HEVEA

Family: EUPHORBIACEAE (angiosperm)
Scientific name(s): Hevea spp.
Commercial restriction: no commercial restriction
Note: Native from the Amazonian forest, HEVEA was widely planted in South East Asia and later in Africa. RUBBER WOOD is the name used in all South East Asia.

WOOD DESCRIPTION

Color: creamy white
Sapwood: not demarcated
Texture: coarse
Grain: straight or interlocked
Interlocked grain: slight

LOG DESCRIPTION

Diameter: from 30 to 60 cm
Thickness of sapwood:
Floats: yes
Log durability: low (must be treated)

Note: Logs must be treated, extracted and sawn as soon as possible after felling. Cream white wood becoming light brown.

PHYSICAL PROPERTIES

Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.

	Mean	Std dev.
Specific gravity *:	0,65	0,06
Monnin hardness *:	3,0	0,6
Coeff. of volumetric shrinkage:	0,41 %	0,05 %
Total tangential shrinkage (TS):	5,6 %	0,8 %
Total radial shrinkage (RS):	2,2 %	0,2 %
TS/RS ratio:	2,5	
Fiber saturation point:	24 %	

Stability: poorly stable

MECHANICAL AND ACOUSTIC PROPERTIES

	Mean	Std dev.
Crushing strength *:	51 MPa	7 MPa
Static bending strength *:	82 MPa	12 MPa
Modulus of elasticity *:	11760 MPa	1803 MPa

(*: at 12% moisture content, with 1 MPa = 1 N/mm²)

Musical quality factor: 107,6 measured at 2394 Hz

NATURAL DURABILITY AND TREATABILITY

Fungi and termite resistance refers to end-uses under temperate climate. Except for special comments on sapwood, natural durability is based on mature heartwood. Sapwood must always be considered as non-durable against wood degrading agents.
E.N. = Euro Norm

Funghi (according to E.N. standards): class 5 - not durable
Dry wood borers: susceptible - sapwood not or slightly demarcated (risk in all the wood)
Termites (according to E.N. standards): class S - susceptible
Treatability (according to E.N. standards): class 1 - easily permeable
Use class ensured by natural durability: class 1 - inside (no dampness)
Species covering the use class 5: No
Note: Prone to blue stain.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: requires appropriate preservative treatment
In case of risk of temporary humidification: requires appropriate preservative treatment
In case of risk of permanent humidification: use not recommended

DRYING

Drying rate: rapid
Risk of distortion: high risk
Risk of casehardening: no
Risk of checking: high risk
Risk of collapse: no
Note: Careful piling, top weighting of the stacks and end-coating are recommended to avoid distortions and cracks.

Possible drying schedule: 4

	Temperature (°C)		
M.C. (%)	dry-bulb	wet-bulb	Air humidity (%)
Green	42	39	82
50	48	43	74
40	48	43	74
30	48	43	74
15	54	46	63

This schedule is given for information only and is applicable to thickness lower or equal to 38 mm.
It must be used in compliance with the code of practice.
For thickness from 38 to 75 mm, the air relative humidity should be increased by 5 % at each step.
For thickness over 75 mm, a 10 % increase should be considered.

SAWING AND MACHINING

Blunting effect: normal
Sawteeth recommended: ordinary or alloy steel
Cutting tools: ordinary
Peeling: good
Slicing: nood
Note: Presence of internal stresses. Sharp edges are recommended to avoid a fuzzy surface. Latex tends to clog sawteeth.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
Gluing: correct
Note: Tends to split when nailing.

COMMERCIAL GRADING

Appearance grading for sawn timbers: Grading depending on the source

FIRE SAFETY

Conventional French grading: Thickness > 14 mm : M.3 (moderately inflammable)
Thickness < 14 mm : M.4 (easily inflammable)

Euroclasses grading: D s2 d0
Default grading for solid wood, according to requirements of European standard EN 14081-1 annex C (April 2009). It concerns structural graded timber in vertical uses with mean density upper 0.35 and thickness upper 22 mm.

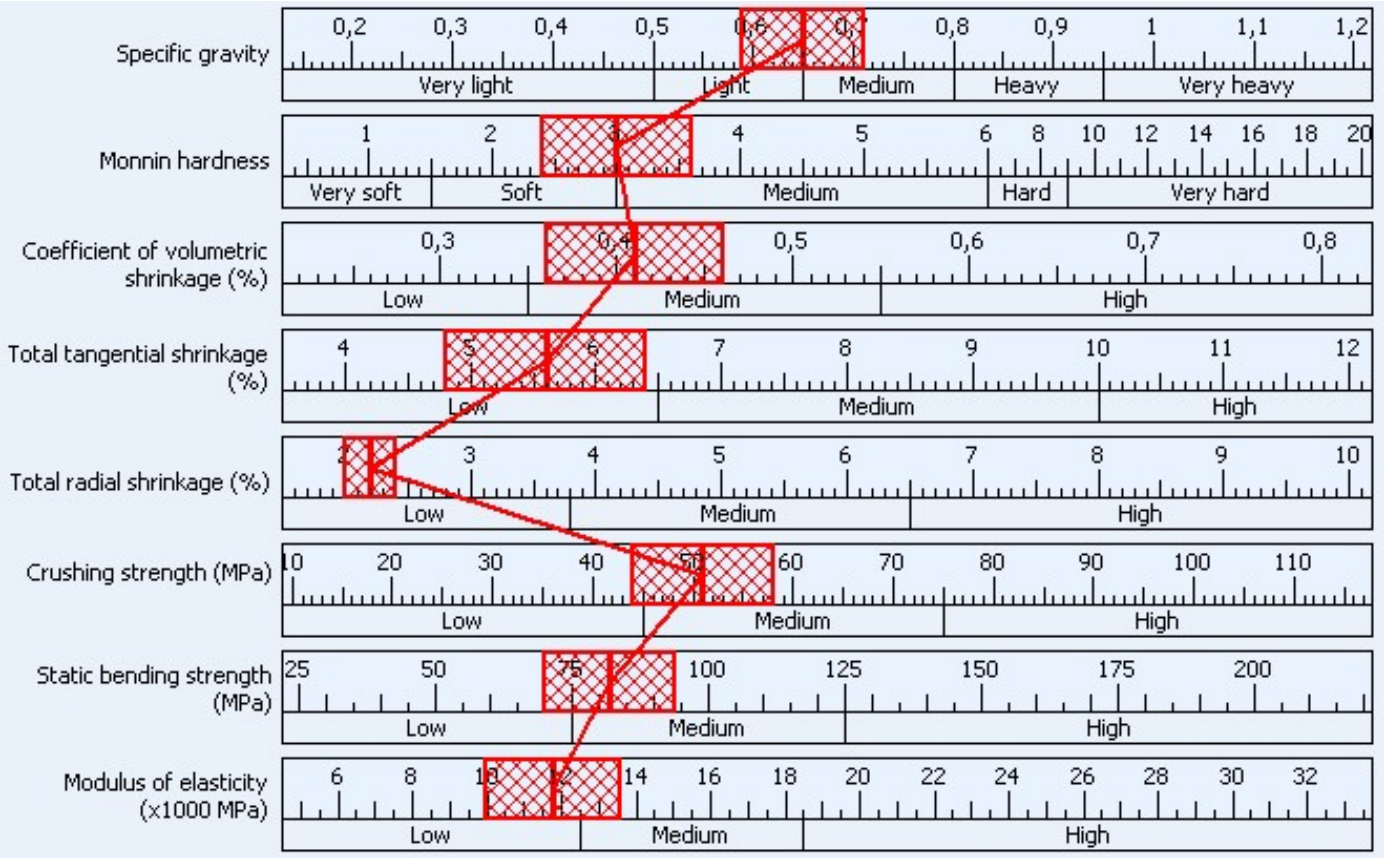
END-USES

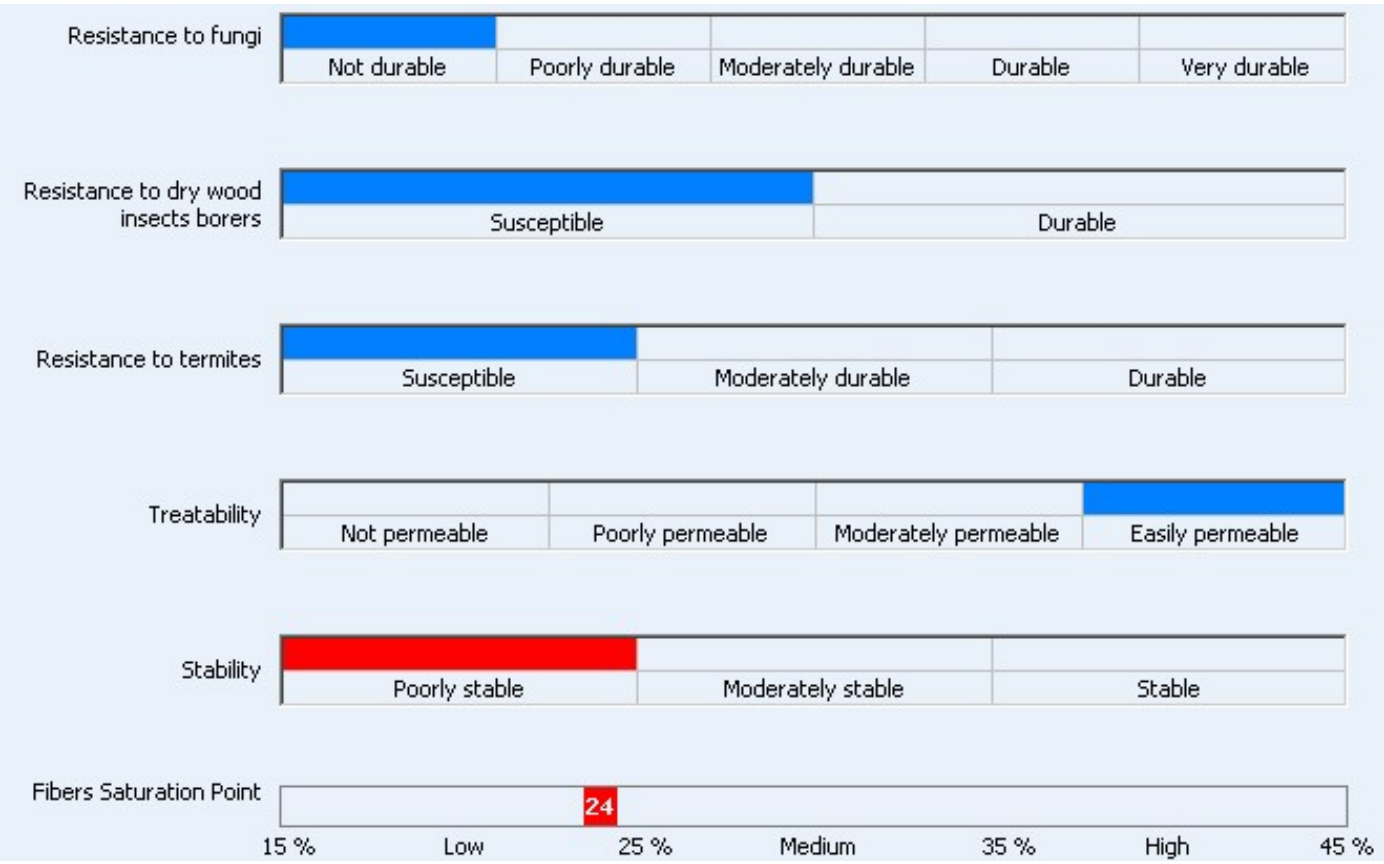
Current furniture or furniture components
Interior panelling
Flooring
Pulp
Boxes and crates
Veneer for interior of plywood
Light carpentry
Note: Stains well.

Interior joinery
Moulding
Sliced veneer
Stairs (inside)
Fiber or particle boards
Blockboard
Glued laminated

MAIN LOCAL NAMES

Country	Local name	Country	Local name
Brazil	HEVEA	Brazil	MAPALAPA
Brazil	SERINGA	Brazil	SERINGUEIRA
Guyana	HATTI	Malaysia (islands)	HEVEA WOOD
Peru	JEVE	Peru	SHIRENGA
Thailand	RUBBER TREE	Venezuela	ARBOL DE CAUCHO
United Kingdom	PARA RUBBER TREE	United States of America	RUBBER WOOD


Specific gravity
0,2 0,3 0,4 0,5 0,6 0,7 0,8 0,9 1 1,1 1,2
Very light
Light
Medium
Heavy
Very heavy
Monnin hardness
1 2 3 4 5 6 8 10 12 14 16 18 20
Very soft
Soft
Medium
Hard
Very hard
Coefficient of volumetric shrinkage (%)
0,3 0,4 0,5 0,6 0,7 0,8
Low
Medium
High
Total tangential shrinkage (%)
4 5 6 7 8 9 10 11 12
Low
Medium
High
Total radial shrinkage (%)
2 3 4 5 6 7 8 9 10
Low
Medium
High
Crushing strength (MPa)
10 20 30 40 50 60 70 80 90 100 110
Low
Medium
High
Static bending strength (MPa)
25 50 75 100 125 150 175 200
Low
Medium
High
Modulus of elasticity (x1000 MPa)
6 8 10 12 14 16 18 20 22 24 26 28 30 32
Low
Medium
High


Resistance to fungi
Not durable
Poorly durable
Moderately durable
Durable
Very durable
Resistance to dry wood insects borers
Susceptible
Durable
Resistance to termites
Susceptible
Moderately durable
Durable
Treatability
Not permeable
Poorly permeable
Moderately permeable
Easily permeable
Stability
Poorly stable
Moderately stable
Stable
Fibers Saturation Point
24
15 %
Low
25 %
Medium
35 %
High
45 %