkey thorn	HW	*Acacia galpinii*
Monterey pine	SW	*Pinus radiata*

Vernacular name	Softwood or Hardwood	Botanical name
Montezumae pine	SW	*Pinus montezumae*
Mopane	HW	*Colophospermum mopane*
Mopani(e)	HW	*Colophospermum mopane*
Moreton Bay pine	SW	*Araucaria cunninghamii*
Mountain ash	HW	*Eucalyptus regnans*
Mountain seringa	HW	*Kirkia wilmsii*
Mtondo	HW	*Cordyla africana*
Muave	HW	*Erythrophleum africanum*
Mubanga	HW	*Pericopsis angolensis*
Mueller's gum	HW	*Eucalyptus muellerana*
Mugunya	HW	*Adina microcephala*
Mukuso	HW	*Erythrophloeum africanum*
Mukwa	HW	*Pterocarpus angolensis*
Mulberry	HW	*Morus alba*
Mundani	HW	*Acrocarpus fraxinifolius*
Muninga	HW	*Pterocarpus angolensis*
Muputau	HW	*Brachystegia spiciformis*
Mvule	HW	*Chlorophora excelsa*
Mzerie	HW	*Bridelia micrantha*
Naboom	HW	*Euphorbia ingens*
Natal mahogany	HW	*Trichilia emetica*
Nieshout	HW	*Ptaeroxylon obliquum*
Nitens gum	HW	*Eucalyptus nitens*
Nkobakoba	HW	*Baikiaea minor*
Nkoma	HW	*Baikiaea minor*
Nkonola	HW	*Terminalia sericea*
Nkunya	HW	*Manilkara cuneifolia*
Nkuwa	HW	*Ficus capensis*
Nongo	HW	*Albizia versicolor*
Northern kauri pine	SW	*Agathis palmerstonii*
North Queensland kauri	SW	*Agathis microstachya* *Agathis palmerstonii*
Nshenhe	HW	*Afzelia cuanzensis*
Oak	HW	*Quercus robur*
Obliqua gum	HW	*Eucalyptus obliqua*
Okoume	HW	*Aucoumea klaineana*
Olienhout	HW	*Olea africana*

Vernacular name	Softwood or Hardwood	Botanical name
Olon dur	HW	*Fagara macrophylla*
Olonvogo	HW	*Fagara macrophylla*
Oocarpa pine	SW	*Pinus oocarpa*
Opregte geelhout	SW	*Podocarpus latifolius*
Oreades gum	HW	*Eucalyptus oreades*
Oregon (pine)	SW	*Pseudotsuga menziesii*
Oudehout	HW	*Cordia caffra*
Outeniekwageelhout	SW	*Podocarpus falcatus*
Outeniqua yellowwood	SW	*Podocarpus falcatus*
Ovodiré	HW	*Turraeanthus africanus*
Ovogo	HW	*Poga oleosa*
Pacific hemlock	SW	*Tsuga heterophylla*
Palustris pine	SW	*Pinus palustris*
Panga-panga	HW	*Millettia stuhlmannii*
Paniculata gum	HW	*Eucalyptus paniculata*
Paperbark-thorn	HW	*Acacia sieberana* var. *woodii*
Parana pine	SW	*Araucaria angustifolia*
Partridge wood	HW	*Millettia stuhlmannii*
Patula pine	SW	*Pinus patula*
Pecan	HW	*Carya* sp.
Pellita gum	HW	*Eucalyptus pellita*
Pencil cedar	SW	*Juniperus virginiana*
Pennsylvanian ash	HW	*Fraxinus pennsylvanica* var. *lanceolata*
Peperboom	HW	*Schinus molle*
pper tree	HW	*Schinus molle*
erdepram	HW	*Fagara davyi*
Peter's wild fig	HW	*Ficus petersii*
Pigeon wood	HW	*Trema orientalis*
Pilularis gum	HW	*Eucalyptus pilularis*
Pinaster pine	SW	*Pinus pinaster*
Pine Barda Caida	SW	*Pinus lumholtzii*
Pin oak	HW	*Quercus palustris*
Piperita gum	HW	*Eucalyptus piperita*
Pitch pine	SW	*Pinus caribaea* *Pinus palustris*
Platkroon	HW	*Albizia adianthifolia*

Vernacular name	Softwood or Hardwood	Botanical name
Pod mahogany	HW	*Afzelia cuanzensis*
Podo	SW	*Podocarpus falcatus*
Poga	HW	*Poga oleosa*
Polyanthemos gum	HW	*Eucalyptus polyanthemos*
Port Orford seder	SW	*Chamaecyparis lawsoniana*
Port Orford white-cedar		*Chamaecyparis lawsoniana*
Potloodseder	SW	*Juniperus virginiana*
Pringle's pine	SW	*Pinus pringlei*
Propinqua gum	HW	*Eucalyptus propinqua*
Pseudostrobus pine	SW	*Pinus pseudostrobus*
Punctata gum	HW	*Eucalyptus punctata*
Quadrangulata gum	HW	*Eucalyptus quadrangulata*
Quar	HW	*Canthium obovatum*
Queensland cypress pine	SW	*Callitris calcarata*
Queensland kauri	SW	*Agathis microstachya*
	SW	*Agathis robusta*
Queensland maple	HW	*Flindersia brayleyana*
Quinine tree	HW	*Rauvolfia caffra*
Raasblaar	HW	*Combretum zeyheri*
Radiata gum	HW	*Eucalyptus radiata*
Radiata pine	SW	*Pinus radiata*
Rapanea	HW	*Rapanea melanophloeos*
Real yellowwood	SW	*Podocarpus latifolius*
Red alder	HW	*Cunonia capensis*
Red beech	HW	*Faurea saligna*
Red bush willow	HW	*Combretum apiculatum* subsp. *apiculatum*
Red els	HW	*Cunonia capensis*
Red ironbark	HW	*Eucalyptus sideroxylon*
Red ivory	HW	*Phyllogeiton zeyheri*
Red leaf	HW	*Combretum kraussii*
Red milkwood	HW	*Mimusops obovata*
Red oak	HW	*Quercus palustris*
Red pear	HW	*Scolopia mundii*
Red satinay	HW	*Syncarpia hillii*
Red stinkwood	HW	*Prunus africanus*
Redwood (pine)	SW	*Pinus sylvestris*

Vernacular name	Softwood or Hardwood	Botanical name
Redwood	SW	*Sequoia sempervirens*
Regte geelhout	SW	*Podocarpus latifolius*
Resinifera gum	HW	*Eucalyptus resinifera*
Rhodesian copalwood	HW	*Guibourtia coleosperma*
Rhodesian mahogany	HW	*Guibourtia coleosperma*
Rhodesian teak	HW	*Baikiaea plurijuga*
River bush	HW	*Combretum erythrophyllum*
Robusta gum	HW	*Eucalyptus robusta*
Rock elder	HW	*Canthium mundianum*
Rooibessie	HW	*Olinia cymosa*
Rooiblaar	HW	*Combretum kraussii*
Rooiblad	HW	*Combretum kraussii*
Rooiboekenhout	HW	*Faurea saligna*
Rooibos	HW	*Combretum apiculatum* subsp. *apiculatum*
Rooi-els	HW	*Cunonia capensis*
Rooi-essenhout	HW	*Trichilia emetica*
Rooihout	HW	*Ochna arborea*
Rooi-ivoor	HW	*Phyllogeiton zeyheri*
Rooilemoen	HW	*Phyllogeiton zeyheri*
Rooimelkhout	HW	*Mimusops obovata*
Rooipeer	HW	*Scolopia mundii*
Rooistinkhout	HW	*Prunus africanus*
Rostrata gum	HW	*Eucalyptus camaldulensis*
Rough-branched Mexican pine	SW	*Pinus montezumae*
Rubida gum	HW	*Eucalyptus rubida*
Rummeryi gum	HW	*Eucalyptus rummeryi*
Sacred fir	SW	*Abies religiosa*
Saffraan	HW	*Cassine crocea*
Saligna gum	HW	*Eucalyptus saligna*
Sambreelboomhout	HW	*Cussonia spicata*
Sandvaalbos	HW	*Terminalia sericea*
Sapele	HW	*Entandrophragma cylindricum*
Sapelli		*Entandrophragma cylindricum*
Sapree wood	SW	*Widdringtonia nodiflora*
Sasswood	HW	*Erythrophloeum africanum*
Satinay	HW	*Syncarpia hillii*

Vernacular name	Softwood or Hardwood	Botanical name
Scots pine	SW	*Pinus sylvestris*
Sederboom (-hout)	SW	*Widdringtonia cedarbergensis*
Septee	HW	*Cordia caffra*
Sering	HW	*Melia azedarach*
Shepherd's tree	HW	*Boscia albitrunca*
Short-leaf pine	SW	*Pinus echinata*
Sieber's gum	HW	*Eucalyptus sieberi*
Silky bark	HW	*Maytenus acuminata*
Silky oak	HW	*Grevillea robusta*
Silver terminalia	HW	*Terminalia sericea*
Silver top gum	HW	*Eucalyptus nitens*
Sipo	HW	*Entandrophragma utile*
Slash pine	SW	*Pinus elliottii*
Smith's gum	HW	*Eucalyptus smithii*
Smooth-leaf pine	SW	*Pinus leiophylla*
Sneezewood	HW	*Ptaeroxylon obliquum*
Soetdoring	HW	*Acacia karroo*
Southern bluegum	HW	*Eucalyptus globulus*
Sparden	SW	*Pinus pinaster*
Spekhout	HW	*Kiggelaria africana*
Spotted gum	HW	*Eucalyptus maculata*
Spreading-leaved pine	SW	*Pinus patula*
Spruce pine	SW	*Pinus glabra*
Stamvrug	HW	*Bequaertiodendron magalismontanum*
Stinkhout	HW	*Ocotea bullata*
Stinkwood	HW	*Ocotea bullata*
Stone pine	SW	*Pinus pinea*
Stringy bark	HW	*Eucalyptus muellarana*
Sugar gum	HW	*Eucalyptus cladocalyx*
Sugi	SW	*Cryptomeria japonica*
Suurklapper	HW	*Strychnos cocculoides*
Suurpruim	HW	*Harpephyllum caffrum*
Swartapiesdoring	HW	*Acacia burkei*
Swarthout (Australian)	HW	*Acacia melanoxylon*
Swarthout	HW	*Maytenus peduncularis*
Swartysterhout	HW	*Olea capensis*
Sweet gum	HW	*Liquidambar styraciflua*

Vernacular name	Softwood or Hardwood	Botanical name
Sweet gum	HW	*Lonchocarpus capassa*
Sweet-thorn	HW	*Acacia karroo*
Sybas	HW	*Maytenus acuminata*
Sycamore fig	HW	*Ficus sycomorus*
Syringa	HW	*Melia azedarach*
Taeda pine	SW	*Pinus taeda*
Tallowwood	HW	*Eucalyptus microcorys*
Tamboti	HW	*Spirostachys africana*
Tan wattle	HW	*Acacia mearnsii*
Teak	HW	*Tectona grandis*
Tenasserim pine	SW	*Pinus merkusii*
Tennessee red cedar	SW	*Juniperus virginiana*
Terblans	HW	*Faurea macnaughtonii*
Thunder tree	HW	*Trichilia emetica*
Tiger wood	HW	*Lovoa klaineana*
Tola	HW	*Gossweilerodendron balsamiferum*
Tolbalie	HW	*Cassipourea gerrardii*
Toon	HW	*Cedrela toona*
Trachyphloia gum	HW	*Eucalyptus trachyphloia*
Transvaal red milkwood	HW	*Mimusops zeyheri*
Transvaal kaffir tree	HW	*Erythrina lysistemon*
Tree wistaria	HW	*Bolusanthus speciosus*
Thunberg's pine	SW	*Pinus thunberghii*
Umbaua	HW	*Khaya nyasica*
Umbra gum	HW	*Eucalyptus umbra*
Umbrella pine	SW	*Pinus pinea*
Umdoni	HW	*Syzygium cordatum*
Umduma	HW	*Ilex mitis*
Umkuhlu	HW	*Trichilia emetica*
Umkunye	HW	*Millettia sutherlandii*
Umnebelele	HW	*Heywoodia lucens*
Umnonono	HW	*Albizia versicolor*
Umtenenenda	HW	*Cola natalensis*
Umvanghaas	HW	*Albizia versicolor*
Umzimbeet	HW	*Millettia grandis*
Upright yellowwood	SW	*Podocarpus latifolius*
Utile	HW	*Entandrophragma utile*

Vernacular name	Softwood or Hardwood	Botanical name
Uvovovo	HW	*Schotia brachypetala*
Vaalboom	HW	*Terminalia sericea*
Vaderlandsrooihout	HW	*Kiggelaria africana*
Vaderlandswilg	HW	*Combretum erythrophyllum*
Vanwykshout	HW	*Bolusanthus speciosus*
Vlier	HW	*Nuxia floribunda*
Viminalis gum	HW	*Eucalyptus viminalis*
Virginian pencil cedar	SW	*Juniperus virginiana*
Wallich's pine	SW	*Pinus wallichiana*
Waterberry	HW	*Syzygium cordatum*
Waterbessie	HW	*Syzygium cordatum*
Waterboekenhout	HW	*Rauvolfia caffra*
Waterboom	HW	*Syzygium cordatum*
Water pear	HW	*Syzygium gerrardii*
Waterpeer	HW	*Syzygium gerrardii*
Weeping willow	HW	*Salix babylonica*
West African albizia	HW	*Albizia adianthifolia*
Westcoast hemlock	SW	*Tsuga heterophylla*
Western hemlock	SW	*Tsuga heterophylla*
White alder	HW	*Platylophus trifoliatus*
White ash	HW	*Eucalyptus fraxinoides*
White callitris	SW	*Callitris glauca*
White els	HW	*Platylophus trifoliatus*
White ironwood	HW	*Vepris undulata*
White mahogany	HW	*Eucalyptus acmenioides*
White mulberry	HW	*Morus alba*
White pear	HW	*Apodytes dimidiata*
White poplar	HW	*Poga oleosa*
White seringa	HW	*Kirkia acuminata*
White tola	HW	*Gossweilerodendron balsamiferum*
White wood	HW	*Ilex mitis*
Wild chestnut	HW	*Calodendrum capense*
Wildekastaiing	HW	*Calodendrum capense*
Wildekweper	HW	*Cryptocarya liebertiana*
Wild elder	HW	*Nuxia floribunda*
Wildekarmonk	HW	*Fagara capensis*
Wildesering	HW	*Burkea africana*

Vernacular name	Softwood or Hardwood	Botanical name
Wildevy	HW	*Ficus capensis*
Wild fig	HW	*Ficus capensis*
Wild lemon	HW	*Xymalos monospora*
Wild mangosteen	HW	*Garcinia gerrardii*
Wild olive	HW	*Olea africana*
Wild peach	HW	*Kiggelaria africana*
Wild pear	HW	*Dombeya rotundifolia*
Wild plum	HW	*Bequaertiodendron magalismontanum*
Wild quince	HW	*Cryptocarya liebertiana*
Wild syringa	HW	*Burkea africana*
Winter thorn	HW	*Acacia albida*
Witels	HW	*Platylophus trifoliatus*
Witgatboom	HW	*Boscia albitrunca*
Without	HW	*Ilex mitis*
Witmoerbei	HW	*Morus alba*
Witpeer	HW	*Apodytes dimidiata*
Witsering	HW	*Kirkia acuminata*
Witstinkhout	HW	*Celtis africana*
Yellow pine	SW	*Pinus elliottii* *Pinus palustris*
Zulu bush willow	HW	*Combretum collinum* subsp. *suluense*