The Mechanical Properties of 81 New Guinea Timbers

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Division of Building Research Technical Paper
(Second Series) No. 11

(Formerly: Division of Forest Products Technological Paper
No. 41, 1966)

Commonwealth Scientific and Industrial
Research Organization, Australia
1976

II. Explanation of Table

(*a*) *Species*

Botanical identification of the material tested has been almost entirely the work of Mr. J. S. Womersley, Chief of the Division of Botany in the Department of Forests, Territory of Papua and New Guinea.

No common names for the species are given as, at this juncture, names suitable for trade purposes are not available for the majority of the timbers listed. The Department of Forests is currently preparing a list of common names for the species growing in the Territory and likely to be of commercial value.

In general, the sampling of any one species did not cover the whole of the geographical range of availability of that species. Even at this date it is still hardly practicable because of the physical difficulties involved in carrying out an adequate sampling program for more than a few of the Territory's species. The possibility of inadequacy of the sampling was exemplified in *Eucalyptus deglupta* and *Anisoptera polyandra*, for both of which samples from different localities exhibited markedly different properties. It is important therefore that the data be interpreted and, where necessary, used with the understanding that they are indicative of the properties of the species but may in some cases differ significantly from the true population characteristics.

(*b*) *Moisture Condition*

The "green" condition refers to timber of which the moisture content was above the "intersection point" (Wilson 1932), i.e. in the region in which the mechanical properties of wood are independent of the moisture content.

In the dry condition, each species mean has been adjusted to the equivalent value at 12% moisture content, either by means of the Madison exponential formula (Wilson 1932) or by percentage corrections similar to those listed by Markwardt and Wilson (1935). Impact test results were not so adjusted (Kloot 1954) but the figures may be taken as being sufficiently indicative, for practical purposes, of these properties at 12% moisture content.

(*c*) *Number of Trees Tested*

Only those species for which information has been obtained from three or more trees in either the green or dry condition have been listed. The greatest number of trees represented in the averages for the various properties is given and serves mainly to indicate the magnitude of the sampling. To allow the statistics to be used effectively, the number of trees represented in each individual average is given in the body of the tables as explained below. Culling of specimens with visual defects such as cross-grain, knots, seasoning checks, and gum veins reduced the number of results available for averaging in some properties. Specimens having defects not readily visible to the eye, such as compression wood and tension wood, have not in general been culled.

Only one of the species, namely *Araucaria hunsteinii*, was systematically sampled taking specimens from bark to pith as required by the American specification (American Society for Testing Materials 1952). The remainder were sampled in accordance with the random sampling procedure recommended by Pearson (1952).

(*d*) *Density*

Basic density is the weight of oven-dry wood per unit volume measured in the green condition. If the moisture content of the green wood is known, the actual density in this condition is simply given by the relationship:

$$\text{density of green wood} = \text{basic density} \times \frac{100 + \text{moisture content}}{100}.$$

Corrections for shrinkage have been made to the air-dry density values so that each represents the weight of a cubic foot of wood at 12% moisture content.

(*e*) *Mechanical Properties*

(i) *Headings*.—These are in the main self-explanatory. Reference to British (British Standards Institution 1957) and American (American Society for Testing Materials 1952) timber testing specifications will provide details of the conditions under which the various properties with the exception of torsion were determined.

The particular specification followed in each type of test was as follows:

Static bending (centre-point)	B.S.I. (1957) and A.S.T.M. (1952)
Compression parallel to grain	B.S.I. (1957) and A.S.T.M. (1952)
Compression perpendicular to grain	
6 by 2 by 2 in. specimen	A.S.T.M. (1952)
2 by 2 by 2 in. specimen	B.S.I. (1957)
Shear	B.S.I. (1957)
Cleavage	B.S.I. (1957) and A.S.T.M. (1952)
Toughness	A.S.T.M. (1952)
Izod	B.S.I. (1957)
Hardness (Janka)	B.S.I. (1957) and A.S.T.M. (1952)

It should be noted that the terms "radial" and "tangential" refer to the specimen face to which the load was applied or, as in shear and cleavage, the theoretical plane of failure.

The torsion test as developed by Mack (unpublished data, 1948) and described by Lauricio (1962) has been used for the past 20 years. The value of the modulus of rigidity measured in this test is the harmonic mean of the two shear moduli along the grain.

(ii) *Results*.—Four statistics are given in each panel of the body of the tables and from these most other statistics of practical value may be derived. The value given in the first line is the species mean, i.e. the mean of tree means. After it is given

the number of trees represented in the species mean, in parentheses. Below and expressed as a percentage of the species mean are on the left the standard error of the mean and on the right the standard deviation of individual results.

Neither the standard error nor the standard deviation is given if the number of results from which each of these is obtained is less than five.

For many of the species, the amount of test material available from each tree was extremely limited, with the result that insufficient specimens could be prepared to obtain values for the full range of mechanical properties. For such species, preference was given as far as possible to specimens providing information on those properties of most practical significance.

III. General

With few exceptions, the timbers listed were tested in controlled temperature conditions of 70±3°F. In making comparisons between the values given in the tables and data from other sources, consideration should be given to the temperature effect (Sulzberger 1943), in view of its size and the lack of temperature control in some laboratories.

IV. Acknowledgments

Acknowledgment is made of the active cooperation of the Department of Forests of the Territory of Papua and New Guinea. The authors' thanks are also due to Miss N. Ditchburne, Division of Mathematical Statistics, CSIRO, and her staff for assistance in the computations and analyses of results.

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TABLE I

MECHANICAL PROPERTIES OF NEW GUINEA TIMBERS

Generally for each property of each species four statistics are included. The species mean, i.e. the mean of tree means, is given first followed by the number of trees represented in this mean, in parentheses. Below and expressed as a percentage of the mean are (on the left) the standard error of the mean and (on the right) the standard deviation of the individual results. Key: L.P., limit of proportionality; [a] 2 by 1 by 1 in. compression specimens; [b] 2 by $1\frac{1}{4}$ in. cross section; [c] probably an underestimate because of splitting during test.

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Agathis alba	Green	5	25·9 (5) 8½ 18½		3680 (5) 8 17¾	5980 (5) 9 20½	1110 (5) 10½ 23
	12%	5		30·4 (5) 9¾ 22	6780 (4) – –	9720 (4) – –	1350 (4) – –
Ailanthus peekelii	Green	5	20·1 (5) 2¼ 5¼		3140 (5) 3¾ 8½	4960 (5) 4 8¾	1140 (5) 5½ 11¾
	12%	5		24·3 (5) 2 4½	4980 (5) 5½ 12¼	7910 (5) 3¼ 7¼	1330 (5) 3½ 7½
Albizia falcata	Green	5	17·7 (5) 7¼ 14¾		2880 (5) 4½ 10¼	4490 (5) 6½ 14¾	898 (5) 8 18
	12%	4		20·8 (4) –	4900 (2) – –	6960 (2) – –	1000 (2) – –
Alstonia scholaris	Green	5	21·4 (5) 4½ 10¼		3430 (3) – –	5220 (3) – –	1130 (3) – –
	12%	4		24·0 (4) – –	6200 (2) – –	8640 (2) – –	1320 (2) – –
Amoora cucullata	Green	6	27·3 (6) 2¼ 5¼		5030 (6) 5½ 14	7170 (6) 2 4¾	1410 (6) 6¾ 16½
	12%	6		33·4 (6) 3¼ 7¾	8620 (5) 6½ 14½	12300 (5) 7½ 16¾	1690 (5) 4½ 10
Anisoptera polyandra	Green	22	32·3 (22) 3¼ 14¾		6260 (18) 4½ 18½	8510 (18) 2¾ 12	1660 (18) 6½ 26¼
	12%	21		40·3 (21) 3¼ 14½	8380 (12[b]) 10¼ 34	11500 (12[b]) 9¼ 31¼	1930 (12[b]) 8¾ 29¼
Anthocephalus cadamba	Green	5	24·3 (5) 1¾ 4		4100 (5) 6¾ 15	6290 (5) 2¼ 4¾	1160 (5) 5½ 12½
	12%	5		29·2 (5) 1½ 3½	7080 (4) – –	10800 (4) – –	1420 (4) – –
Antiaris toxicaria	Green	5	20·3 (5) 4¾ 10½		3320 (5) 7½ 16¼	5040 (5) 6½ 14¾	896 (5) 8 18¼
	12%	5		24·8 (5) 4¾ 10½	5480 (5) 7 15½	7330 (5) 7½ 16¾	1070 (5) 7¼ 16¼
Araucaria hunsteinii syn. *Araucaria klinkii*	Green	20	24·5 (20) 1½ 7½		3640 (19) 3 16	6120 (19) 2½ 11½	1450 (19) 3 12¾
	12%	20		28·2 (20) 1¾ 8¾	7240 (18) 3 15½	11100 (18) 3 14¼	1730 (18) 2¾ 13
Brachychiton carruthersii syn. *Sterculia carruthersii*	Green	5	14·8 (5) 5 11¼		2450 (4) – –	3350 (4) – –	602 (4) – –
	12%	5		17·3 (5) 5¼ 11¾	3260 (5) 10 22½	4220 (5) 7¼ 16¼	692 (5) 8 18

Compression Parallel to Grain			Shear		Impact			
Stress at L.P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Maximum Shear Strength		Toughness Value		Izod Value	
			Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
	3020 (5[a]) 13 29			874 (5) 15 33½	144 (5) 23 51½	129 (5) 17¾ 39¾	7·5 (5) 22 46½	4·5 (2)
	6170 (4[a])			1760 (5) 14¼ 31¾	82 (5) 13½ 30	62 (4)	2·9 (5) 10¼ 22½	3·6 (4)
	2760 (5[a]) 3¼ 7½		526 (5) 3¼ 7¼		50 (5) 5¾ 13	46 (5) 3 6¾	3·5 (5) 15¼ 34	3·2 (5) 20 44¾
	5250 (5[a]) 3½ 7¾		798 (5) 3¾ 8½		55 (4)	51 (4)	3·9 (5) 17¾ 39¾	4·4 (5) 15 33¼
	2480 (4[a])			626 (5) 6¾ 15¼	66 (3)	62 (3)	5·8 (4)	8·5 (3)
	3840 (4[a])			938 (4)	69 (4)	55 (2)	5·5 (3)	2·5 (1)
	2950 (5[a]) 6½ 14½			684 (5) 12½ 27¾	53 (4)	59 (4)	5·1 (5) 9 20	6·0 (4)
3500 (1)	4160 (4[a]) 18¾	1330 (1)	743 (1)	922 (4) 15¼	40 (4) 37¼	43 (4) 23½	2·8 (3) 40¾	3·5 (3) 38¾
	3670 (5[a]) 5 11¾			1070 (6) 7½ 18¼	109 (5) 14¼ 31¾	98 (6) 8 19½	6·6 (6) 5 12	6·4 (6) 3¼ 8¼
	6650 (5[a]) 6½ 14¾			1790 (5) 3¾ 8¾	109 (6) 8 19¼	101 (6) 12½ 30¾	8·1 (6) 10 24½	7·8 (5) 8 18
3130 (10) 6 18	3880 (13) 2½ 8¾	1680 (13) 5 21¾	757 (15) 3¾ 15	903 (18) 7½ 32	85 (17) 7¾ 29½	74 (17) 9½ 35	6·9 (17) 10½ 40½	7·1 (17) 11 42
4640 (12[b]) 4¼ 15	6430 (12[b]) 3½ 11½	1900 (12[b]) 4½ 17¼	1090 (1)	1730 (5) 9¼ 21	108 (19) 9½ 33	158 (5) 11¾ 26	9·4 (17) 9½ 37½	8·7 (18) 7 29¼
	3280 (5[a]) 3 6¾			944 (5) 4½ 10¼	94 (4)	85 (5) 8 17¾	7·7 (5) 9¾ 22	5·4 (5) 9¾ 22
	5990 (5[a]) 3 6½			1640 (4)	80 (5) 12 27	78 (4)	6·8 (4)	5·1 (3)
	2670 (5[a]) 6½ 14¾			580 (4)	57 (5) 23 51¼	65 (5) 21¾ 48¾	4·3 (4)	3·5 (5) 14 31¼
	4610 (5[a]) 7¾ 17¼		780 (1)	952 (4)	57 (4)	59 (3)	7·7 (5) 31 69	8·6 (4)
2760 (20) 3 17¾	3170 (20) 2¼ 10	1640 (20) 4½ 16	665 (20) 3 14¾	675 (19) 3 16¼	95 (19) 6 41½	99 (19) 6¼ 40¾	6·1 (20) 9½ 50	6·3 (20) 6¼ 39½
4980 (19) 3¾ 19¼	6370 (20) 3½ 13¾	1870 (20) 3½ 14¾	1380 (19) 3¼ 18¼	1410 (15) 2¾ 15	69 (20) 5 25¼	74 (20) 5½ 29½	4·6 (20) 7½ 34¼	5·0 (20) 8¼ 40¾
	1720 (5[a]) 5½ 12			404 (5) 10 22½	27 (5) 14¼ 31¾	31 (5) 17¾ 39¾	4·2 (5) 29 64¾	3·5 (4)
	2810 (5[a]) 7¾ 17½			595 (4)	33 (5) 17¾ 39½	41 (5) 6½ 14¼	3·8 (5) 10½ 23¼	2·9 (5) 13¼ 40½

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Agathis alba	Green		231 (5) 11¾ 26				
	12%		374 (5) 11½ 25¾				
Ailanthus peekelii	Green	154 (5) 6¾ 15¼					
	12%	163 (3)	129 (2)				
Albizia falcata	Green		143 (4)				
	12%		201 (4)				
Alstonia scholaris	Green		242 (3)				
	12%	195 (1)	245 (3) 22½				
Amoora cucullata	Green		269 (6) 9¼ 22¾				
	12%		380 (4)				
Anisoptera polyandra	Green	279 (14) 4 15	327 (17) 8¼ 34¼	675 (11) 6 20¼	655 (10) 6 18¾	831 (10) 4¾ 15	811 (10) 4¾ 14½
	12%	233 (1)	260 (11) 21⅓ 71½	720 (1)	1080 (1)	1220 (1)	1620 (1)
Anthocephalus cadamba	Green		278 (5) 9¼ 20¾				
	12%		345 (5) 4¾ 10¾				
Antiaris toxicaria	Green	166 (1)	166 (4)				
	12%		219 (4)				
Araucaria hunsteinii syn. *Araucaria klinkii*	Green	141 (15) 3¾ 18½	158 (13) 3½ 14½	329 (20) 2¾ 19¾	379 (19) 4¼ 25¼	635 (20) 2½ 15	667 (19) 3¼ 17¾
	12%	211 (14) 3¼ 19	300 (12) 3½ 15¾	636 (20) 4¼ 20¼	736 (19) 4 23	1240 (20) 3¾ 16¼	1320 (19) 3¾ 19¼
Brachychiton carruthersii syn. *Sterculia carruthersii*	Green		138 (4)				
	12%		148 (5) 11¾ 26				

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
				585 (5) 17 38½ 615 (5) 22¾ 51½					
					295 (5) 7¼ 16 385 (5) 1¼ 3				
				350 (5) 17½ 39 330 (4)					
330 (1)	423 (1)	568 (1)	717 (1)	425 (5) 6¼ 14 390 (4) 17½	390 (1)	685 (1)	780 (1)	1150 (1)	67 (1)
370 (1)		574 (1)		640 (6) 4¾ 12 850 (6) 10¼ 25	570 (2)	750 (1)			
436 (11) 5¾ 19¼ 450 (1)	485 (11) 4½ 14¾ 810 (1)	533 (11) 4½ 14¼ 720 (1)	568 (11) 3 10 1020 (1)	1060 (8) 14¼ 40 1300 (5) 14¾ 33¼	625 (9) 5 14¾ 680 (11) 4¾ 15½	615 (11) 4¼ 14½ 660 (1)	690 (9) 4 12 890 (1)	1100 (9) 1¼ 4 1640 (1)	58 (9) 3¼ 9½ 81·1 (1)
				465 (5) 3¼ 7½ 570 (5) 7¾ 17¼					
				310 (5) 10¼ 23 380 (5) 9 20¼					
207 (20) 4½ 23½ 364 (20) 4 24½	239 (19) 4¾ 29¾ 470 (19) 5½ 27¾	365 (20) 3½ 18½ 798 (20) 4 19¼	370 (19) 3½ 21 795 (19) 3¾ 18	450 (20) 3¼ 18½ 540 (20) 3¾ 21	445 (20) 2¾ 16½ 535 (20) 2½ 19¼	520 (20) 4¼ 16¾ 885 (20) 2½ 13	689 (14) 2¾ 13¾ 1130 (13) 4¼ 21¾	1240 (14) 2¼ 11¾ 2160 (13) 2¾ 13	74 (14) 3¾ 19½ 98 (13) 3¼ 14½
				220 (5) 9½ 21¼ 210 (5) 13 29¼					

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Bridelia minutiflora	Green	5	29·6 (5) 4¾ 10¾		4160 (5) 4¾ 10½	7120 (5) 3¾ 7½	1420 (5) 3 6½
	12%	5		34·4 (5) 4 8¾	6700 (4)	9680 (4)	1560 (4)
Buchanania macrocarpa	Green	5	17·5 (5) 7¼ 16¼		2620 (5) 6¾ 15	4080 (5) 8¾ 19¾	986 (5) 4½ 10
	12%	5		21·1 (5) 6½ 14¼	5240 (5) 9¼ 20¾	7180 (5) 10¼ 22¾	1180 (5) 6 13¼
Calophyllum papuanum	Green	5	30·6 (5) 6½ 14¼		5660 (5) 10 22½	8590 (5) 8¼ 18¾	1640 (5) 5½ 12½
	12%	5		37·0 (5) 6 13¾	9920 (5) 3¼ 7¼	14800 (5) 4¼ 9¾	1990 (5) 4¾ 10¾
Campnosperma brevipetiolata	Green	6	20·7 (6) 4¾ 11		3360 (5) 9¼ 21¾	4930 (5) 11 24¼	1010 (5) 11¾ 26½
	12%	6		25·6 (6) 6¼ 15½	5950 (4)	8570 (4)	1400 (4)
Canarium indicum	Green	3	35·2 (3)		7330 (3)	10700 (3)	1870 (3)
	12%	3		41·3 (3)	9430 (3)	15800 (3)	2120 (3)
Canarium oleosum	Green	6	30·0 (6) 2¼ 5¼		5450 (6) 7¼ 17¾	8490 (6) 3½ 8½	1500 (6) 1¾ 4
	12%	5		35·1 (5) 2 4¾	9580 (5) 1½ 3¼	13000 (5) 3¾ 8¼	1690 (5) 2½ 5¼
Castanopsis acuminatissima	Green	6	33·4 (6) 2½ 6½		6000 (4)	8200 (4)	1740 (4)
	12%	6		41·9 (6) 3¼ 8	9900 (4)	13800 (4)	2240 (4)
Cathormion umbellatum syn. *Pithecellobium umbellatum*	Green	5	43·3 (5) 1 2		10900 (2)	14000 (2)	2280 (2)
	12%	5		50·4 (5) ½ ¾	13600 (5) 4¾ 11	20900 (5) 3¼ 7¼	2450 (5) 1 2½
Celtis nymanii	Green	7	29·9 (7) 8¼ 23¼		4670 (6) 14¼ 33¼	7580 (6) 9½ 22¾	1380 (6) 7¾ 19¼
	12%	8		35·5 (8) 6¾ 19½	7970 (7) 7¾ 20½	11500 (7) 8¾ 24	1730 (7) 4¾ 12¾
Chisochcton schumannii } *Chisocheton* spp.	Green	10	31·1 (10) 3 9¾		5320 (8) 2½ 7½	8810 (8) 2¾ 7¾	1670 (8) 6 17
	12%	10		37·1 (10) 3¾ 11¾	9240 (10) 5 16	13200 (10) 4 13	1950 (10) 5¾ 17¾

Compression Parallel to Grain			Shear		Impact			
			Maximum Shear Strength		Toughness Value		Izod Value	
Stress at L.P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
	3770 (5[a]) 5½ 12¼			945 (4)	80 (4)	99 (4)	8·3 (3) – –	4·8 (5) 11 24½
	5700 (4[a])			1280 (4)	75 (3)	80 (4)	6·4 (4) –	6·5 (4) – –
	1970 (5[a]) 10¼ 23½			534 (5) 10 22½	39 (5) 5¼ 11¾	41 (4)	3·2 (4) –	2·9 (5) 11½ 25¾
	4090 (4[a])			970 (5) 14¼ 30½	46 (4)	45 (4)	3·3 (5) 6¼ 14¼	3·9 (5) 16 35¾
	4980 (4[a])			1350 (5) 11¼ 25	114 (3)	79 (3)	7·9 (4) –	6·7 (4) – –
	8400 (5[a]) 7½ 16¾			2010 (5) 8¼ 18¼	105 (2)	95 (2)	9·5 (5) 13¾ 30½	7·8 (5) 11 24¾
1900 (1)	2700 (6[a]) 10¾ 26½	1290 (1)	660 (1)	692 (6) 8¾ 21½	56 (6) 14¾ 37½	50 (6) 14½ 36¾	2·7 (5) 17½ 41	3·4 (6) 14¼ 35¼
	4900 (5[a]) 7 15¾			1140 (5) 9¾ 21¾	66 (5) 15 33½	61 (4) 30	3·5 (3) –	4·4 (3) – –
	5340 (3[a])		1300 (3)		217 (3)	208 (3)	11·2 (3) –	12·6 (3) – –
	8770 (2[a])		1850 (3)		100 (3)	80 (3)	12·5 (3) –	11·2 (3) – –
	4050 (6[a]) 5¼ 13		1100 (2)	1120 (4)	115 (6) 11¾ 28¾	110 (6) 9 22¼	8·3 (6) 8 19¼	8·0 (6) 14¼ 34¾
	7100 (5[a]) 2¾ 6¼		1640 (1)	1850 (4)	107 (5) 8¾ 19½	95 (5) 7 15½	8·0 (4) –	7·9 (4) – –
	4060 (6[a]) 5¾ 14			1120 (6) 4¼ 10¼	133 (6) 8¼ 19	140 (5) 8 16¾	9·4 (5) 14 27	10·5 (4) – –
	8260 (5[a]) 3¾ 8¼		1150 (1)	1550 (4)	148 (5) 9 20	143 (5) 19¾ 45	14·8 (6) 11 27½	12·4 (5) 9¼ 19
	7880 (5[a]) 3 7			2080 (4)	126 (3)	132 (3)	9·3 (5) 8¾ 19½	8·4 (5) 4½ 9¾
	11800 (5[a]) 2 4¾			2790 (3)	170 (4)	161 (5) 4 28¾	10·7 (5) 2¾ 6	11·2 (4)
2600 (1)	3980 (7[a]) 13¼ 35	1160 (2)	635 (2)	1170 (7) 12 31¾	75 (7) 25¼ 60¼	69 (5) 35¾ 62½	3·6 (5) 36¼ 66¼	4·5 (4) 64¼
4770 (3)	6820 (7[a]) 9 23¾	1800 (3) 8¾	1030 (3)	1670 (8) 11½ 32½	77 (4) 34¼	109 (6) 21¼ 40	9·6 (7) 25¼ 52½	8·1 (7) 16 35¾
	4390 (9[a]) 3½ 10¾		930 (2)	1080 (5) 4¼ 9¾	89 (9) 5 15¼	99 (9) 12¾ 38¼	6·9 (9) 9 26¼	7·9 (9) 5 14½
	7660 (9[a]) 4 12¼			1390 (7) 5¾ 15¼	121 (6) 15 36½	117 (4)	9·1 (7) 5¾ 15¼	7·8 (8) 7 19½

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Bridelia minutiflora	Green		247 (5) 12 26¾				
	12%		320 (4)				
Buchanania macrocarpa	Green		144 (4)				
	12%		246 (4)				
Calophyllum papuanum	Green		352 (4)				
	12%		432 (5) 15¼ 34				
Campnosperma brevipetiolata	Green	105 (1)	172 (5) 18 40¼	220 (1)	150 (1)	365 (1)	310 (1)
	12%		178 (4)				
Canarium indicum	Green	370 (3)					
	12%	332 (3)					
Canarium oleosum	Green	306 (2)	282 (4)				
	12%	388 (1)	393 (4)				
Castanopsis acuminatissima	Green	235 (1)	382 (6) 8¾ 21¼				
	12%		361 (3)				
Cathormion umbellatum syn. *Pithecellobium umbellatum*	Green		459 (2)				
	12%						
Celtis wymanii	Green	205 (2)	301 (4)	500 (1)	385 (2)	860 (1)	608 (2)
	12%	242 (2)	289 (5) 16 35¾	623 (2)	743 (3)	1160 (3)	1170 (3)
Chisocheton schumannii } *Chisocheton* spp.	Green	266 (2)	316 (7) 6¾ 17¾				
	12%	126 (1)	333 (5) 15½ 34½				

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
				520 (5) 13½ 30¼					
				520 (4)	460 (1)				
				240 (5) 14¾ 32¾					
				280 (5) 14¾ 33					
				810 (5) 13¾ 30¾					
				1030 (5) 14¼ 31¾					
140 (1)	110 (1)	221 (1)	184 (1)	315 (6) 11¼ 27¾	320 (1)	410 (1)			
				395 (6) 12 29½					
					1170 (3)				
					1170 (3)				
					1170 (3)				
				720 (4)	695 (3)				
				825 (3)	865 (2)				
				1070 (6) 10¼ 25¼					
				925 (6) 7¼ 18	875 (1)				
				1970 (3)					
				1580 (5) 3¼ 7½					
195 (2)	195 (2)	358 (2)	366 (2)	460 (4)	470 (4)	435 (2)	800 (1)	1450 (1)	84 (1)
453 (3)	590 (3)	745 (3)	855 (3)	935 (8) 18¼ 51¾	510 (3)	890 (3)	980 (1)	1770 (1)	86 (1)
				720 (8) 7 19¾	750 (2)				
				805 (8) 6¾ 19	895 (2)				

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Cinnamomum spp.	Green	7	20·3 (7) 1¾ 4¾		2930 (6) 3½ 8½	4780 (6) 2½ 6¼	902 (6) 5¾ 14¼
	12%	7		24·2 (7) 2¼ 6¼	3840 (7) 7¼ 19¼	6360 (7) 4¼ 11½	1060 (7) 5¼ 14
Cordia dichotoma	Green	5	24·9 (5) 2¼ 5¼		5060 (5) 6 13½	7490 (5) 4¾ 10¾	1150 (5) 3½ 8
	12%	5		28·6 (5) 1¼ 3	7150 (4)	9380 (4)	1240 (4)
Cryptocarya spp.	Green	5	27·0 (5) 6¼ 14		3220 (5) 9 20	5700 (5) 11¾ 25½	1330 (5) 10¾ 24
	12%	5		34·2 (5) 7½ 16¾	7240 (5) 18¼ 41	11700 (5) 10 22¼	1760 (5) 5 11¼
Diospyros sp.	Green	5	37·9 (5) 1½ 3¼		4960 (5) 8¼ 18¼	7450 (5) 6 13½	1560 (5) 5¼ 11¾
	12%	5		47·1 (5) 1½ 3½	9480 (5) 4 9	14800 (5) 3¼ 7	2200 (5) 2¾ 6¼
Dracontomelon mangiferum	Green	7	29·0 (7) 4½ 11¾		5430 (6) 5 12	8540 (6) 4¼ 10½	1400 (6) 6½ 15¾
	12%	7		33·8 (7) 5 12½	7880 (4)	11800 (4)	1660 (4)
Drypetes spp.	Green	5	42·8 (5) 1¾ 3¾		6240 (5) 6 13½	12700 (5) 3¾ 8¼	1910 (5) 4¾ 10½
	12%	5		52·4 (5) 2¼ 4¾	10600 (5) 5 11¼	20400 (5) 2¾ 6	2480 (5) 1½ 3½
Duabanga moluccana	Green	5	20·2 (5) 10¼ 10¾		2820 (5) 9½ 21¼	4310 (5) 8¾ 19½	796 (5) 6½ 14½
	12%	5		23·7 (5) 11½ 25½	4570 (3)	6220 (3)	967 (3)
Dysoxylum spp.	Green	5	38·9 (5) 3 6½		7350 (4)	12200 (4)	1650 (4)
	12%	5		45·8 (5) 2¼ 4¾	11800 (2)	18300 (2)	2090 (2)
Elaeocarpus sphaericus	Green	5	20·6 (5) 4½ 10¼		3820 (4)	5810 (4)	1020 (4)
	12%	5		24·0 (5) 2¾ 6¼	5900 (4)	8210 (5) 5½ 12	1140 (5) 3¼ 7¼
Elmerrillia papuana	Green	5	25·5 (5) 1¾ 3¾		4840 (5) 9½ 21	6860 (5) 5½ 12½	1200 (5) 5¾ 13
	12%	5		29·9 (5) 1¼ 2¾	7980 (5) 2½ 5½	11500 (5) 4½ 10¼	1420 (5) 3¼ 7

Compression Parallel to Grain			Shear		Impact			
			Maximum Shear Strength		Toughness Value		Izod Value	
Stress at L. P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
	2390 (7″) 4 10¾			591 (7) 4¼ 11¼	58 (6) 7¼ 17¾	51 (6) 7¾ 19¼	3·9 (7) 8 21	4·3 (7) 9¼ 24¾
	4050 (7″) 4¼ 11		760 (1)	800 (7) 4¼ 11¼	49 (5) 11¾ 26½	50 (5) 14 31	5·0 (7) 14¾ 39¼	4·0 (5) 18 40
	3990 (5″) 3½ 8		860 (2)	700 (3)	98 (4)	103 (5) 16¾ 37¼	8·2 (5) 1½ 3¼	10·5 (3)
	6010 (5″) ¾ 1½		970 (1)	868 (4)	92 (5) 7¾ 17¼	96 (2)	8·9 (5) 11¼ 25	9·0 (4)
	2590 (5″) 12¾ 28¼			1160 (4)	38 (2)	50 (2)	5·0 (5) 10¼ 23	5·9 (5) 10½ 23¼
	6940 (4″)			1430 (4)	79 (4)	71 (3)	6·5 (3)	6·5 (3) 56¾
	3750 (5″) 4 9			1220 (5) 3¼ 7½	76 (5) 12¾ 28¼	93 (5) 17 38¼	9·7 (5) 14½ 32¾	9·2 (5) 19¼ 44
	8600 (4″)			2290 (4)	135 (3)	138 (3)	10·4 (5) 11¼ 25¼	10·4 (5) 5 11¼
4100 (1)	4300 (7″) 4 10¼	1690 (1)	1030 (2)	1140 (7) 6½ 17¼	99 (3)	109 (5) 13½ 30¼	7·7 (6) 7¾ 18¾	8·2 (7) 13 28¾
6000 (1)	6700 (7″) 3 7¾	2150 (1)	1550 (2)	1630 (5) 6½ 14	80 (7) 9¾ 29½	91 (6) 10½ 30¼	8·0 (5) 8¾ 19¾	6·8 (6) 8¼ 20½
	5280 (5″) 5 11¼		1320 (5) 6½ 14¾		322 (5) 9¼ 20½	263 (5) 6¾ 14¾	16·8 (5) 8 18¼	18·4 (4)
	10200 (4″)		1420 (1)		190 (2)	180 (2)	12·5 (5) 9¾ 21¾	11·1 (3)
	3080 (4″)			582 (5) 11 24½	48 (2)	36 (2)	3·4 (4)	3·8 (4)
	4340 (4″)			862 (5) 14½ 32¼	158 (2)	78 (2)	5·0 (5) 7 15¼	5·3 (4)
	6200 (5″) 3 6¾			1580 (5) 5½ 12¼	204 (3)	178 (2)	15·9 (5) 10¾ 24¼	17·5 (4)
	9610 (5″) 3¾ 8½			2060 (5) 7 15½	173 (3)	169 (1)	10·7 (4)	11·9 (4)
	2860 (5″) 5¾ 13			874 (5) 4½ 10¼	81 (4)	62 (5) 6½ 14½	5·2 (5) 18½ 41¼	5·1 (4)
	4720 (4″)			1260 (5) 6½ 14½	47 (5) 9½ 21	50 (3)	3·7 (5) 17¾ 40	3·1 (4)
	3810 (5″) 4¼ 9½			1120 (4)	103 (4)	118 (5) 7½ 16¾	8·8 (5) 5½ 12	8·6 (4)
	6570 (4″)			1620 (3)	81 (3)	69 (4)	6·2 (4)	5·5 (4)

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Cinnamomum spp.	Green		165 (6) 3 7½				
	12%		186 (6) 15¼ 37¼				
Cordia dichotoma	Green	331 (1)	262 (2)				
	12%	268 (2)	230 (2)				
Cryptocarya spp.	Green		226 (5) 15¼ 34¼				
	12%		371 (5) 12½ 28				
Diospyros sp.	Green		420 (5) 4½ 10¼				
	12%		461 (4)				
Dracontomelon mangiferum	Green	192 (1)	280 (6) 6½ 16	570 (1)	670 (1)	1140 (1)	1200 (1)
	12%	266 (2)	372 (1)	980 (1)	1160 (1)	1990 (1)	2000 (1)
Drypetes spp.	Green	255 (3)					
	12%						
Dillobanga moluccana	Green		185 (4)				
	12%		209 (4)				
Dysoxylum spp.	Green		498 (3)				
	12%		555 (3)				
Elaeocarpus sphaericus	Green		283 (4)				
	12%		252 (4)				
Elmerrillia papuana	Green		332 (5) 7¼ 16				
	12%		194 (1)				

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
				300 (7) 5¼ 13¾ 355 (7) 3¾ 9¼					
				640 (3) 525 (4)	600 (2) 558 (1)				
				545 (4) 680 (5) 13¼ 29¾	295 (1)				
				980 (5) 6½ 14½ 1480 (4)	1490 (1)				
400 (2)	500 (1)	670 (2)	735 (1)	725 (7) 10½ 28	770 (2)	840 (2)	680 (1)	1560 (1)	75 (1)
610 (1)	800 (1)	1160 (1)	1300 (1)	820 (7) 7 18	850 (2)	910 (1)	1300 (1)	2170 (1)	106 (1)
					1460 (5) 6¾ 15¼ 2000 (5) 7½ 17				
				300 (5) 15¼ 34¼ 310 (4)					
				1430 (4) 1460 (5) 5½ 12¼					
				390 (5) 4¼ 9½ 380 (5) 9¾ 22					
				755 (5) 3¾ 8½ 680 (5) 4¾ 10¾					

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Endospermum medullosum	Green	8	20·4 (8) 3¾ 10¾		3500 (5) 8 17¾	5830 (5) 5½ 12½	1260 (5) 9 20
	12%	7		24·5 (7) 3¼ 10½	6020 (4)	8910 (4)	1390 (4)
Eucalyptus deglupta	Green	10	34·7 (10) 6 18		7100 (9) 7¾ 23	10300 (9) 7¼ 20	1710 (9) 6 16
	12%	11		42·9 (12) 4¼ 14¾	10300 (9) 5¾ 19	15300 (9) 6 16¾	2040 (9) 5 14¼
Eugenia spp.	Green	6	34·9 (6) 1¾ 4½		6250 (6) 7 17	9700 (6) 4¼ 10¼	1560 (6) 3 7
	12%	5		41·4 (5) 1¾ 3	8560 (5) 3½ 8	14100 (5) 2¾ 6	1820 (5) 5 11¼
Flindersia amboinensis	Green	5	29·2 (5) 5¼ 11½		5020 (4)	7540 (5) 5¼ 12	1370 (4)
	12%	5		34·6 (5) 5¼ 12	8680 (4)	12500 (4)	1740 (4)
Flindersia pimenteliana	Green	13	26·9 (13) 2¾ 9¾		4440 (12) 5½ 19½	7240 (12) 3¼ 11½	1330 (12) 1¾ 6
	12%	13		35·1 (13) 2½ 9¼	7900 (8) 4½ 12½	12400 (8) 3 8½	1660 (8) 3 8¼
Ganophyllum falcatum	Green	5	40·9 (5) 1¾ 4		6430 (3)	10200 (3)	1620 (3)
	12%	9		47·7 (9) 2¼ 6¾	10500 (3)	15300 (7) 5½ 14½	2010 (7) 5¼ 13¾
Geruga floribunda	Green	4	37·4 (4)		7770 (3)	10700 (3)	1690 (3)
	12%	4		43·2 (4)	9600 (3)	14100 (3)	1880 (3)
Gmelina moluccana	Green	5	25·0 (5) 6½ 14½		4440 (5) 8¾ 19½	6840 (5) 6½ 14¾	1260 (5) 6 13½
	12%	5		29·0 (5) 5¼ 11¾	6280 (5) 5 11¼	8890 (5) 5¼ 11½	1280 (5) 4½ 9¾
Heritiera cf. *littoralis*	Green	5	40·6 (5) 1¾ 4		7460 (5) 6 13¼	12500 (5) 8 18	2240 (5) 5½ 12
	12%	5		49·6 (5) 2¾ 6	11700 (5) 5¾ 12¾	19200 (5) 5½ 12½	2600 (5) 3½ 8
Homalium foetidum	Green	5	45·0 (5) 2 4¼		10900 (5) 7¼ 16	15200 (5) 4¼ 9½	2360 (5) 4 9¼
	12%	5		56·5 (5) 2¼ 5	13600 (5) 5¼ 11¾	22000 (5) 3¾ 8¾	2780 (5) 4½ 10

Compression Parallel to Grain			Shear		Impact			
Stress at L.P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Maximum Shear Strength		Toughness Value		Izod Value	
			Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
2500 (1)	2670 (8[a]) 5¾ 16½	1690 (1)	270 (1)	549 (7) 10½ 28	66 (6) 14¾ 40	52 (6) 12½ 31¾	5·1 (8) 8¾ 28	5·1 (8) 8¾ 28¼
4300 (1)	5200 (5[a]) 3¼ 7¼	1950 (1)	915 (2)	752 (6) 3½ 9	64 (7) 5¾ 19	58 (7) 10½ 25¼	5·3 (6) 5 18¼	5·9 (5) 5 15¾
6140 (5) 4¾ 11¾	6950 (5) 2¾ 7¾	2480 (5) 2¾ 8¾	1180 (7) 9½ 25½	1080 (8) 7¼ 20¾	144 (9) 8 19	156 (9) 8¼ 26¾	13·1 (10) 7 21½	13·3 (10) 7 18¼
7420 (5) 2¾ 9¼	10100 (5) 2½ 7½	2710 (5) 2 9¼	1730 (5) 4½ 10	1550 (8) 9¾ 27½	155 (10) 4¼ 13¾	168 (9) 6¼ 19½	14·7 (9) 5¼ 15½	13·4 (8) 5¼ 18¼
	5000 (6[a]) 5¼ 12¾		1150 (5) 3¾ 9		149 (6) 11 27	138 (6) 11½ 28	10·0 (6) 6¼ 15¾	12·9 (5) 13¾ 30¾
	7680 (4[a])		1380 (5) 12 27		119 (4)	113 (4)	9·5 (5) 7½ 17¼	10·9 (4)
	4160 (5[a]) 10½ 23¼			1210 (5) 9¼ 20¾	80 (5) 11¾ 26½	74 (3)	6·4 (3)	5·9 (3)
	7250 (5[a]) 7 15¾			2090 (4) –	97 (5) 14¾ 33¼	104 (4)	10·3 (5) 23¾ 53	7·6 (4)
2700 (7) 10¼ 27¼	3680 (8) 3 8¼	1440 (8) 2½ 6¾	900 (7) 4½ 11¾	1020 (13) 5 17¾	95 (11) 6 19¾	83 (11) 6¼ 21	6·6 (12) 8¾ 30¼	6·6 (13) 8¾ 31½
5360 (5) 2¾ 6	7180 (5) 5½ 12½	1780 (5) 4 8¾		1890 (4)	102 (10) 5¼ 16¾	91 (10) 3¾ 11½	8·2 (13) 5 18	7·7 (13) 3¾ 13¼
	5130 (5[a]) 4½ 10		1420 (4)		270 (2)	215 (4)	12·8 (4)	15·4 (4)
5850 (4)	8580 (4)	2410 (4)	2350 (8) 5½ 15¾		164 (6) 10¾ 26¼	174 (5) 16 36	10·1 (5) 8½ 19	13·3 (7) 13 34¼
	5680 (4[a])		1500 (4)		137 (2)	149 (3)	10·1 (4)	10·8 (4)
	7700 (3[a])		2050 (4)		69 (3)	89 (3)	5·6 (4)	5·6 (4)
	3730 (5[a]) 8½ 19¼			850 (5) 9½ 21½	82 (4)	75 (5) 13¼ 29½	6·5 (5) 20¾ 45½	6·4 (5) 18½ 41¼
	5250 (4[a])		1120 (2)	1010 (3)	55 (4)	58 (4)	5·2 (5) 14½ 32¼	4·2 (5) 10 22
	5530 (5[a]) 7¼ 16¼		1350 (5) 4 9		188 (5) 3¾ 8½	229 (5) 11¾ 26½	11·3 (5) 17 38	12·9 (5) 10 22¼
	10500 (5[a]) 4 9		2030 (5) 4½ 10¼		224 (5) 5¼ 11¾	215 (4)	18·6 (5) 8 18¼	18·6 (5) 5½ 12¼
	7920 (5[a]) 2¼ 5		1660 (3)	1340 (2)	193 (5) 15¾ 35¼	166 (5) 8 18	15·6 (5) 6¾ 15¼	13·7 (4)
	12200 (4[a])		2060 (3)	3510 (1)	176 (3)	183 (3)	15·0 (3)	16·2 (2)

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Endospermum medullosum	Green	101 (1)	160 (6) 11¼ 27½	350 (1)	350 (1)	610 (1)	615 (1)
	12%		171 (7) 7 18¼	920 (1)	590 (1)	1480 (1)	1250 (1)
Eucalyptus deglupta	Green	274 (7) 3¾ 10	335 (7) 7 18¾	774 (5) 10½ 23½	684 (5) 8¾ 19¼	1610 (5) 8¼ 18¼	1480 (5) 8¼ 18½
	12%	328 (5) 4¼ 9½	313 (5) 8½ 19¼	1070 (5) 12¾ 28¾	1640 (5) 9¾ 21¾	2110 (5) 13¾ 30¾	2170 (5) 13 29
Eugenia spp.	Green	279 (6) 7¾ 19					
	12%	320 (5) 9½ 21½					
Flindersia amboinensis	Green		327 (4)				
	12%		402 (4)				
Flindersia pimenteliana	Green	231 (6) 7½ 18¼	267 (12) 8 27½	406 (7) 4¼ 11¼	643 (6) 10¼ 25¼	770 (7) 3 8	1080 (6) 5 12
	12%		430 (4)				
Ganophyllum falcatum	Green	352 (5) 12 27					
	12%	458 (5) 16 36	600 (1)				
Garuga floribunda	Green	294 (4)					
	12%	254 (3)					
Gmelina moluccana	Green		253 (5) 11¾ 26¼				
	12%		250 (5) 8 18				
Heritiera cf. *littoralis*	Green	270 (5) 10½ 23¼					
	12%	344 (5) 9 20¼					
Homalium foetidum	Green	302 (3)	669 (1)				
	12%	209 (3)					

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
190 (3)	220 (1)	306 (3)	354 (1)	300 (8) 5¾ 16	255 (3)	345 (3)	310 (1)	460 (1)	42 (1)
440 (1)	740 (1)	732 (1)	1010 (1)	360 (7) 6¾ 18	410 (3)	600 (1)			
576 (5) 8½ 18½	572 (4)	931 (5) 7 16	832 (5) 7½ 17½	955 (8) 12½ 34¾	1050 (7) 11½ 30½	1160 (5) 11 24¾	946 (5) 4¾ 10¾	1460 (5) 3¾ 8¼	98 (5) 8 18
724 (5) 12½ 28	974 (5) 17½ 39	1250 (5) 14¾ 33	1210 (5) 12 27	1130 (12) 8¾ 30	1270 (6) 9 22½	1320 (5) 6¾ 15¼	1440 (4)	2040 (4)	123 (4)
					1010 (6) 5½ 13¼				
					915 (5) 5 11				
				650 (5) 13¾ 31					
				805 (5) 13½ 30¼					
287 (7) 8½ 22½	420 (7) 10¼ 27	467 (7) 6 16	576 (7) 7 18½	640 (5) 13¾ 30¾	630 (8) 6 17¼		747 (6) 2½ 6½	1450 (6) 2¼ 5¾	67 (6) 6¼ 15
				725 (4)					
					1430 (5) 5¾ 13				
					1800 (5) 3¼ 7¼				
					1340 (4)				
					1010 (4)				
				480 (5) 13 29					
				450 (5) 13½ 30					
					1440 (5) 4 9¼				
					1700 (5) 6½ 14½				
				1600 (1)	1640 (4)				
				2440 (2)	2020 (3)				

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Homalium sp.	Green	10	42·1 (10) 1½ 4¾		9370 (10) 3½ 13	14400 (10) 3¾ 11¼	2130 (10) 3½ 10¾
	12%	10		50·3 (10) 1¾ 6	12400 (10) 3¾ 13½	19000 (10) 2¾ 9	2400 (10) 2½ 8
Hopea iriana	Green	11	51·3 (11) ¾ 3¾		13200 (7) 1¾ 6	17200 (7) 2¼ 6½	3190 (7) 3¼ 8¼
	12%	11		61·6 (11) 1 3½	16400 (8) 4½ 11¼	24500 (8) 5¾ 15¾	3510 (8) 3½ 9¼
Hopea papuana	Green	8	36·2 (8) 1¾ 4¾		8720 (6) 3¾ 9	14100 (6) 4 9¾	2220 (6) 3 7¼
	12%	8		44·4 (8) 2 5¾		16000 (4)	2340 (4)
Horsfieldia irya syn. *Myristica irya*	Green	5	22·5 (5) 1½ 3		3550 (4)	5100 (4)	1270 (4)
	12%	5		27·7 (5) 1¼ 3	6500 (5) 1½ 3½	8740 (5) 2 4½	1490 (5) 1¾ 3¾
Intsia bijuga	Green	14	44·0 (14) 1¼ 4¾		9280 (14) 6½ 25¼	15000 (14) 4½ 16¾	2150 (14) 3½ 12½
	12%	14		51·7 (14) ¾ 3¾	11600 (10) 4½ 16¾	21300 (11) 2¾ 10¾	2610 (11) 4¼ 16
Mangifera minor	Green	5	32·0 (5) 5 11¼		6020 (5) 5¼ 11¾	8870 (5) 1½ 3¼	1620 (5) 4½ 9¾
	12%	5		38·0 (5) 5 11¼	8980 (4)	12800 (4)	1840 (4)
Manilkara kanosiensis	Green	4	51·4 (4)		10100 (4)	15000 (4)	2490 (4)
	12%	4		64·4 (4)	14600 (4)	23700 (4)	3070 (4)
Maniltoa psilogyne	Green	5	38·6 (5) ½ 1¼		6360 (5) 8 17½	11800 (5) 4 17½	1810 (5) 2¼ 5
	12%	5		47·9 (5) ½ 1¼	10700 (5) 5 11¾	18800 (5) 3½ 8	2380 (5) 3¼ 7½
Mastixiodendron pachyclados	Green	5	40·0 (5) ¾ 1¾		6660 (5) 4 9	10400 (5) 2½ 5¾	2010 (5) 3½ 7¾
	12%	5		50·4 (5) ¾ 1½	10800 (5) 3½ 8	17600 (5) 2½ 5¾	2610 (5) 2 4¼
Myristica buchneriana	Green	5	25·2 (5) 6 13½		4970 (3)	7140 (3)	1430 (3)
	12%	4		28·1 (4)	7200 (4)	10400 (4)	1630 (4)

Compression Parallel to Grain			Shear		Impact			
Stress at L.P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Maximum Shear Strength		Toughness Value		Izod Value	
			Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
6160 (10) 5¼ 18	7550 (10) 3¼ 10	2290 (10) 3¼ 10¼	1390 (10) 3½ 13	1980 (10) 2½ 9¾	84 (10) 8¾ 35¾	77 (10) 7¼ 27	5·9 (10) 14 49½	4·2 (10) 15 51¼
7560 (10) 3½ 13¼	10300 (10) 2 7½	2690 (10) 5¾ 16	1680 (10) 5¼ 19½	2720 (10) 2 9	143 (9) 9¾ 29	131 (9) 7 25	8·0 (10) 5½ 27½	7·8 (10) 12 43
9400 (5) 4 12	10200 (6) 2¾ 7	3620 (6) 4 10½	2000 (6) 2 4¾	2070 (11) 2¾ 9	187 (11) 7 19¾	183 (11) 11¼ 28	13·1 (10) 7¾ 20	13·0 (10) 7½ 20¼
9170 (3)	13700 (10^a) 3½ 10¾	3950 (3)	2200 (6) 4½ 10¾	2670 (9) 3¾ 11	257 (9) 3½ 12½	230 (9) 4½ 12¾	16·3 (7) 6½ 18¼	16·4 (8) 8½ 24¼
5800 (6) 11 27	6450 (8) 5¾ 16½	2580 (8) 6 17	1290 (7) 3¼ 8¾	1230 (7) 3 8	104 (7) 15¾ 41½	103 (8) 12½ 35¼	7·2 (8) 6¾ 19¼	8·2 (7) 10½ 28
7100 (3)	9290 (8^a) 18 50¾	3100 (4)			133 (8) 8¾ 30		12·9 (8) 7¾ 22	11·4 (8) 5¼ 14¾
	2530 (5^a) 5½ 12¼			640 (4)	31 (5) 6¾ 15	38 (5) 11 25	3·1 (5) 15¾ 35	2·8 (5) 17½ 39
	5010 (5^a) 4 9			744 (5) 2½ 5½	55 (5) 3¼ 7½	49 (5) 2¼ 5	4·3 (5) 12 26¾	4·0 (5) 13½ 30½
6870 (9) 8¼ 27	8040 (9) 5½ 21¼	2450 (9) 4¾ 15¼	1790 (9) 6¾ 18	1860 (14) 4¼ 15	196 (13) 6¼ 25¾	197 (13) 6 22	12·6 (11) 6½ 22¼	13·7 (11) 6¼ 23¼
8270 (8) 6 19½	11700 (8) 5 14½	2870 (8) 5½ 15¼	2770 (8) 4 11¼	2540 (12) 7 20½	191 (14) 7½ 28¾	169 (13) 8¾ 29¾	10·5 (12) 11½ 37	10·4 (10) 17¼ 45¼
	4680 (5^a) 3¾ 8¾			1270 (5) 4¼ 9½	86 (5) 11 24¾	83 (5) 10½ 23½	6·4 (4)	7·1 (5) 8½ 19
	7440 (5^a) 2 4¾		2440 (1)	1670 (4)	74 (4)	105 (4)	9·0 (4)	7·1 (4)
	7890 (3^a)			2090 (4)	214 (3)	215 (3)	12·8 (4)	16·0 (4)
	12000 (4^a)			2820 (4)	168 (2)	222 (2)	11·7 (4)	11·6 (2)
	5420 (5^a) 1¼ 2½		1300 (5) 4¼ 9¾		147 (5) 7 15½	152 (4)	9·5 (5) 5½ 12¼	11·1 (5) 3¼ 7
	9560 (5^a) 2 4¼		2060 (5) 5¼ 11¾		214 (4)	219 (3)	15·7 (5) 14¾ 32¾	17·4 (4)
	5010 (5^a) 1½ 3½		984 (5) 13½ 30		151 (5) 3¾ 8¾	134 (5) 4¼ 9½	12·0 (4)	13·2 (5) 7¾ 17¼
	10700 (5^a) 1¾ 3¾		1840 (4)		136 (4)	123 (2)	10·3 (4)	9·1 (3)
	3430 (5^a) 11¼ 25½		1140 (1)	964 (5) 11¾ 26¼	54 (5) 15¾ 31½	43 (4) 24¾	4·1 (5) 24 53½	5·7 (5) 21½ 48¼
	6340 (3^a)			1320 (2)	64 (4)	50 (3)	3·8 (2)	5·1 (4) 49¼

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Homalium sp.	Green	253 (10) 8½ 31¼	576 (10) 4¾ 15½	1000 (10) 3 13½	1500 (10) 4 16½	1930 (10) 3¼ 12	2630 (10) 4¼ 14½
	12%	150 (9) 8 28¼	506 (9) 4¼ 14½	1200 (10) 4½ 13½	2010 (10) 5½ 21	2600 (10) 5 15½	3720 (10) 5¾ 17¾
Hopea iriana	Green	320 (3)	418 (6) 15 36½	2410 (3)	2200 (3)	3870 (3)	3860 (3)
	12%	420 (2)	423 (7) 9½ 23¾	1980 (2)	2140 (2)	4110 (2)	3360 (2)
Hopea papuana	Green	288 (7) 8¼ 22¼	447 (7) 3¾ 9½	764 (7) 3 8¼	1000 (7) 8½ 22¼	1520 (7) 3¾ 10	1780 (7) 3¾ 10¼
	12%						
Horsfieldia irya syn. *Myristica irya*	Green		192 (5) 7¼ 16				
	12%		225 (5) 5¾ 13¼				
Intsia bijuga	Green	377 (9) 4½ 18½	458 (13) 6¼ 26¾	1260 (9) 5¼ 18¾	1290 (9) 6½ 18½	2590 (9) 4¼ 13¾	2530 (9) 4 12
	12%	389 (8) 7 19½	461 (10) 9 25½	1660 (7) 7¼ 19¼	1720 (7) 5¾ 18¾	3850 (7) 4½ 12¼	3950 (7) 4¾ 13
Mangifera minor	Green		280 (4)				
	12%		336 (4)				
Manilkara kanosiensis	Green		448 (4)				
	12%		605 (3)				
Manilkara psilogyne	Green	349 (5) 10¼ 23					
	12%	388 (3)					
Mastixiodendron pachyclados	Green	196 (5) 21 47¼					
	12%	408 (2)					
Myristica buchneriana	Green	236 (1)	211 (5) 8 17¾				
	12%						

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
667 (10) 7¾ 29¾	1120 (10) 5¼ 17	1270 (10) 5¼ 19¾	1670 (10) 4 13½	1240 (10) 6 20¼	1330 (10) 5¼ 18¼	1660 (10) 4 13¼	1100 (10) 4¼ 16¼	1830 (10) 4¼ 13½	107 (10) 3¾ 13¼
895 (10) 3¼ 11½	1590 (10) 3½ 12½	1680 (10) 5¼ 16¼	2490 (10) 4¾ 15½	1740 (10) 3½ 12¾	1740 (10) 4 14	2340 (10) 2½ 7¾	1190 (10) 6¾ 24¾	2290 (10) 3 10	128 (10) 2¾ 10¼
1510 (3)	1480 (3)	2270 (3)	2130 (3)	2140 (10) 3½ 11½	2010 (7) 4½ 11¾	1890 (6) 3¼ 8	1660 (2)	2750 (2)	153 (2)
1670 (3)	1830 (4)	2760 (3)	2910 (4)	2340 (9) 2¾ 8¼	2250 (4)	2200 (3)	2100 (1)	3080 (1)	183 (1)
569 (8) 3¾ 10½	786 (7) 6½ 17½	889 (8) 3¼ 9	957 (7) 4¼ 11		1050 (8) 5¾ 16½		1020 (8) 6 17	1860 (8) 2¼ 6½	94 (8) 5 14
				1010 (3)					
				300 (5) 3½ 8 415 (5) 4½ 10¼					
800 (9) 3 12½	903 (9) 4 18½	1490 (9) 3½ 12½	1440 (9) 3¼ 11½	1690 (14) 4 17½	1710 (10) 3½ 13¼	1670 (9) 4¼ 14	1470 (8) 3½ 11¾	2500 (8) 1¾ 6¼	143 (8) 2½ 7¼
1210 (8) 5 15¼	1360 (8) 6¾ 20¾	2430 (8) 6 17¼	2420 (8) 6 17	1900 (16) 3½ 12¾	1950 (8) 3¾ 11¼	1920 (7) 4½ 12¼	1530 (8) 6 18¼	3200 (8) 2¾ 8¼	171 (8) 5 17¼
				840 (5) 7 15¾ 980 (5) 11¼ 26¼					
				2000 (4) 2840 (3)					
					1210 (5) 3¼ 7½ 1480 (5) 4 8¾				
					940 (5) 2¾ 6¼ 1380 (5) 3 6¾				
				480 (5) 15½ 34¾ 545 (4)	790 (1)				

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Neonauclea papuana	Green	5	42·2 (5) 2 4½		10100 (4)	12900 (4)	2040 (4)
	12%	5		50·5 (5) 1¾ 3¾	13000 (5) 5 11	18900 (5) 2½ 5¾	2330 (5) 4½ 10¼
Neubergia corynocarpa syn. *Couthovia corynocarpa*	Green	5	28·6 (5) 4 8¾		4160 (5) 12 26¾	6620 (5) 7¼ 16½	1370 (5) 5 11¼
	12%	5		35·1 (5) 1¾ 4	7000 (4)	11600 (4)	1880 (4)
Nothofagus spp.	Green	12	40·5 (12) 1¾ 6¼		6600 (11) 6½ 21¾	10800 (11) 3 9¼	2210 (11) 3 9¾
	12%	12		51·6 (12) 2 7	10000 (9) 3½ 10¼	18500 (9) 2 6	2770 (9) 4¾ 14¼
Octomeles sumatrana	Green	10	20·1 (10) 3¼ 10¼		3590 (10) 7¼ 23½	5250 (10) 5¾ 17½	947 (10) 5¼ 18¼
	12%	11		22·9 (11) 3¾ 11¾	5800 (8) 6¼ 22	7700 (8) 6¼ 19¾	1190 (8) 7 24
Pimelodendron amboinicum	Green	4	32·2 (4)		4750 (4)	7400 (4)	1860 (4)
	12%	4		38·9 (4)	8650 (4)	13800 (4)	2320 (4)
Planchonella kaernbachii	Green	5	27·3 (5) 4½ 10		4760 (5) 9 20	7400 (5) 7¼ 16¼	1540 (5) 8¾ 19¼
	12%	5		33·3 (5) 4 9¼	7600 (5) 10¾ 23¾	12100 (5) 5¾ 13¼	1830 (5) 5¾ 13
Planchonella torricellensis	Green	5	30·3 (5) 3¾ 8½		6050 (4)	8640 (4)	1560 (4)
	12%	5		37·0 (5) 5¼ 11½	9200 (3)	12800 (3)	1790 (3)
Planchonia papuana	Green	5	38·0 (5) 1¼ 2½		6580 (4)	9010 (4)	1630 (4)
	12%	5		46·6 (5) 2¼ 5	9250 (4)	15100 (4)	1900 (4)
Pleiogynium timoriense	Green	5	45·5 (5) 1 2¼		10300 (4)	13300 (4)	2160 (4)
	12%	5		54·6 (5) 1 2¼	12900 (4)	19500 (4)	2300 (4)
Podocarpus amarus	Green	5	22·6 (5) 5¼ 11¾		4530 (3)	6370 (3)	1220 (3)
	12%	5		26·9 (5) 4½ 10	7200 (5) 9¼ 20½	9360 (5) 8¼ 18¼	1380 (5) 6½ 14½

Compression Parallel to Grain			Shear		Impact			
Stress at L.P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Maximum Shear Strength		Toughness Value		Izod Value	
			Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
	7320 (5[a]) 2½ 5½			1860 (4)	146 (5) 5¾ 13	140 (4)	10·6 (5) 5 11	10·7 (5) 6¼ 14
	11300 (5[a]) 2½ 5¾			3270 (3)	129 (4)	133 (3)	9·2 (4)	10·7 (2)
	3120 (5[a]) 5½ 12½			838 (5) 6¾ 15	73 (3)	74 (2)	6·5 (3) 15½	6·2 (2)
	6830 (4[a]) – –		1590 (2)	1490 (4)	98 (4)	90 (3)	6·7 (4) 34	7·2 (4) 14¾
	5340 (12[a]) 3½ 12			1510 (12) 4 14	170 (12) 6¾ 23¼	158 (11) 6½ 21¼	12·8 (11) 4½ 16½	13·1 (8) 6½ 18¼
	9990 (11[a]) 2¾ 9		1630 (3)	2660 (8) 4 11¼	172 (12) 6½ 22½	166 (12) 5¼ 18	13·4 (12) 6¾ 23½	12·5 (12) 4¾ 14½
3060 (5) 4½ 12	3300 (5) 4¼ 10¼	1260 (5) 4½ 11¼	628 (5) 6¼ 17¾	606 (9) 6 18¼	52 (9) 7¾ 22¾	55 (10) 6¼ 20¼	4·4 (9) 6¼ 22¼	4·4 (9) 6½ 20
4320 (5) 5¼ 19½	5270 (6) 6¾ 17½	1350 (6) 7½ 19¼	754 (9) 5¼ 17¾	835 (6) 6¾ 18	42 (9) 5 17¼	46 (9) 6¼ 22	3·5 (10) 8½ 27¼	3·6 (9) 9½ 29½
	4230 (4[a])			1080 (4)	98 (4)	66 (4)	7·2 (4)	5·7 (3)
	7720 (4[a])			1700 (4)	139 (4)	114 (3)	10·2 (4)	10·8 (4)
	3780 (4[a])			1040 (5) 6¾ 15	67 (5) 10 22½	63 (5) 3¾ 8¼	6·3 (5) 12 27¼	6·5 (5) 17½ 39¼
	6710 (5[a]) 5¼ 11¾			1590 (5) 7¼ 16½	96 (5) 9¼ 20¾	109 (4)	8·3 (5) 8¼ 18¼	7·4 (4)
	4210 (5[a]) 3¼ 7¼			1190 (5) 7¼ 16¼	93 (4)	78 (4)	8·4 (5) 10½ 23¼	8·0 (5) 11 24½
	7480 (5[a]) 3½ 7¾		1970 (1)	2050 (3)	118 (4)	112 (4)	11·6 (5) 17¼ 38½	8·5 (5) 16¾ 36½
	4970 (5[a]) 2 4¼			1540 (5) 4¾ 10¾	109 (4)	156 (2)	9·0 (4)	12·1 (4)
	7700 (4[a])			2380 (4)	116 (3)	160 (2)	10·8 (3)	9·1 (3)
	8190 (5[a]) 2 4½			1760 (4)	142 (3)		10·8 (5) 12½ 28	10·8 (4)
	12200 (5[a]) 1¾ 4			2960 (5) 2½ 5¾	178 (3)	258 (1)	11·1 (5) 9½ 21½	12·5 (5) 8¾ 19¾
	3070 (5[a]) 6¾ 15			892 (5) 9 20	57 (5) 10½ 23½	57 (5) 8¼ 18¾	3·2 (5) 14¾ 32¾	5·0 (4)
	5850 (4[a])			1480 (5) 6¾ 14¾	46 (5) 7½ 16½	45 (5) 12¼ 27½		2·4 (5) 12¾ 30

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Neonauclea papuana	Green		374 (4)				
	12%		281 (4)				
Neuburgia corynocarpa syn. *Couthovia corynocarpa*	Green	228 (2)	225 (3)				
	12%	310 (2)	425 (3)				
Nothofagus spp.	Green	482 (3)	500 (9) 4¼ 12¾				
	12%	430 (1)	536 (9) 12½ 37¼				
Octomeles sumatrana	Green	170 (5) 9 21½	167 (9) 9½ 31¾	292 (5) 7¼ 19¾	348 (5) 6½ 18	597 (5) 5¼ 13½	661 (5) 6 13½
	12%	210 (6) 11½ 25½	188 (7) 8 20½	408 (5) 7 15½	576 (5) 10¾ 25¾	846 (5) 5½ 12¾	1020 (5) 9¾ 22½
Pimelodendron amboinicum	Green		323 (4)				
	12%		356 (2)				
Planchonella kaernbachii	Green		350 (5) 9¾ 21¾				
	12%		327 (5) 13¾ 29½				
Planchonella torricellensis	Green		276 (4)				
	12%		267 (3)				
Planchonia papuana	Green		444 (3)				
	12%		560 (2)				
Pleiogynium timoriense	Green		371 (4)				
	12%		542 (3)				
Podocarpus amarus	Green		168 (4)				
	12%		255 (5) 9 20¼				

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
				1770 (5) 2½ 5⅜					
				1880 (5) 3¾ 8¼					
				455 (4)					
				725 (5) 9¾ 21¾					
				1160 (12) 6 20½	745 (1)				
				1390 (12) 6¼ 21¼					
188 (5) 5½ 23¼	250 (5) 6 19¼	361 (5) 4¼ 13¼	402 (5) 4 12¾	355 (10) 7½ 23	335 (5) 6¾ 17½	500 (5) 4½ 12¾	418 (5) 7 15½	886 (5) 2¼ 6¾	43 (5) 4¾ 15¾
233 (6) 8¼ 20½	368 (6) 11½ 26¼	486 (6) 6¼ 17¾	550 (6) 6½ 15	335 (10) 5½ 19	375 (5) 7 17½	440 (5) 3¾ 15¼	646 (5) 3¼ 14	1020 (5) 2 6¾	56 (5) 3¼ 10½
				650 (4)					
				930 (4)					
				555 (4)	450 (1)				
				665 (5) 14½ 32¼					
				770 (4)	665 (1)				
				870 (5) 10½ 23½					
				1440 (5) 4¾ 10¾	1160 (3)				
				1400 (5) 8½ 19					
				1760 (4)					
				1700 (3)					
				445 (5) 12½ 27¾					
				450 (5) 9¼ 21					

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Polyalthia oblongifolia	Green	5	29·9 (5) 2 4½		5740 (5) 4 9	8100 (5) 5 11	1490 (5) 4¾ 10½
	12%	4		36·8 (4)	8800 (4)	12500 (4)	1770 (4)
Pometia pinnata	Green	5	35·4 (5) 4¾ 10½		6020 (5) 8 20	9650 (5) 5¾ 11¾	1620 (5) 5 11¾
	12%	6		43·4 (6) 3¾ 10	9760 (5) 7¾ 17¼	15400 (5) 6¾ 16¼	2080 (5) 9½ 22½
Pometia tomentosa	Green	7	35·2 (7) 3¼ 8½		5570 (6) 9¼ 22½	9020 (6) 7¾ 19¼	1700 (6) 3¾ 9
	12%	7		43·2 (7) 2¾ 7	8920 (4)	13900 (4)	2090 (4)
Pterocarpus indicus	Green	15	33·2 (15) 3 11¾		6280 (11) 5 17¾	10700 (11) 3½ 11¾	1470 (11) 4¼ 13¾
	12%	14		38·3 (14) 2¾ 8	9180 (10) 3½ 12	13800 (10) 3¾ 13½	1770 (10) 5 15¼
Pterocymbium beccarii	Green	7	20·2 (7) 4½ 11		3700 (6) 3¾ 9¼	5160 (6) 4¾ 11¾	1100 (6) 7½ 18¼
	12%	7		22·9 (7) 3¾ 9¾	5160 (7) 5½ 14¾	6620 (7) 4½ 11¾	1220 (7) 7 18½
Pterygota horsfieldia syn. *Pterygota forbesii*	Green	5	38·6 (5) 5¾ 13		7050 (4)	10400 (4)	1880 (4)
	12%	5		48·3 (5) 5 11¼	11100 (5) 7¼ 16¼	15800 (5) 8½ 19¾	2270 (5) 6 13¼
Rhizophora apiculata	Green	3	50·9 (3) 3¼		9200 (3)	15600 (3)	2810 (3)
	12%	3		61·0 (3)	12100 (3)	22800 (3)	3300 (3)
Schizomeria floribunda	Green	5	33·3 (5) 2¾ 6		6930 (3)	9900 (3)	2030 (3)
	12%	5		40·4 (5) 3¾ 8¼	9950 (4)	16300 (4)	2380 (4)
Sloanea spp. (inc. *S. forbesii*)	Green	10	30·0 (10) 2½ 8¼		6020 (9) 4 12	8900 (9) 3¾ 11¼	1340 (9) 3¼ 9½
	12%	10		34·7 (10) 2¾ 8½	7400 (6) 6¾ 16¼	11300 (6) 5 12¼	1460 (6) 4¼ 10
Spondias dulcis	Green	5	22·4 (5) 2½ 5¾		3320 (4)	4960 (4)	1050 (4)
	12%	5		26·6 (5) 3 6½	5520 (5) 9¾ 21¾	7920 (5) 9¼ 20½	1260 (5) 7¼ 17½

Compression Parallel to Grain			Shear		Impact			
			Maximum Shear Strength		Toughness Value		Izod Value	
Stress at L.P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
	4540 (5[a]) 5¾ 13		610 (1)	970 (3)	92 (5) 8½ 19¼	88 (5) 7¾ 17	8·8 (5) 10¾ 24	9·6 (5) 10¾ 24¼
	8370 (3[a])		1080 (1)	1740 (2)	117 (4)	114 (4)	9·8 (3)	9·1 (4) 10½
4060 (5) 4 12¼	4560 (5) 4¼ 9½	2090 (5) 5¼ 11¾	1100 (5) 3½ 8½	1240 (5) 3¼ 8¾	126 (5) 12¼ 26½	122 (5) 14¾ 27¼	10·6 (5) 16¾ 38½	10·2 (5) 15 37¾
5100 (5) 6¾ 18¾	8670 (5) 6½ 14¼	2370 (5) 7½ 16¼	1810 (5) 4 15¼	2090 (5) 4¾ 10½	155 (6) 14¼ 41½	176 (5) 14¾ 33¼	10·3 (4) 29½	10·6 (4) 25¼
	4160 (6[a]) 9½ 23½		1340 (1)	1150 (7) 4½ 12	123 (5) 2½ 5¾	92 (5) 14¼ 31½	7·7 (6) 11¼ 25½	8·6 (5) 4½ 15
	7700 (6[a]) 7½ 18¾		2430 (1)	1940 (4)	130 (6) 16½ 40¾	125 (6) 11¾ 34¼	9·7 (6) 11¾ 27	11·5 (5) 14¾ 30
4790 (7) 3¼ 19¼	5570 (7) 2¾ 14¼	1570 (7) 3¼ 13¼	1340 (10) 3½ 14½	1130 (13) 5 18¼	126 (15) 4 22½	139 (12) 8¾ 30½	9·0 (13) 6 25½	9·7 (9) 9½ 28¼
6110 (7) 5¼ 13¼	8450 (7) 4 11¼	1850 (7) 4½ 11	1880 (9) 4 13½	1440 (12) 5¼ 20	96 (11) 6½ 22¾	130 (10) 8¾ 28	7·1 (10) 8¾ 26¾	8·1 (9) 6¾ 23¾
2200 (1)	2420 (6[a]) 8¼ 20	1500 (1)		543 (7) 13¾ 36½	52 (7) 7½ 17¼	48 (6) 6½ 13¼	4·1 (7) 11 27	4·1 (7) 9¾ 23¼
	4340 (7[a]) 6¾ 17¾		470 (1)	750 (6) 11½ 27¾	60 (6) 17¼ 42½	54 (6) 10 24½	6·0 (6) 11½ 28	5·8 (7) 10 26¼
	5470 (5[a]) 7½ 16¾			1000 (5) 10¼ 23	173 (5) 17¾ 39¼	177 (5) 14 31½	12·3 (5) 14½ 32¾	14·3 (5) 23 51¼
	9300 (5[a]) 4 9			1520 (5) 11¾ 26¼	162 (4)	161 (4)	12·5 (4)	11·6 (3)
6500 (3)	8520 (3)	3320 (3)	1750 (3)	2320 (3)	190 (3) 12½	201 (3) 15¼	14·6 (3) 15½	14·9 (3) 14½
7100 (2)	12300 (3)	3360 (3)	1800 (3)	3450 (3)	247 (3)	211 (3)	15·9 (3) 12¼	14·1 (3) 12
	4900 (5[a]) 7¼ 16¼			1330 (5) 3¼ 7¼	131 (3)	100 (4)	7·5 (3)	9·3 (5) 5¼ 11¾
	9240 (4[a])			1780 (3)	106 (5) 9 20¼	121 (3)	12·1 (1)	9·2 (4) 19
	4550 (9[a]) 4¼ 12¾		1140 (10) 5¼ 16¾		97 (7) 8½ 22¼	93 (7) 8¾ 23½	7·4 (7) 14¾ 38¾	7·9 (7) 9½ 28¾
	7290 (9[a]) 4½ 13½		1550 (8) 6¾ 19	1670 (1)	62 (6) 9¾ 23¾	72 (5) 19¾ 44¼	5·2 (9) 8¾ 26½	4·6 (5) 10½ 23¼
	3090 (3[a])			614 (5) 13½ 30¼	52 (2)	53 (5) 11¼ 25½	4·6 (4)	5·2 (3)
	4520 (5[a]) 7¼ 16			952 (5) 1½ 3¼	55 (5) 18 40¼	55 (5) 12¼ 27½	6·5 (3)	4·5 (5) 21½ 48¼

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Polyalthia oblongifolia	Green	226 (1)	304 (4)				
	12%	149 (1)	301 (1)				
Pometia pinnata	Green	249 (5) 8½ 21¾	280 (5) 9¾ 22	620 (5) 13½ 31¼	624 (5) 11¾ 26½	1240 (5) 10½ 24½	1230 (5) 9¼ 21¼
	12%	462 (5) 5¾ 18¼	494 (5) 9 21¼	1260 (5) 10 25¼	1490 (5) 11½ 25¼	2260 (5) 9¼ 22½	2570 (5) 10 23¼
Pometia tomentosa	Green	325 (1)	342 (6) 6½ 15¾				
	12%	436 (1)	392 (3)				
Pterocarpus indicus	Green	302 (9) 3½ 17½	248 (10) 8½ 33¼	861 (7) 2½ 12¼	814 (7) 4 26½	1600 (7) 1¾ 15½	1490 (7) 2¼ 17⅜
	12%	309 (7) 6 16½	256 (12) 8½ 28¾	1270 (7) 4¼ 17½	1190 (7) 6 21½	2410 (7) 3 14¼	2230 (7) 3¼ 15¼
Pterocymbium beccarii	Green	91 (1)	160 (7) 10 26¼	150 (1)	270 (1)	296 (1)	539 (1)
	12%		192 (4)				
Pterygota horsfieldia syn. *Pterygota forbesii*	Green		296 (3)				
	12%		339 (3)				
Rhizophora apiculata	Green	478 (3)	742 (3)	1350 (3)	1720 (3)	2890 (3)	3280 (3)
	12%	184 (2)	720 (3)	1580 (3)	2590 (3)	3580 (3)	4810 (3)
Schizomeria floribunda	Green		386 (5) 15¾ 35				
	12%		414 (2)				
Sloanea spp. (inc. *S. forbesii*)	Green	285 (10) 6 19					
	12%	270 (6) 11½ 28¼	309 (1)				
Spondias dulcis	Green		193 (4)				
	12%		242 (5) 9¼ 20¾				

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
				735 (3) 910 (4)	780 (2)				
394 (5) 9½ 23½	490 (5) 13½ 30	705 (5) 10½ 23½	749 (5) 10 25	935 (5) 8½ 19½	930 (5) 8½ 21½	975 (5) 5½ 13½	842 (5) 7 14½	1810 (5) 3½ 7	90 (5) 7 14½
642 (5) 11¼ 30	818 (5) 16½ 36	1470 (5) 10 23	1600 (5) 11 24½	1540 (6) 11¼ 26	1400 (6) 8½ 22	1780 (5) 7⅜ 17¼	1080 (4) 13½	2610 (4) 11⅜	122 (4) 14⅞
515 (2)		814 (2)		835 (7) 5 13¼ 1220 (6) 9¼ 22¼	840 (2) 1310 (2)	765 (2)			
513 (9) 6½ 21½ 853 (7) 6½ 25	481 (9) 4½ 18⅜ 889 (7) 6 20½	951 (9) 3 15¼ 1500 (7) 5¼ 21⅜	802 (9) 1¼ 11¾ 1380 (7) 4 17¼	965 (15) 6⅜ 25 1060 (12) 4½ 15½	925 (10) 4½ 18⅜ 1050 (9) 5⅜ 19	1000 (10) 4¼ 17½ 1170 (7) 4 13½	975 (4) 7⅜ 1330 (5) 7¼ 20⅜	1570 (4) 9½ 1900 (5) 3¼ 8¼	90 (4) 13 141 (5) 5 9⅞
83 (2)	200 (1)	123 (2)	308 (1)	305 (7) 11¼ 29⅜ 345 (7) 7½ 20	260 (2) 365 (1)	340 (2)			
				1170 (5) 16 35¼ 1460 (5) 13½ 30					
1100 (3) 1310 (3)	1440 (3) 1900 (3)	1820 (3) 2510 (3)	2060 (3) 3160 (3)	2540 (3) 3050 (3)	2370 (3) 2720 (3)	2140 (3c) 2380 (3c)	1200 (3) 1640 (3)	2420 (3) 3030 (3)	138 (3) 175 (3)
				925 (5) 6½ 14⅜ 1080 (5) 9¼ 20⅜					
					780 (10) 7¼ 23 815 (10) 6 18⅜				
				400 (5) 10¼ 23 455 (5) 7⅜ 17¼					

Species	Moisture Condition	No. of Trees Tested	Density		Static Bending (Centre-point)		
			Basic (lb/cu ft)	Air-dry (lb/cu ft)	Stress at L.P. (lb/sq in)	Modulus of Rupture (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)
Sterculia conwentzii syn. *Sterculia shillinglawii*	Green	5	16·1 (5) 7½ 16½		2600 (5) 8½ 19½	3900 (5) 6¾ 15	784 (5) 5¾ 13½
	12%	5		19·6 (5) 7½ 16½	3760 (5) 6 13½	4670 (5) 5½ 12	866 (5) 5½ 11½
Syzygium buettnerianum	Green	5	38·8 (5) 7¾ 17½		6780 (5) 8 18	9530 (5) 10 22½	1800 (5) 13 29½
	12%	5		48·3 (5) 8½ 18¾	11200 (4) –	16000 (5) 11 24¾	2360 (5) 12½ 28½
Terminalia brassii (Inc. also material from Br. Solomon Islands)	Green	9	24·4 (9) 4 11¾		3960 (8) 4½ 11¾	6320 (8) 1¾ 5½	1210 (8) 2 5¾
	12%	9		29·0 (9) 4¾ 14½	6760 (9) 8 24½	9880 (9) 5¾ 17	1440 (9) 6½ 19¾
Terminalia complanata	Green	15	25·0 (15) 3 11½		4840 (13) 4½ 16	7750 (13) 4 15	1290 (13) 4½ 14¾
	12%	15		29·1 (15) 3½ 12	7140 (14) 4 14½	10900 (14) 4½ 15	1440 (14) 3½ 12
Terminalia kaernbachii	Green	5	28·2 (5) 8 17¾		5320 (5) 10½ 23	8320 (5) 7½ 16½	1380 (5) 8¾ 19¾
	12%	5		33·7 (5) 8 18	8100 (4) –	12400 (5) 10¾ 23¾	1720 (5) 5½ 12½
Terminalia spp.	Green	11	31·2 (11) 4 13¼		5820 (11) 5¾ 19½	9230 (11) 5 16½	1760 (11) 4¾ 16
	12%	6		35·0 (6) 4½ 11½	8080 (5) 5 11	13000 (5) 3¾ 8½	1920 (5) 4¾ 10½
Tetrameles nudiflora	Green	6	17·0 (6) 3 7		2900 (6) 5¾ 14	4240 (6) 4½ 10¾	852 (6) 5¾ 14
	12%	6		20·5 (6) 2½ 5¾	5100 (6) 5½ 13¾	6380 (6) 3¾ 9½	1010 (6) 3¾ 9
Toona sureni syn. *Cedrela toona*	Green	7	19·5 (7) 5 13½		3260 (5) 1½ 3½	5140 (5) 4¼ 9½	910 (5) 5½ 12
	12%	8		23·5 (8) 4 11½	5480 (8) 5¾ 16½	8570 (8) 8½ 24	1140 (8) 5½ 15
Tristiropsis canarioides	Green	6	34·7 (6) 4½ 10¾		4450 (4)	8550 (4)	1660 (4)
	12%	6		42·5 (6) 4½ 10½	8220 (5) 7½ 16½	15000 (5) 4½ 10½	2070 (5) 5½ 11¾
Vitex cofassus	Green	6	38·3 (6) 3½ 8		8120 (4)	11600 (4)	1710 (4)
	12%	7		44·0 (7) 3¾ 9¾	11300 (5) 7 15¾	16400 (5) 3½ 8	1970 (5) 3 6¾
Xanthophyllum papuanum	Green	7	39·5 (7) 1½ 3¾		7270 (7) 5 13¼	11200 (7) 3½ 9¼	2030 (7) 3¼ 8½
	12%	5		49·9 (5) 3 6¾	11300 (5) 3¼ 7½	18900 (5) 4¼ 9½	2680 (5) 6¾ 15

Compression Parallel to Grain			Shear		Impact			
Stress at L.P. (lb/sq in)	Maximum Crushing Strength (lb/sq in)	Modulus of Elasticity (10^3 lb/sq in)	Maximum Shear Strength		Toughness Value		Izod Value	
			Radial (lb/sq in)	Tangential (lb/sq in)	Radial (in lb)	Tangential (in lb)	Radial (ft lb)	Tangential (ft lb)
	2010 (5[a]) 3¼ 7			436 (5) 8½ 19¼	42 (5) 7½ 16¾	40 (4)	2·8 (5) 17 38¼	3·1 (5) 16¼ 36¼
	3030 (5[a]) 6½ 14¾			594 (5) 5¾ 12¾	47 (5) 11½ 25¾	43 (5) 9¾ 21½	5·1 (5) 13¾ 30½	4·3 (5) 7 15¼
	5670 (5[a]) 13¼ 29½		1110 (1)	1200 (4)	160 (5) 15 33¼	158 (4)	10·6 (5) 14¼ 28¾	13·0 (5) 11 25½
3790 (1)	9820 (5[a]) 11 25	1660 (1)	1590 (1)	1990 (1)	171 (5) 16¾ 37¼	119 (4)	12·8 (4) 52½	8·3 (3)
2620 (4)	3010 (5[a]) 2¾ 6	1500 (4)	752 (4)	809 (7) 3¾ 10	96 (8) 9¼ 29¾	90 (9) 4 22	6·8 (9) 7¼ 26½	6·3 (8) 11 40½
4100 (4)	5390 (5[a]) ¾ 1¾	1960 (4)	1240 (5) 10¼ 22¾	1190 (8) 7¼ 20¾	76 (8) 7 25	67 (8) 9¾ 27¾	6·2 (9) 6¼ 20½	6·0 (8) 11 32¼
3890 (9) 4¼ 13½	4360 (9) 2¾ 9½	1590 (9) 3½ 12	893 (12) 4½ 14¾	944 (13) 4½ 18	93 (15) 14¼ 58¾	91 (15) 10½ 45¼	7·7 (15) 11¾ 48½	7·1 (14) 10½ 46¼
4620 (9) 5¼ 20½	6650 (9) 2½ 8½	1670 (9) 2¾ 9½	1380 (12) 4¼ 16¾	1300 (11) 4 15½	100 (15) 12½ 47¼	100 (14) 13½ 51¾	8·1 (13) 13¼ 50¼	7·8 (13) 11¾ 45½
	3980 (5[a]) 11¾ 26¼			1140 (5) 10½ 23½	99 (4)	115 (4)	7·2 (4)	8·8 (4)
	6990 (5[a]) 10¼ 22¾			1590 (5) 10½ 23¼	70 (4)	94 (5) 18¼ 40¾	8·0 (4)	9·0 (4)
	4540 (11[a]) 4¼ 14¼		1090 (5) 8 18	1070 (6) 5 12½	102 (11) 5 16¾	108 (11) 8¼ 27½	8·8 (11) 6¼ 21¾	9·6 (8) 10½ 29¾
	7440 (6[a]) 7¼ 17½			1670 (5) 8 17¾	116 (5) 6¾ 14¾	140 (5) 19¼ 43¼	12·0 (5) 23 51¼	11·0 (5) 18½ 41¼
	2460 (6[a]) 5¼ 12¾			565 (4)	40 (5) 9¼ 20¾	46 (4)	3·2 (6) 6¼ 15	3·8 (4)
	4130 (6[a]) 5 12¼			760 (6) 5¾ 13¾	35 (5) 10¾ 24	36 (4)	3·3 (5) 3¾ 8¼	3·3 (5) 4½ 9¾
	2840 (6[a]) 8½ 21			714 (7) 5½ 14¼	43 (7) 6¾ 18¼	45 (6) 13¾ 34	3·8 (7) 21½ 57	3·6 (7) 19¾ 52¼
	4590 (6[a]) 6¾ 16½		720 (1)	1140 (6) 3¾ 9¼	38 (7) 11¾ 31	38 (5) 10½ 23¼	2·9 (7) 12¼ 32½	2·8 (5) 10 22¼
	3970 (6[a]) 4¼ 10¼		1130 (2)	1250 (4)	146 (5) 7¼ 16½	132 (5) 11¼ 25	8·8 (6) 6½ 16	10·6 (5) 5¾ 12¼
	7380 (6[a]) 4½ 10¾		2310 (2)	1980 (4)	161 (4)	149 (6) 8¼ 20	11·4 (6) 12¼ 29¾	11·6 (6) 9½ 23¼
5000 (1)	6100 (6[a]) 6¼ 15½	1570 (1)	1640 (1)	1720 (6) 6 14½	200 (2)	166 (4) 30¾	9·8 (6) 19½ 44	11·8 (6) 17¾ 41
7700 (1)	9240 (6[a]) 1¾ 4¼	2260 (1)	2480 (1)	2370 (7) 5¾ 15½	95 (6) 17½ 41	116 (3)	5·0 (3) –	5·8 (4) – –
	5780 (6[a]) 3½ 8¾		1080 (2)	1280 (5) 9½ 21	127 (7) 5½ 14¾	125 (7) 7¼ 19	9·1 (7) 2¾ 7½	10·6 (6) 5 12¼
	11400 (4[a])		2010 (2)	2180 (5) 5¼ 12	162 (5) 9¾ 21¾	134 (5) 3¾ 8½	11·3 (4)	10·6 (5) 8 16¾

Species	Moisture Condition	Cleavage		Compression Perpendicular to Grain 6 in. by 2 in. by 2 in. Specimen			
		Maximum Cleavage Strength		Stress at L.P.		Stress at 0·1 in.	
		Radial (lb/in)	Tangential (lb/in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)
Sterculia conwentzii syn. *Sterculia shillinglawii*	Green		144 (4)				
	12%		131 (5) 8½ 19¼				
Syzygium buettnerianum	Green		444 (3)				
	12%		403 (3)				
Terminalia brassii (inc. also material from Br. Solomon Islands)	Green	192 (3)	235 (8) 4 11¼	515 (4)		936 (4)	
	12%	246 (5) 9 20	268 (8) 6¾ 18¾	870 (2)	1040 (1)	1450 (2)	1670 (1)
Terminalia complanata	Green	232 (11) 7½ 25¼	268 (12) 6¼ 22¾	474 (10) 7¾ 23½	547 (10) 8 27¾	907 (10) 6¼ 19	999 (10) 7¼ 24
	12%	256 (11) 6 20½	282 (10) 3¼ 14	779 (10) 6¾ 21	886 (10) 8 28¼	1410 (10) 6 18½	1600 (10) 7¼ 23¾
Terminalia kaernbachii	Green		332 (4)				
	12%		361 (5) 10¾ 24				
Terminalia spp.	Green	227 (8) 6¼ 18	326 (3)				
	12%	460 (1)	320 (4)				
Tetrameles nudiflora	Green		136 (5) 6¾ 15¼				
	12%		173 (6) 8½ 21				
Toona sureni syn. *Cedrela toona*	Green		211 (5) 5¾ 12¾				
	12%		281 (6) 11¾ 28½				
Tristiropsis canarioides	Green	313 (2)	298 (4)				
	12%	428 (2)	497 (4)				
Vitex cofassus	Green		470 (3)				
	12%		340 (4)	1620 (1)	1550 (1)	2600 (1)	2190 (1)
Xanthophyllum papuanum	Green	239 (2)	486 (4)				
	12%	212 (2)	599 (2)				

Compression Perpendicular to Grain 2 in. by 2 in. by 2 in. Specimen				Hardness			Torsion		
Stress at L.P.		Stress at 0·1 in.		Janka Hardness Value			Stress at L.P.	Maximum Torsional Shear Strength	Modulus of Rigidity (10^3 lb/sq in)
Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb/sq in)	Tangential (lb/sq in)	Radial (lb)	Tangential (lb)	End (lb)	(lb/sq in)	(lb/sq in)	
				205-(5) 13¾ 31 250 (5) 19¼ 43¼	200 (1)				
440 (1)		651 (1)		1190 (5) 16¾ 37¼ 1730 (4)	685 (1)	910 (1)			
317 (3)	440 (4)	580 (3)	558 (4)	515 (9) 4 12¼	625 (4)	678 (4)			
550 (2)	727 (3)	1050 (2)	1010 (3)	595 (7) 14½ 38¼	645 (6) 12¼ 30				
308 (10) 7¼ 28	375 (10) 8½ 29	558 (10) 7 22½	621 (10) 6¾ 22¼	555 (12) 7¼ 28¾	600 (11) 6¾ 25	815 (9) 2½ 11¾	792 (10) 3¾ 13¼	1380 (10) 3¾ 12¼	75 (10) 6 20
560 (10) 9¼ 29¾	706 (10) 7 24	926 (10) 7 21½	1030 (10) 7½ 24¾	650 (14) 8 32¼	745 (9) 7 26¼	1120 (9) 5¼ 20¾	1020 (10) 3½ 16	1650 (10) 5¼ 16¾	89 (10) 6 19¼
				785 (4) 825 (5) 23½ 52¼					
				665 (6) 7 17½ 800 (6) 9¾ 23½	935 (5) 5 11½				
				260 (6) 3¼ 7¾ 260 (6) 9¼ 22¾	235 (4)				
				360 (7) 11¾ 31¼ 390 (6) 13½ 33¼	375 (1)				
				960 (4) 1190 (4)	820 (2) 1190 (2)				
1000 (1)		1490 (1)		1220 (6) 4¾ 11½ 1270 (7) 8 21	1090 (1) 1240 (2)	1220 (1) 1380 (1)			
				1340 (5) 4½ 10¼ 1700 (4)	1370 (2) 1640 (1)				