EN

GREISINGER electronic GmbH

Operating Manual
Resistive Material Moisture Measuring

from version 1.8

GMH 3810

CE

GMH 3810 CE
Material Moisture Meter
Materialfeuchtemeßgerät

keep for future reference

Made in Germany

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1   General advice

Read through this document attentively and make yourself familiar to the operation of the device before you use it. Keep this document in a ready-to-hand way in order to be able to look up in the case of doubt.

2   Intended use

The device is suitable for the measurement of moisture content and temperature.
The measurement is done using 2 screwed needles on the face side of the device.

The safety instructions of these operating manual must be followed (see below).
The device may be used only under the conditions and for the uses for which it was designed.
The device must be treated carefully and used according to the technical data (do not throw, hit, etc.).
Protect against contamination

2.1   Safety signs and symbols

Warning notices are marked in this manual as shown in table 1:

⚠️ DANGER	Warning! Symbol warns of impending danger, death, serious bodily injury or serious property damage if ignored.
☞	Attention! Symbol warns of potential hazards or hazardous situations that can cause damage on the equipment or the environment if ignored.
ⓘ	Note! Symbol indicates incidents that have an indirect impact on the operation or can trigger an unforeseen reaction if ignored.

table 1

2.2   Safety Instructions

This device has been designed and tested in accordance to the safety regulations for electronic devices. However, its trouble-free operation and reliability cannot be guaranteed unless the standard safety measures and special safety advises given in this manual will be adhered to when using it.

1. Trouble-free operation and reliability of the device can only be guaranteed if it is not subjected to any other climatic conditions than those stated under "Specification".

   Transporting the device from a cold to a warm environment condensation may result in a failure of the function. In such a case make sure the device temperature has adjusted to the ambient temperature before trying a new start-up.

2. ⚠️ DANGER   Whenever there may be a risk whatsoever involved in running it, the device has to be switched off immediately and to be marked accordingly to avoid re-starting. Operator safety may be a risk if:
   - there is visible damage to the device
   - the device is not working as specified
   - the device has been stored under unsuitable conditions for a longer time
   In case of doubt, please return device to manufacturer for repair or maintenance.

3. ⚠️ DANGER   Do not use this product as safety or emergency stop device or in any other application where failure of the product could result in personal injury or material damage.
   Failure to comply with these instructions could result in death or serious injury and material damage.

3   Product description

3.1   Scope of delivery
GMH 3810
9V battery type IEC 6F22
Operating Manual

3.2   Operating and Maintenance

1. Battery Operation
   The battery has been used up and needs to be replaced, if "bAt" is shown in lower display. The device will, however, continue operating correctly for a certain time.
   The battery has been completely used up, if ´bAt´ is shown in the upper display.
2. The battery has to be removed, when storing device above 50°C.

   ☞ We recommend to remove the battery if device is not used for a longer period of time!
   Risk of leakage!
3. Treat device and probes carefully. Use only in accordance with above specification. (do not throw, hit against etc.). Protect plugs and sockets from soiling.
4. Cable break or no connected / too dry / highly insulating material:

   There may still corresponding %-values are displayed
   - This shall not constitute a valid test result!

3.3   Display Elements
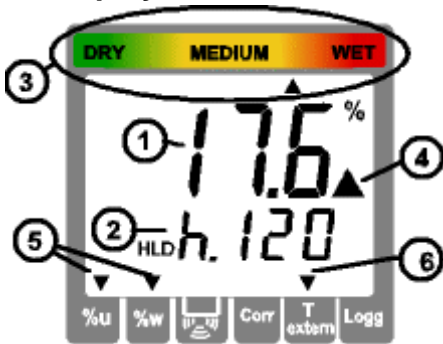
1 = Main Display:	Currently measured material moisture [percent moisture content] HLD: Measure value is 'frozen' (Button 6)
2 = Auxiliary Display:	Currently selected material (or temperature when pressing Button 3)
Special display elements:	
3 = Moisture estimation:	Estimation of the material condition: via top arrows: DRY - MEDIUM - WET
4 = Warning triangle:	Indicates low battery
5 = "%u" or "%w"	Displays unit: moisture content u or wet basis moisture content w

All remaining arrows have no function in this version.

3.4   Pushbuttons

Key 1:	**On/Off key**
Key 4:	**Set/Menu**
	press (Menu) for 2 sec.: configuration will activated
Key 2, 5:	**During measure: select a material**
	p.r.t: Limitation of the material selection
	List of selectable materials: Appendix A, Appendix B
	With manual temperature compensation:
	When displaying temperature (call via button 3 ‚Temp'):
	Input of temperature
	up/down for configuration:
	to enter values or change settings

Key 6:   Store/↵:
- Measurement:
  with **Auto-Hold off: Hold current measuring value** ('HLD' in display)
  with **Auto-Hold on: Start a new measure**, which is ready when 'HLD' appears in the display
  refer to chapter 5.3 Auto-Hold Function
- Set/Menu or temperature input: confirming of selected input, return to measure

Key 3:   During the measure:
shortly displaying temperature or changing to temperature input.

4   Device Configuration

For configuration of the device press "**Menu**"-key (key 4) for 2 seconds, the first menu will be shown.
Choose between the individual values that can be set by pressing the "**Menu**"-key (key 4) again.
The individual values are changed by pressing the keys "▲" (key 2) or "▼" (key 5).
Use key "**Store/↵**" (key 6) to leave configuration and to store settings.

Parameter	Values	Meaning	
Key Menu □	key ▲ or ▼		p.r.t.
Limitation of the material selection			
5or̄t.	**off**:	Unrestricted material selection via key 2 and 5	
	1...8:	Material selection in-between 1 up to 8 selectable materials	
5or.1....5or.8		selectable materials (not available if Sort = off) Select the desired material that should be available during the measure via key 2 and 5.	6.2
Generic Settings			
Uni t ˣ ▾ ▾	Arrow bottom left points to **"%u"**	Moisture display = moisture content [%u]	
	Arrow bottom left points to **"%w"**	Moisture display = wet-basis moisture content [%u]	
Uni t ₜ °C °F	**°C**	All temperature values are in degrees Celsius	
	°F	All temperature values are in degrees Fahrenheit	
Atc	**oFF**	Atc off: temperature input for compensation via keys	5.4
	on	Atc on: temperature compensation via internally measured temperature	
Auto HLD oFF	**oFF**	Auto HLD off: continuous measuring.	5.3
	on	Auto-HLD on: when reaching a stable measuring result, this will be frozen with-HLD. When pressing the store-key a new measure will be initiated.	
P.oFF	**1...120**	Power-off delay in minutes. Device will be automatically switched off as soon as this time has elapsed if no key is pressed takes place	
	oFF	Power-off function inactive (continuous operation, e.g. mains operation)	

ⓘ **The settings will be set to the settings ex works, if keys 'Set' and 'Store' are pressed** *simultaneously for more than 2 seconds.*

5 Some basics of precision material moisture measuring

5.1 Moisture Content *u* and Wet-Basis Moisture Content *w*

Depending on the Application one of the two units is necessary.
Carpenters, joiners and the like commonly use the moisture content u (sometimes referred to as MC).
When evaluating firewood, wood chips etc., the wet basis moisture content w is needed.
The instrument can be configured to both of the values. Please refer to chapter "configuration".

Moisture content u or MC (relative to dry weight) = dry basis moisture content (mind the arrow at left bottom!)

The unit is %, sometimes used: % MC.
The unit expresses the moisture content like calculated below:

$$\text{Moisture content u [\%]} = (\text{weight}_{wet} - \text{weight}_{dry}) / \text{weight}_{dry} * 100$$

Or: $\text{Moisture content u [\%]} = (\text{weight}_{water}) / (\text{weight}_{dry}) * 100$

weight_{wet}:   weight of the wet material
weight_{water}:   weight of water in the wet material
weight_{dry}:   oven-dry weight of material
Example: 1kg of wet wood, which contains 500g of water has a moisture content u of 100%

Wet-Basis Moisture Content w (relative to total weight, mind the arrow at left bottom!)

The wet-basis moisture content expresses the ratio of the mass of water to the total mass of the substance. The ratio is represented by the following equation (the unit is % as well):

$$\text{wet-basis moisture w[\%]} = (\text{weight}_{wet} - \text{weight}_{dry}) / \text{weight}_{wet} * 100$$

Or: $\text{wet-basis moisture w[\%]} = (\text{weight}_{water}) / \text{weight}_{wet} * 100$

Example: 1kg of wet wood, which contains 500g of water has a moisture content u of 50%

5.2 Special features of the device

466 wood specimens and 28 building materials are stored directly in the memory of the device:
Thus more exact measurements could be reached than with common devices with group selections would ever reach. Even the usage of complex conversion tables for building materials won't be necessary any more!
Example: Common wood-moisture-measuring-devices use one single group for spruce and oak, in reality the deviation of these characteristic curves is more than 3%! (Base for this statement are complex statistical surveys, considered measuring range 7-25%). This random error will not occur for the whole GMH38xx series, with the help of individual characteristic curves highest resolution is achieved.
Extreme wide measuring range: 0-100% (depending on characteristic curve) percent moisture content in wood.
Moisture estimation: Additionally to the measuring value, an individual moisture estimation will be displayed simultaneously.

5.3 Auto-Hold Function

Particularly when measuring dry wood, electrostatic charges and other similar noise could dither the measuring value. With activated auto-hold function the device will acquire an exact measuring value automatically. During that, the device could be put down to avoid noise through discharge of the clothing etc. After having acquired the measuring value, the display will change to 'HLD': The value will be frozen as long as a new measuring is initiated by pressing button 6 (store).

5.4 Automatic temperature-compensation ('Atc')

An exact temperature compensation is important for a reliable wood-moisture-measuring. These devices feature a integrated temperature measuring and a manual input of the temperature.

The used temperature value therefore is:

The used temperature-value therefor is:

Menu	Used temperature-value
Atc on	Device-internal temperature-measuring
Atc off	Manual input of temperature: shortly press Temp-Button then use ▲ (button 2) or ▼ (button 5) to input the temperature confirm selection with 'Store'(button 6)

5.5 Measuring In Wood: Measuring With Two Measuring-Pikes

For measuring wood, punch in the measuring-pikes across to the wood-grain, having a good contact between the pikes and the wood (measuring along wood-grain deviates minimal).

DO NOT HIT ONTO THE DEVICE OR PUNCH THE NEEDLES IN WITH FORCE!

The device may be damaged.
Select **correct wood-sort** (see Appendix A).
Ensure measuring the **correct temperature** (see chapter 0).
Now read the measuring-value or when having activated the auto-hold-function initiate a new measuring by pressing **Store/↵** (button 6) .
The measured resistance will be extremely high when measuring dry wood (<15%) thus the measuring will need more time to achieve its terminal value among other things static discharge could momentarily falsify the measuring.
Therefore beware of static discharge and wait long enough until a stable measuring value is displayed (unstable: „%" blinking) or use the auto-hold-function (see chapter 5.3 Auto-Hold Function).
Extreme accurate measures can be carried out within the range of **6 to 30%**.
Beyond this range the acquirable accuracy will lessen, but the device will deliver reference values still sufficient for the practitioner.
It is measured between the measuring-pikes insulated among each other. Requirements for an exact measurement:
- choose correct place to measure: place should be free of irregularities like resin–clusters, knurls, rifts, etc.
- choose correct measure depth: Recommendation: for trimmed timber: press in the pikes up to 1/3 of the material thickness.
- Perform multiple measurements: the more measurements will be averaged, the more exact the result will be.
- Pay attention to temperature-compensation: let the device adapt to the temperature of the wood (Atc on) or enter the exact temperature manually (Atc off).

Frequent sources of errors:
- Attention with oven-dried wood: the moisture dispersion may be irregular, often in the core is more moisture than on the edge.
- Surface-moisture: The wood-edge could be more humid than the core if the wood had been stored outside and e.g. was in rain.
- Wood preservative and other treatment could falsify the measuring.
- Fouling at the connections and round the pikes could result in erroneous measurement, especially with dry wood.

5.6 Measuring Other Materials

5.6.1 'Hard' Materials (concrete or similar): Measuring with brush-type probes (GBSL91 or GBSK91)

Measuring with brush probe GBSL91

Drill two holes with Ø6mm (GBSK91) or Ø 8mm (GBSL91) at intervals of 8 to 10cm into the material to be measured. Do not use edgeless drills: the resulting heat will evaporate the moisture which will result in faulty measures. Wait for at least 10min, blow out the holes to clean them from dust. Apply conductivity compound on the brush-type probes and stick them into the holes. Choose correct material (see Appendix B: Additional materials), read the measuring value. Observe that the holes dry out by-and-by, and the device will measure a value too low, if you want to use them several times.
This effect can be compensated by using conductivity compound: insert profuse conductivity compound between the holes and the brush-type probe, and let the electrode stick in the hole for about 30min before measuring (with the device switched off). Temperature-compensation plays no role when using the building material measuring.

5.6.2 'Soft' Materials (polystyrene or similar): Measuring with Measuring-pikes or -pins (GMS 300/91)

The most important thing is a good contact between the materials and the measuring needles. Whenever this is not possible because of the material texture, we suggest you to use the adapter cable GMK3810 with appropriate electrodes, such as impact electrode GSE91 or GSG91, reciprocating piston electrode GHE91.
Unscrew the needle holder and mount the adapters for the banana jacks. The red jack has to be connected to the right-hand socket, this decreases susceptibility of electromagnetic interference.
Procedure as described in chapter measuring in wood.

5.6.3 Measuring bulk cargo, bales and other special measures

Usable probes: measuring pins GMS 300/91 mounted on GSE91 or GSG91 with adapter cable GMK 3810 (red connector to the right-hand socket).
Measuring of splints, wood chips, insulating material and similar:
When using measuring pins oscillating movements have to be avoided when pushing in the probes. Otherwise hollows between the probes and the material may falsify the measuring. The material should be sufficiently compressed. When in doubt repeat the measuring a few times: the highest measuring value is the most exact one.

5.7 Measuring of materials, having no characteristic curves stored

Choose the representative universal material group „h.A", „h.b", „h.c" and „h.d"(for example corresponding to A,B,C and D of the GHH91) if a conversion table exists.
Attention: The moisture evaluation wet/dry of these material groups is only valid for wood!
Please keep in mind the following when using the temperature-compensation:
Automatic temperature-compensation should always be activated when measuring wood (Act on), with all other materials the automatic temperature-compensation should be switched off (Act off) and a manual temperature of 20°C should be entered.
Additionally at GMH3850: The GMH3850 can store up to 4 additional user characteristic curves. For this the corresponding reference point measurements for the respective material has to be carried out, from which the exact moisture content has to be dedicated with the Darr-Probe or the CM-Method. The Results can be stored in the device with the help of the GMHKonfig-Software, and can be accessed by the device directly.

6 Hints for the special function

6.1 Moisture estimation ('WET' - 'MEDIUM' - 'DRY')

Additionally to the measuring value, an individual moisture estimation will be displayed simultaneously. This moisture estimation is only a guidance value, the final evaluation is depending on the application of the material e.g:
Cement floor pavement ZE, ZFE without additives: Readiness without floor heating at 2,3% with floor heating 1,5%
Anhydrit floor pavement AE, AFE: Readiness without floor heating at 0,5% with floor heating 0,3%
Also firewood may be already usable while instrument still displays 'wet'!
Corresponding Standards and Instructions must be observed!
The Device can only complement the skill of a tradesman or investigator but cannot replace it!
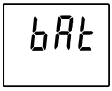
6.2 Pre-selection of favourite materials ('Sort')

A pre-selection of different materials (up to 8) can be selected from the menu for an effective working with the device. For example you can set the Menu Sort to 4 and save the desired materials in Sor.1, Sor.2, Sor.3 and Sor.4 if you only measure 4 different materials. Please refer to chapter Device Configuration.
Only the 4 desired materials can be selected via the buttons up and down, when exiting the menu, a changing during the measurement can be done comfortably. All materials will be available when setting Sort to off. Sor.1 to Sor.4 will still be available in the 'background', when setting the menu Sort to 4 the limited selection of the 4 entered materials will be active again. You only want to measure one material: set the menu Sort to 1 you cannot change to another material, thus a faulty operation is impossible.

7 Fault and System Messages

Display	Meaning	Remedy
108 -bAt-	low battery voltage, device will continue to work for a short time	replace battery
	If mains operation: wrong voltage	replace power supply, if fault continues to exist: device damaged
bAt	low battery voltage	replace battery
	If mains operation: wrong voltage	Check/replace power supply, if fault continues to exist: device damaged
No display or weird display Device does not react on keypress	low battery voltage	replace battery
	If mains operation: wrong voltage	Check/replace power supply, if fault continues to exist: device damaged
	system error	Disconnect battery or power supply, wait some time, re-connect
	device defective	return to manufacturer for repair
----	Sensor error: no material connected (meas. Value below permissible range), no valid signal	Connect meas. material
	charge at the probe, device will discharge (resp. at dry wood)	Wait until probe has discharged
	Sensor broken or device defective	return to manufacturer for repair
Err.1	Value exceeding measuring range	Check: Is the value exceeding the measuring range specified? ->temperature too high!
	Wrong probe connected	Check probe
	Probe or device defective	return to manufacturer for repair
	Non-floating probe near the unshielded electrode	Insulate probe or measure at shielded electrode
Err.2	Value below display range	Check: Is the value below the measuring range specified? -> temperature too low!
	Wrong probe connected	Check probe
	Probe, cable or device defective	return to manufacturer for repair
Err.7	system error	return to manufacturer for repair

8 Inspection oft he accuracy / Adjustment Services

Accuracy can be inspected with the testing adapter GPAD 38 (extra equipment).

To check precision select material characteristic curve ".rEF", choose as moisture display „%u" and connect the testing adapter to the needles. The device must display the printed value for the GMH 38xx

If the precision is no more corresponding to the imprint of the GPAD 38, we suggest to send the device to the manufacturer for a new adjustment.

9   Specification

Measuring	Channel1	Channel2
Principle	Resistive material-moisture-measuring via integrated needles matching DIN EN 13183-2: 2002	Temperature-measuring via NTC
Char. curve	466 different kinds of wood 28 different building materials	
Meas. range	0.0...100.0% moisture content (depending on characteristic curve) equal to ca. 3kOhm ... 2TerraOhm	-30.0... +75.0°C / -22.0... + 167.0°F
Resolution	0,1% moisture content	0.1°C / 0,1°F
Estimation	Estimation of the material condition in 9 steps from DRY to WET	
Accuracy Device	±1Digit (at nominal-temperature) Wood: ±0.2% moisture content (deviation from characteristic curve, range 6..30%) building mat.: : ±0.2% moisture content (dev. from char. curve, range depending on char. curve)	± 0.3°C
Temperature drift	< 0.005 % moisture content per 1K	0.005% per 1K
Nominal temperature	25°C	
Ambient	Temperature **-**25 ... +50°C (-13 .. 122°F) Relative humidity 0 ... 95 %RH (non condensing)	
Storage temperature	**-**25 ... +70°C (-13 ... 158°F)	
Housing	Dimension: 142 x 71 x 26 mm (L x B x D) impact resistant ABS, membrane keyboard, transparent panel. Front side IP65, integrated pop-up-clip for table top or suspended use	
Weight	approx. 175 g	
Power Supply	9V-Battery, type IEC 6F22 (included)	
Power Consumption	approx. 2.3mA	
Display	Two 4 digits LCD's (12.4mm high and 7 mm high) for material moisture temperature or characteristic curve, hold function, etc. as well as additional pointing arrows.	
Pushbuttons	6 membrane keys for on/off switch, menu operation, characteristic curve, hold-function etc.	
Hold Function	Press button to store current value.	
Automatic-Off-Function	Device will be automatically switched off if no key is pressed takes place for the time of the power-off delay. The power-off delay can be set to values between 1 and 120 min.; it can be completely deactivated.	
EMC:	The device corresponds to the essential protection ratings established in the Directives of the European Parliament and of the council on the approximation of the laws of the member states relating to the electromagnetic compatibility (2004/108/EC). EN61326 +A1 +A2 (Appendix B, class B), additional error: < 1% FS	

10 Disposal Notes

Dispense exhausted batteries at destined gathering places.
This device must not be disposed as "residual waste". To dispose this device, please send it directly to us (adequately stamped). We will dispose it appropriately and environmentally friendly.

11 Appendix A: Sorts of wood

Select kind of wood you want to measure, enter number on the device, e.g. birch = h. 60

Identification	Number	Comment	Range
Group A	h. A	Wood-group A (equal to GHH91 selector "A")	0..100%
Group B	h. B	Wood-group B (equal to GHH91 selector "B")	1..100%
Group C	h. C	Wood-group C (equal to GHH91 selector "C")	2..100%
Group D	h. D	Wood-group D (equal to GHH91 selector "D")	3..100%
AS/NZS 1080.1	h. AS	Australian reference characteristic curve	4..100%
Group Spruce-Pine-Fir	h.402	Softwood-Group	6..100%
GMH38 reference	.rEF	Internal reference for determining additional characteristic curves / calculation tables (without temperature-compensation)	

Abura	Hallea ciliata	h.2	7..60%		Bean, Black	Castanosperum australe	h.40	6..100%
Afrormosia	Pericopsis elata	h.3	6..55%		beech, damped	Fagus sylvatica	h.87	6..68%
Afzelia	Afzelia spp.	h.4	8..47%		beech, european -	Fagus sylvatica	h.86	5..100%
Agba	Gossweilerodendron balsamiferum	h.426	6..82%		Beech, Myrtle	Nothofagus cunninghamii	h.41	6..98%
Albizia / Iatandza, New Guinea	Albizia falcatara	h.8	5..100%		Beech, New Zeeland Red (hearted untreated)	Nothofagus fusca	h.42	7..100%
Albizia / Iatandza, Solomon Island	Albizia falcatara	h.9	4..93%		Beech, New Zeeland Red (sapwood boron)	Nothofagus fusca	h.43	2..100%
Alder, Blush	Solanea australis	h.10	5..82%		Beech, New Zeeland Red (sapwood untreated)	Nothofagus fusca	h.44	5..100%
Alder, Brown	Caldcluvia paniculosa	h.11	7..89%		Beech, Silky	Citronella moorei	h.45	8..85%
Alder, Common	Alnus glutinosa	h.131	2..100%		Beech, Silver	Nothofagus menziesii	h.46	8..73%
Alder, Rose	Caldcluvia australiensis	h.12	6..91%		Beech, Silver (sapwood tanalith)	Nothofagus menziesii	h.47	6..99%
Alerce	Fitzroya cupressoides	h.13	7..77%		Beech, Silver (sapwood untreated)	Nothofagus menziesii	h.48	4..100%
Amberoi	Pterocymbium beccarii	h.14	5..85%		Beech, Wau	Elmerrilla papuana	h.49	7..100%
Amoora, New Guinea	Amoora cucullata	h.15	3..100%		Beech, White (Fiji)	Gmelina vitiensis	h.50	5..100%
Andiroba	Carapa guianensis	h.16	5..73%		Beech, White (Queensland)	Gmelina leichardtii	h.51	6..100%
Antiaris, New Guinea	Antiaris toxicaria	h.7	6..100%		Bintangor / Calophyllum, Fijian	Callophyllum leucocarpum	h.53	5..100%
Apple, Black	Planachonella australis	h.17	7..78%		Bintangor / Calophyllum, Malaysian	Calophyllum curtisii	h.54	6..99%
Ash Silvertop	Eucalyptus sieberi	h.27	2..100%		Bintangor / Calophyllum, New Guinea	Calophyllum papuanum	h.55	4..100%
Ash, American	Fraxinus americana	h.132	5..100%		Bintangor / Calophyllum, Phillipines	Calophyllum inophyllum	h.56	6..100%
Ash, Bennet's	Flindersia bennettiana	h.18	6..99%		Bintangor / Calophyllum, Solomon Islands	Calophyllum kajewskii	h.57	6..100%
Ash, Crow's	Flindersia australis	h.19	7..88%		Binuang	Octomeles sumatrana	h.130	5..95%
Ash, European	Fraxinus excelsior	h.133	7..69%		Birch, American	Betula lutea	h.59	7..94%
Ash, Hickory	Flindersia ifflaiana	h.20	6..92%		Birch, European	Betula pubescens	h.60	5..100%
Ash, Japanese	Fraxinus mandshurica	h.134	4..100%		Birch, White	Schizomeria ovata	h.58	7..97%
Ash, Red	Flindersia excelsa	h.21	5..86%		Bishop Wood (Fiji)	Bischofia javanica	h.61	5..94%
Ash, Scaly	Ganophyllum falcatum	h.22	5..100%		Blackbutt	Eucalyptus pilularis	h.62	4..100%
Ash, Silver (Northern)	Flindersia schottina	h.23	7..89%		Blackbutt, Western Australia	Eucalyptus patens	h.63	6..100%
Ash, Silver (Queensland)	Flindersia bourjotiana	h.24	6..100%		Blackwood	Acacia melanoxylon	h.64	6..97%
Ash, Silver (Southern)	Flindersia schottina	h.25	7..100%		Bloodwood, Red	Corymbia gunmifera	h.66	7..100%
Ash, Silver, New Guinea	Flindersia amboinensis	h.26	5..100%		Bollywood	Litsea reticulata	h.67	5..100%
Aspen, Hard	Acronychia laevis	h.28	5..84%		Bossime	Drypetes spp,	h.70	7..78%
Ayan	Distemonanthus benthamianus	h.285	7..67%		Box Grey	Eucalyptus moluccana	h.75	8..94%
Balau	Shorea laevis	h.31	4..65%		Box Grey Coast	Eucalyptus bosistoana	h.76	7..98%
Balau, red	Shorea guiso	h.32	4..88%		Box, Black	Eucalyptus lafgiflorens	h.71	5..100%
Balsa	Ochroma pyramidale	h.33	4..100%		Box, Brush (Location Unknown)	Lophostemon confertus	h.74	5..63%
Basralocus / Angelique	Dicorynia guianensis	h.34	6..67%		Box, Brush (N.S.W.)	Lophostemon confertus	h.72	4..68%
Basswood	Tilia americana	h.228	4..100%		Box, Brush (Queensland	Lophostemon confertus	h.73	7..52%
Basswood, Fijian	Endospermum macrophyllum	h.35	4..79%		Box, Kanuka	Tristania laurina	h.77	6..100%
Basswood, Malaysian	Endospermum malacense	h.36	5..100%					
Basswood, New Guinea	Endospermum medullosum	h.37	5..98%					
Basswood, Silver	Polyscias elegans	h.38	7..93%					
Basswood, Solomon Island	Polyscias elegans	h.39	4..83%					

Boxwood, New Guinea	Xanthophyllum papuanum	h.78	5..88%		Evodia, White	Melicope micrococca	h.135	5..75%
Boxwood, Yellow	Planchonella pholmaniana	h.79	7..78%		Figwood (Moreton Bay)	Ficus macrophylla	h.139	7..69%
Brachychiton	Brachychiton carrthersii	h.80	5..67%		fir, alpine	Abies lasiocarpa	h.410	6..100%
Bridelia	Bridelia minutiflora	h.81	5..100%		fir, amabilis	Abies amabilis	h.411	4..100%
Brigalow	Acacia harpohylla	h.82	5..100%		Fir, Douglas	Pseudotsuga menziesii	h.122	5..100%
Brownbarrel	Eucalyptus fastigata	h.83	5..100%		Fir, Douglas (New Zealand) (sapwood treated)	Pseudotsuga menziesii	h.140	6..95%
Bubinga	Guibourtia demeusii	h.84	7..90%		Fir, Douglas (New Zealand) (sapwood untreated)	Pseudotsuga menziesii	h.141	5..100%
Buchanania	Buchanania arborescens	h.85	4..99%		Fir, Douglas (New Zealand) (truewood untreated)	Pseudotsuga menziesii	h.142	3..100%
Burckella, Solomon Island	Burckella obovata	h.88	4..73%		Fir, europ., MPA	Picea abies Karst.	h.460	6..100%
Butternut, Rose	Blepharocarya involucrigera	h.89	5..88%		fir, grand	Abies grandis	h.412	4..100%
Camphorwood, New Guinea	Cinnamomum spp,	h.90	6..96%		Fir, Spruce	Abies magnifica	h.413	5..100%
Campnosperma (Malaysia)	Campnosperma curtisii	h.91	8..100%		fir, white / fir, silver	Abies alba	h.414	5..100%
Campnosperma (Solomon Island)	Campnosperma kajewskii	h.92	3..100%		Galip	Canarium indicum	h.143	5..81%
Cananga (Phillipines)	Canagium odoratum	h.93	7..78%		Garo-Garo	Matrixiodendron pschyclados	h.144	5..86%
Canarium Solomon Island	Canarium salomonese	h.97	4..82%		Garuga	Garuga floribunda	h.145	6..65%
Canarium, African	Canarium Scheinfurthii	h.94	7..100%		Goncalo Alvez	Astronium spp,	h.146	6..51%
Canarium, Fijian	Canarium oleosum	h.95	5..100%		Greenheart	Ocotea rodiaei	h.148	6..100%
Canarium, New Guinea	Canarium vitiense	h.96	5..97%		Greenheart, Queensland	Endiandra compressa	h.149	7..100%
Candlenut	Aleurites moluccana	h.98	0..100%		Group Spruce-Pine-Fir	Weichhölzergruppe / Softwood-Group	h.402	6..100%
Carabeen, Yellow	Sloanea woollsii	h.99	6..85%		Guarea, black	Guarea cedrata	h.68	7..100%
Cathormion, New Guinea	Cathormion umbellatum	h.100	4..68%		Guarea, white	Guarea cedrata	h.69	9..85%
Cedar , Amercan	Cedrela odorata	h.102	8..86%		Guariuba	Clarisia racemosa	h.150	8..70%
Cedar, incense	Calocedrus decurrens	h.65	5..100%		Gum, Black	Nyssa sylvatica	h.162	7..100%
Cedar, White	Melia azedarach	h.101	7..100%		Gum, Blue, Sidney	Eucalyptus saligna	h.152	7..100%
Cedar, Yellow	Chamaecyparsis nootkatensis	h.457	4..100%		Gum, Blue, Southern	Eucalyptus globulus	h.151	6..100%
Celtis, New Guinea	Celtis spp,	h.103	5..86%		Gum, Grey	Eucalyptus punctata	h.153	5..100%
Celtis, Solomon Island	Celtis philippinesis	h.104	4..69%		Gum, Grey, Mountain	Eucalyptus cypellocarpa	h.154	6..100%
Cheesewood, White (Queensland) /Asian Alstonia	Alstonia scholaris	h.105	5..100%		Gum, Maiden's	Eucalyptus maidenii	h.155	7..100%
Chengal (Malaysia)	Neobalanocarpus heimii	h.106	4..99%		Gum, Manna	Eucalyptus viminalis	h.156	4..100%
Cherry, American	Prunus serotina	h.216	5..100%		Gum, Mountain	Eucalyptus dalrympleana	h.157	3..100%
Cherry, European	Prunus avium	h.217	7..86%		Gum, Pink	Eucalyptus fasciculosa	h.158	6..100%
Cleistocalyx	Cleistocalyx mirtoides	h.107	5..100%		Gum, Red, American	Liquidambar styraciflua	h.166	5..100%
Coachwood	Ceratopetalum apetalum	h.108	4..100%		Gum, Red, Forest	Eucalyptus tereticomis	h.159	7..100%
Coondoo, Blush	Planchonella laurifolia	h.109	6..75%		Gum, Red, River	Eucalyptus camaldulensis	h.160	7..100%
Cordia, New Guinea	Cordia dichotoma	h.110	5..61%		Gum, Rose / Gum, Saligna	Eucalyptus grandis	h.161	7..100%
Corkwood, Grey	Erythrina vespertillio	h.111	6..70%		Gum, Shining	Eucalyptus nitens	h.163	5..100%
Courbaril	Hymenaea coubaril	h.112	7..64%		Gum, Spotted (Victoria) (Lemon-Scented)	Corymbia spp,	h.164	4..94%
Cudgerie, Brown	Canarium australasicum	h.113	7..85%		Gum, Sugar	Eucalyptus cladocalyx	h.165	6..100%
Cupiuba	Goupia glabra	h.147	6..69%		Gum, White Dunn's	Eucalyptus dunnii	h.167	4..93%
Curupixá	Micropholis	h.114	6..63%		Gum, Yellow	Eucalyptus leucoxylon	h.168	7..94%
Cypress	Cupressus spp,	h.456	5..100%		Handlewood, Grey	Aphanante phillipinensis	h.169	5..84%
Cypress, Northern	Callitris intratropica	h.115	6..100%		Handlewood, White	Strebulus pendulinus	h.170	7..72%
Cypress, Rottnest Island	Callitris preisii	h.116	7..100%		Hardwood, Johnstone River	Bakhousia bancroftii	h.171	5..78%
Cypress, White	Callitris glaucophylla	h.117	6..100%		Hemlock / Hemlock, Western	Tsuga heterophylla	h.172	8..67%
Dakua, Salusalu (Fiji)	Decussocarpus vitiensis	h.118	6..100%		Hemlock, Chinesische	Tsuga chinensis	h.173	5..98%
Dibetou/African walnut	Lovoa trichilioides	h.119	7..87%		Hevea	Hevea Brasiliensis	h.174	7..92%
Dillenia (Solomon Island)	Dillenia salomonese	h.120	4..82%		Hickory	Carya spp.	h.175	6..89%
Doi (Fiji)	Alphitonia zizphoides	h.121	5..92%		Hollywood, Yellow	Premna lignum-vitae	h.176	7..86%
Duabanga, New Guinea	Duabanga moluccana	h.124	4..93%		Horizontal	Anodopetalum biglandulosum	h.177	7..100%
Ebony, african	Diospyros spp,	h.125	6..68%		Incensewood	Pseudocarapa nitidula	h.178	8..73%
Ekki	Lophira alata	h.29	4..95%		Iroko	Chlorophora excesla	h.179	7..54%
Elm, European	Ulmus spp,	h.374	7..61%		Ironbark, Grey	Eucalyptus drephanophylla	h.180	7..100%
Elm, White	Ulmus americana	h.373	5..88%		Ironbark, Grey	Eucalyptus paniculata	h.181	5..100%

Ironbark, Red	Eucalyptus sideroxylon	h.182	8..100%
Ironbark, Red, Broad Leaved	Eucalyptus fibrosa	h.183	8..100%
Ironbark, Red, Narrow Leaved	Eucalyptus cerbra	h.184	5..100%
Jarrah	Eucalyptus marginata	h.185	5..100%
Jelutong	Dyera costulata	h.186	0..100%
Jequitiba	Cariniana spp,	h.187	5..81%
Kahikatea (New Zealand) (Boron)	Dacrycarpus docrydiodies	h.188	7..80%
Kahikatea (New Zealand) (Thanalith)	Dacrycarpus docrydiodies	h.189	6..94%
Kahikatea (New Zealand) (untreated)	Dacrycarpus docrydiodies	h.190	6..96%
Kamarere (Fiji)	Eucalyptus deglupta	h.191	5..83%
Kamarere (New Guinea)	Eucalyptus deglupta	h.192	5..100%
Kapur	Dryobalanops spp,	h.193	7..94%
Karri	Eucalyptus diversicolor	h.194	5..100%
Kauceti	Kermadecia vitiensis	h.200	4..71%
Kauri	Agathis australis, boroneensis	h.201	5..100%
Keledang	Artocarpus lanceifolius	h.202	0..100%
Kempas	Koomapassia excelsa	h.203	4..100%
Keranji (Malaysia)	Dialium platysepalum	h.204	5..60%
Keruing	Dipterocarpus spp,	h.205	6..81%
Kiso	Chisocheton schumannii	h.218	6..65%
Lacewood, Yellow	Polyalthia oblongifolia	h.219	5..87%
Laran	Anthocephalus chinensis	h.223	7..85%
Larch	Larix decidua	h.221	5..88%
Larch, American / Larch, Western	Larix occidentalis	h.220	5..100%
Larch, Japanese	Larix kaempferi	h.222	5..100%
Lauan, Red	Shorea negrosensis	h.224	5..78%
Leatherwood	Eucryphia lucida	h.225	6..100%
Lightwood	Acacia implexa	h.226	7..78%
Limba	Terminalia superba	h.227	6..70%
Lime, European	Tilia vulgaris	h.229	4..100%
Louro, Red	Ocotea rubra	h.231	5..99%
Macadamia	Floyda praealta	h.232	7..74%
Magnolia	Magnolia acuminata/grandiflora	h.233	6..100%
Mahogany, Brush	Geissos benthamii	h.242	7..70%
Mahogany, Miva	Dysoxylum muelleri	h.243	8..94%
Mahogany, New Guinea	Dysoxylum spp,	h.241	6..95%
Mahogany, Red	Eucalyptus botryoides	h.244	7..100%
Mahogany, Rose	Dysoxylum fraseranum	h.245	7..83%
Mahogany, Southern	Eucalyptus botryoides	h.246	5..100%
Mahogany, White	Eucalyptus acmenoides	h.247	6..100%
Mahogony Khaya	Khaya spp,	h.235	7..100%
Mahogony, American	Swietenia spp,	h.234	6..100%
Mahogony, Phillipines	Parashorea plicata	h.236	5..100%
Mahogony, Phillipines	Shorea almon	h.237	4..86%
Mahogony, Sapelli / Sapele	Entandrophragma cylindricum	h.238	5..100%
Mahogony, Sipo / Utile	Entandrophragma utilie	h.239	6..100%
Mahogony, Tiama / gedu nohor	Entandrophragma angolense	h.240	10..66%
Mako	Trischospermum richii	h.248	3..87%
Makoré	Thieghemmella africana	h.123	6..100%
Makorè	Thieghemella heckelii	h.249	7..100%
Malas	Homalium foetidum	h.250	5..92%
Malletwood	Rhodamnia argentea	h.251	5..87%

Malletwood, Brown	Rhodamnia rubescens	h.252	5..91%
Manggachapui	Hopea acuminata	h.253	6..100%
Mango	Mangifera minor	h.254	4..87%
Mango, Phillipines	Mangifera altissima	h.255	7..100%
Mangosteen (Fiji)	Garcinia myrtifolia	h.256	5..87%
Mangrove, Cedar	Xylocarpus australasicus	h.257	6..100%
Maniltoa (Fiji)	Maniltoa grandiflora	h.258	6..72%
Maniltoa (New Guinea)	Maniltoa pimenteliana	h.259	6..72%
Mansonia	Mansonia altissima	h.260	7..100%
Maple, New Guinea	Flindersia pimentelianan	h.261	6..100%
Maple, Queensland	Flindersia brayleyana	h.262	5..100%
Maple, Rose	Cryptocarya erythroxylon	h.263	6..80%
Maple, Scented	Flindersia laevicarpa	h.264	7..70%
Mararie	Pseudoweinwannia lanchanocarpa	h.265	8..97%
Marri	Eucalyptus calophylla	h.266	5..81%
Masiratu	Degeneria vitiensis	h.267	5..86%
Massandaruba	Manilkara kanosiensis	h.268	4..83%
Matai	Podocarpus spicatus	h.269	6..95%
Mengkulang	Heritiera spp,	h.270	5..85%
Meranti, Buik from 1999	Shorea platiclados	h.271	4..76%
Meranti, Dark Red	Shorea spp,	h.272	5..100%
Meranti, Nemesu from 1999	Shorea pauciflora	h.274	4..100%
Meranti, Seraya from 1999	Shura curtisii	h.275	5..78%
Meranti, Tembaga from 1999	Shorea leprosula	h.276	3..93%
Meranti, White	Shorea hypochra	h.277	4..100%
Meranti, Yellow	Shorea multiflora	h.273	0..100%
Merawan	Hopea sulcala	h.278	4..100%
Merbau	Intsia spp,	h.279	6..100%
Mersawa	Anisoptera laevis	h.280	4..100%
Messmate	Eucalyptus obliqua	h.281	8..97%
Moabi	Baillonella toxisperma	h.282	6..100%
Mora	Mora excelsa	h.283	5..73%
Moustiqaire	Cryptocarya spp,	h.284	4..100%
Musizi	Maesopsis eminii	h.286	7..100%
Neuburgia	Neuburgia collina	h.287	7..98%
Nutmeg (Fiji)	Myrstica spp,	h.290	5..95%
Nutmeg (New Guinea)	Myrstica buchneriana	h.291	5..100%
Nyatoh	Palaquium spp,	h.292	4..92%
Oak, European	Quercus robur L.,	h.126	4..100%
Oak, Japanese	Quercus spp,	h.127	4..100%
Oak, New Guinea	Castanopsis acuminatissima	h.293	4..100%
Oak, Red	Quercus spp,	h.128	5..100%
Oak, Silky, Fishtail	Neorites kevediana	h.294	3..74%
Oak, Silky, Northern	Cardwellia sublimia	h.295	5..100%
Oak, Silky, Red	Stenocarpus salignus	h.296	6..86%
Oak, Silky, Southern	Grevillea robusta	h.297	5..81%
Oak, Silky, White	Stenocarpus sinuatus	h.298	6..82%
Oak, Tasmanian	Eucalyptus regnans	h.299	7..100%
Oak, Tulip, Blush	Argyrodendron actinophyllum	h.300	6..75%
Oak, Tulip, Brown	Argyrodendron trifoliolatum	h.301	9..75%
Oak, Tulip, Red	Argyrodendron peralatum	h.302	9..100%
Oak, Tulip, White	Petrygota horsfieldii	h.303	5..88%
Oak, White-	Quercus spp,	h.129	5..100%
Obah	Eugenia spp,	h.304	5..84%
Obeche	Triplochiton scleroxylon	h.1	5..60%
Odoko	Scottellila coriancea	h.305	6..93%

Olive	Olea hochstetteri	h.306	7..100%	Pine, western white	Pinus monticola	h.406	5..100%
Olivillo	Atextoxicon puncttatum	h.307	5..90%	Pittosporum (Tasmania)	Pittosporum bicolor	h.346	4..100%
Opepe	Nauclea diderrichii	h.52	7..95%	Planchonia	Pleiogynium timorense	h.351	5..95%
Padauk, African	Pterocarpus soyauxii	h.308	4..100%	Pleiogynium / Podo	Podocarpus neriifolia	h.352	7..71%
Palachonella, Fijian	Planchonella vitiensis	h.347	6..77%	Podocarp, Fijian	Decussocarpus vitiensis	h.353	6..100%
Palachonella, New Guinea	Planchonella kaernbachiana	h.348	4..92%	Podocarp, Red	Euroschinus falcata	h.354	6..100%
Palachonella, New Guinea	Planchonella thyrsoidea	h.349	2..85%	Poplar, Black	Populus nigra	h.313	4..100%
Palachonella, Solomon Island	Planchonia papuana	h.350	4..70%	Poplar, Pink	Euroschinus falcata	h.355	6..85%
Paldao	Dracontomelum dao	h.309	4..100%	Quandong, Brown	Eurocarpus coorangooloo	h.356	5..97%
Panga Panga	Millettia stuhlmannii	h.312	6..52%	Quandong, Silver	Elaecarpus angustifolius	h.357	5..82%
Papuacedrus	Papuacedrus papuana	h.314	6..100%	Quandong, Solomon Island	Elaecarpus spaericus	h.358	3..85%
Parinari, Fijian	Oarinari insularum	h.315	4..100%	Qumu	Acacia Richii	h.359	5..86%
Penarahan	Myristica iners	h.316	6..100%	Raintree (Fiji)	Samanea saman	h.360	5..57%
Peppermint, Broad-Leaved	Eucalyptus dives	h.317	6..100%	Ramin	Gonystylus spp,	h.361	6..67%
Peppermint, Narrow-Leaved	Eucalyptus australiana	h.318	8..98%	Redwood / Sequoia	Sequoia sempervirens	h.362	5..100%
Peroba, White	Paratecoma peroba	h.319	7..75%	Rengas	Gluta spp,	h.363	4..100%
Persimmon	Diospyros pentamera	h.320	5..90%	Resak (Malaysia)	Cotylelobium melanoxylon	h.364	3..100%
Perupok (Malaysia)	Kokoona spp,	h.321	1..100%	Rimu (non-truewood boron)	Dacrydium cupresinum	h.365	7..82%
Perupok (Malaysia)	Lophopetalum subovatum	h.322	8..100%	Rimu (non-truewood tanalith)	Dacrydium cupresinum	h.366	7..82%
Pillarwood	Cassipourea malosano	h.323	4..100%	Rimu (non-truewood untreated)	Dacrydium cupresinum	h.367	8..88%
Pine / Pine, Stone	Pinus pinea	h.345	6..100%	Rimu (truewood untreated)	Dacrydium cupresinum	h.368	8..50%
Pine, Aleppo	Pinus halepensis	h.324	8..98%	Robinia	Robinia pseudoacacia	h.369	2..92%
Pine, Austrian	Pinus nigra	h.212	5..100%	Roble Pellin	Nothofagus obliqua	h.370	6..93%
Pine, Beneguet	Pinus kesya	h.325	8..100%	Rock maple	Acer saccharum	h.6	5..100%
Pine, Black	Prumnoptys amarus	h.326	5..98%	Rosewood, Brasilian	Dalbergia nigra	h.311	5..72%
Pine, Bunya	Pinus bidwillii	h.327	8..88%	Rosewood, Indian	Dalbergia latifolia	h.310	4..100%
Pine, Canary Island	Pinus canariensis	h.328	6..100%	Rosewood, New Guinea	Pterocarpus indicus	h.371	5..84%
Pine, Celery-Top	Phyllocladus aspenifolius	h.329	7..92%	Rosewood, Phillipines	Pterocarpus indicus	h.372	10..66%
Pine, Hoop	Araucaria cunninghamii	h.330	7..100%	Sapupira	Hymenolobium excelsum	h.375	5..87%
Pine, Huon	Dacrydium franklinii	h.331	8..90%	Sasauria (Fiji)	Dysoxylum quercifolium	h.376	4..89%
Pine, King William	Athrotaxis selaginoides	h.332	7..85%	Sassafras	Doryphora sassafras	h.377	6..90%
Pine, Klinki	Araucaria hunsteinii	h.333	4..100%	Sassafras, Southern	Atherospherma moschatum	h.378	7..84%
Pine, Loblolly-	Pinus taeda	h.209	5..100%	Satinash, Blush	Acmena Hemilampra	h.379	3..100%
Pine, Longpole-	Pinus contorta	h.207	5..100%	Satinash, Grey	Syzygium gustavioides	h.380	5..100%
Pine, Maritime	Pinus pinaster	h.334	8..96%	Satinash, New Guinea	Syzygium butterneranum	h.381	5..87%
Pine, Parana Red	Araucaria angustifolia	h.335	6..43%	Satinash, Rose	Syzygium francisii	h.382	5..73%
Pine, Parana White	Araucaria angustifolia	h.336	7..72%	Satinay	Syncarpia hilii	h.383	4..100%
Pine, Pitch-, american	Pinus palustris	h.211	6..83%	Satinbox	Phenbalium saquameum	h.384	5..100%
Pine, Pitch-, caribbean	Pinus caribaea	h.210	6..100%	Satinheart, Green	Geijera salicifolia	h.385	8..62%
Pine, Radiata	Pinus radiata	h.337	5..100%	Satinwood, Tulip	Rhodosphaera rhodanthema	h.386	6..100%
Pine, Radiata (New Zealand) (sapwood aac)	Pinus radiata	h.338	7..100%	Scentbark	Eucalyptus aromapholia	h.387	5..90%
Pine, Radiata (New Zealand) (sapwood boliden)	Pinus radiata	h.339	6..100%	Schizomeria, New Guinea	Schizomeria serrata	h.388	5..100%
Pine, Radiata (New Zealand) (sapwood boron)	Pinus radiata	h.340	6..89%	Schizomeria, Solomon Island	Schizomeria serrata	h.389	4..74%
Pine, Radiata (New Zealand) (sapwood tanalith)	Pinus radiata	h.341	5..95%	Sepetir	Sindora coriaceae	h.390	1..100%
Pine, Radiata (New Zealand) (sapwoodt untreated)	Pinus radiata	h.342	5..100%	Sheoak, Fijian Beach	Casuarina nodiflora	h.391	6..91%
Pine, Red	Pinus resinosa	h.343	2..100%	Sheoak, River	Casuarina cunninghamiana	h.392	7..74%
Pine, Scotts	Pinus sylvestris L.	h.206	6..100%	Sheoak, Rose	Casuarina torulosa	h.393	8..72%
Pine, Shortleaf	Pinus echinata	h.213	5..100%	Sheoak, Western Australia	Allocasuarina fraserana	h.394	7..80%
Pine, Slash (Queensland)	Pinus elliottii	h.344	6..100%	Silkwood, Bolly	Cryptocarya ablata	h.395	8..64%
Pine, Southern	Pinus echinata	h.214	5..100%	Silkwood, Silver	Flindersia acuminata	h.396	7..92%
Pine, Southern, yellow / Pine, Ponderosa	Pinus ponderosa	h.208	5..100%	Simpoh (Phillipines)	Dillenia philippinensis	h.397	5..100%
Pine, Sugar	Pinus lambertiana	h.215	4..100%	Sirus, White	Ailainthus peekelii	h.398	5..97%

Sirus, White	Ailainthus triphysa	h.399	7..90%		Walnut, Rose	Endiandra muelleri	h.441	3..100%
Sloanea	Sloanea spp,	h.400	5..100%		Walnut, White	Cryptocarya obovota	h.442	7..79%
Soft wood chips		h.461	4..100%		Walnut, Yellow	Beilschmiedia bancroftii	h.443	5..84%
Spondias	Spondias mariana	h.401	4..93%		Wandoo	Eucalyptus wandoo	h.444	7..100%
Spruce, European	Picea abies Karst.	h.136	6..100%		Wattle, Hickory	Acacia penninervis	h.445	7..81%
Spruce, Norway /Norway Spruce	Picea abies	h.137	6..100%		Wattle, Silver	Acacia dealbata	h.446	7..95%
Spruce, Sitka	Picea sitchensis	h.138	5..100%		Wengé	Millettia laurentii	h.448	7..67%
Sterculia, Brown	Sterculia spp,	h.230	4..100%		Western Red Cedar	Thuja plicata	h.449	6..69%
Stringybark, Brown	Eucalyptus capitellata	h.403	6..100%		Whitewood, American	Liriodendron tulipifera	h.447	5..100%
Stringybark, Darwin	Eucalyptus tetrodonta	h.404	5..100%		Woolybutt	Eucalyptus longifolia	h.450	7..100%
Stringybark, Yellow	Eucalyptus muelleriana	h.405	9..100%		Yaka	Dacrydium nausoriensis/nidilum	h.451	6..88%
Suren	Toona cilata	h.407	6..100%		Yasi-Yasi I (Fiji)	Syzygium effusum	h.452	4..92%
Sweet chestnut	Castanea sativa	h.199	2..100%		Yasi-Yasi II (Fiji)	Syzygium spp,	h.453	5..100%
Sycamore	Acer pseudoplatanus	h.5	7..70%		Yate	Eucalyptus cornuta	h.454	6..94%
Sycamore, Satin	Ceratopetalum succirubrum	h.408	7..80%		Yertschuk	Eucalyptus considenia	h.455	7..100%
Tallowwood	Eucalyptus microcorsis	h.409	4..100%					
Tatajuba	Bagassa guianesis	h.30	7..50%					
Taun Maleisien	Pometia pinnata	h.195	0..100%					
Taun New Guinea	Pometia pinnata	h.196	6..100%					
Taun Phillipines	Pometia pinnata	h.197	7..100%					
Taun Solomon Island	Pometia pinnata	h.198	4..90%					
Tawa	Beilschmiedia tawa	h.415	8..62%					
Tawa (sap & heart boron)	Beilschmiedia tawa	h.416	6..77%					
Tawa (sap & heart untreated)	Beilschmiedia tawa	h.417	7..82%					
Teak	Tectona grandis	h.418	6..100%					
Terap	Artocarpus elasticus	h.419	2..100%					
Terentang	Campnosperma brevipetiolata	h.420	5..100%					
Terminalia Braun	Terminalia microcarpa	h.421	3..91%					
Terminalia Gelb	Terminalia complanata	h.422	3..100%					
Tetrameles	Tetrameles nudiflora	h.423	5..91%					
Tingle, Red	Eucalyptus jacksonii	h.424	5..100%					
Tingle, Yellow	Eucalyptus guilfolei	h.425	5..100%					
Tomillo	Cedrelinga catenaeformis	h.427	5..92%					
Totara	Podocarpus totara	h.428	7..80%					
Touriga, Red	Calophyllum constatum	h.429	8..95%					
Tristiropsis, New Guinea	Tristiropsis canarioides	h.430	6..90%					
Tulipwood	Harpullia pendula	h.432	7..99%					
Turat	Eucalyptus gomophocephala	h.431	7..91%					
Turpentine	Syncarpia glomulifera	h.433	5..100%					
Vaivai-Ni-Veikau	Serianthes myriadenia	h.434	5..77%					
Vatica, Phillippines	Vatica, manggachopi	h.435	7..79%					
Vitex, New Guinea	Vitex cofassus	h.436	5..100%					
Vuga	Metrosideros collina	h.437	6..68%					
Vutu	Barringtonia edulis	h.438	4..67%					
Walnut, American	Juglans nigra	h.288	5..100%					
Walnut, Blush	Beilschmiedia obtusifolia	h.439	8..81%					
Walnut, European	Junglans regia	h.289	7..74%					
Walnut, Queensland	Endiandra palmerstonii	h.440	6..100%					

12 Appendix B: Additional materials

Select material you want to measure, enter number on the device, e.g. concrete b25 = b. 6

12.1 Measuring of building materials

Material	Number	Range
Concrete		
Concrete 200kg/m³ B15 (200 kg concrete per 1m³ sand)	b. 5	0,7..3,3%
Concrete 350kg/m³ B25 (350 kg concrete per 1m³ sand)	b. 6	1,1..3,9%
Concrete 500kg/m³ B35 (500 kg concrete per 1m³ sand)	b. 7	1,4..3,7%
gas-aerated concrete (Hebel)	b. 9	1,6..100,0%
gas-aerated concrete (Ytong PPW4, gross density 0,55)	b. 27	1,6..53,6%
Screed		
Anhydrit screed AE, AFE	b. 1	0,0..30,3%
Ardurapid screed-concrete	b. 2	0,6..3,4%
Elastizell screed	b. 8	1,0..24,5%
Screed-plaster	b. 11	0,4..9,4%
Wood-concrete screed	b. 13	5,3..20,0%
Screed-concrete ZE, ZFE without additives	b. 21	0,8..4,6%
Screed-concrete ZE, ZFE with bitumen additives	b. 22	2,8..5,5%
Screed-concrete ZE, ZFE with synthetic additives	b. 23	2,4..11,8%
Miscellaneous		
Asbestous cement panels	b. 3	4,7..34,9%
Bricks clay bricks	b. 4	0,0..40,4%
Plaster	b. 10	0,3..77,7%
Plaster synthetic	b. 12	18,2..60,8%
On-wall plaster	b. 20	0,0..38,8%
Lime mortar KM 1:3	b. 14	0,4..40,4%
Lime sand bricks (14 DF (200), gross density 1,9)	b. 28	0,1..12,5%
Limestone	b. 15	0,4..29,5%
MDF	b. 16	3,3..52,1%
Cardboard	b. 17	9,8..100,0%
Stone-timber	b. 18	10,5..18,3%
Polystyrene	b. 25	3,9..50,3%
soft-fibre-panel-wood, bitumen	b. 26	0,0..71,1%
Concrete mortar ZM 1:3	b. 19	1,0..10,6%
Concrete bounded fake boards	b. 24	3,3..33,2%

The accuracy of measuring building materials depends on manufacturing and using. The used additives may vary from manufacturer to manufacturer, therefore deviating measure results may occur. The given measuring-range is the theoretically measurable range.

12.2 Estimation of additional materials

Following materials may be well estimated with the help of the device, but you won't reach such high accuracy than with materials listed in appendix A and B.

Material	Number	Comment
Cork	h. A	
Fibre board	h. C	
Wood fibre insulating wall panel	h. C	
Wood fibre hard disks	h. C	
Kauramin-fake boards	h. C	
Melamine-fake boards	h. A	
Paper	h. C	
Phenolic resin-fake boards	h. A	
Textiles	h. C (D)	