GREENHEART

Family: LAURACEAE (angiosperm)

Scientific name(s): Chlorocardium rodiaei
Ocotea rodiaei (synonymous)

Commercial restriction: no commercial restriction

Note: In Surinam, the name GROENHART is also used for IPE squared timber and square edged boards.

WOOD DESCRIPTION

Color: yellow brown
Sapwood: clearly demarcated
Texture: fine
Grain: straight
Interlocked grain: absent

LOG DESCRIPTION

Diameter: from 80 to 100 cm
Thickness of sapwood:
Floats: no
Log durability: good

Note: Very thick sapwood, heartwood yellow brown to dark olive brown, with sometimes irregular darker veins.

PHYSICAL PROPERTIES

MECHANICAL AND ACOUSTIC 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 *:	0,97	
Monnin hardness *:	19,8	
Coeff. of volumetric shrinkage:	0,36 %	
Total tangential shrinkage (TS):	8,2 %	
Total radial shrinkage (RS):	7,5 %	
TS/RS ratio:	1,1	
Fiber saturation point:	40 %	

Stability: moderately stable to poorly stable

	Mean	Std dev.
Crushing strength *:	98 MPa	
Static bending strength *:	217 MPa	
Modulus of elasticity *:	30400 MPa	

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

Musical quality factor: 160,5 measured at 2931 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 1 - very durable
Dry wood borers: durable - sapwood demarcated (risk limited to sapwood)
Termites (according to E.N. standards): class D - durable
Treatability (according to E.N. standards): class 4 - not permeable
Use class ensured by natural durability: class 4 - in ground or fresh water contact
Species covering the use class 5: Yes

Note: This species is listed in the European standard NF EN 350-2.
This species naturally covers the use class 5 (end-uses in marine environment or in brackish water) due to its high specific gravity and hardness.
According to the European standard NF EN 335, performance length might be modified by the intensity of end-use exposition.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: does not require any preservative treatment
In case of risk of temporary humidification: does not require any preservative treatment
In case of risk of permanent humidification: does not require any preservative treatment

DRYING

Drying rate: slow
Risk of distortion: slight risk
Risk of casehardening: no
Risk of checking: slight risk
Risk of collapse: no

Possible drying schedule: 5

M.C. (%)	Temperature (°C) dry-bulb	wet-bulb	Air humidity (%)
30	42	41	94
25	42	39	82
20	48	43	74
15	48	43	74

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: fairly high
Sawteeth recommended: stellite-tipped
Cutting tools: tungsten carbide
Peeling: not recommended or without interest
Slicing: not recommended or without interest
Note: Sawdust may cause allergies.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
Gluing: correct
Note: Gluing must be done with care (very dense wood).

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to NHLA grading rules (January 2007)
Possible grading: FAS, Select, Common 1, Common 2, Common 3

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

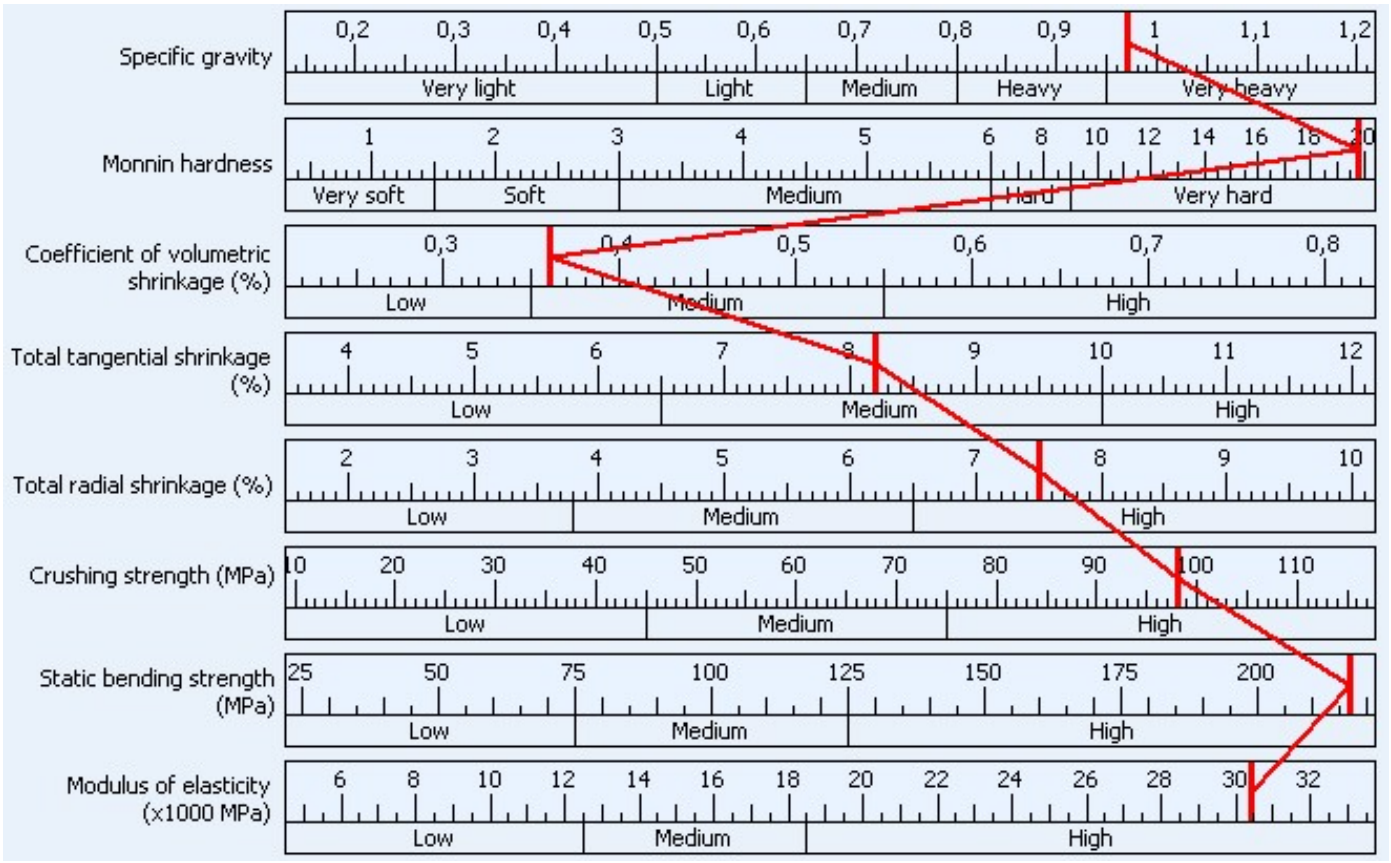
Hydraulic works (seawater)
Ship building
Bridges (parts in contact with water or ground)
Heavy carpentry
Sleepers
Poles
Hydraulic works (fresh water)
Cooperage
Bridges (parts not in contact with water or ground)
Industrial or heavy flooring
Turned goods

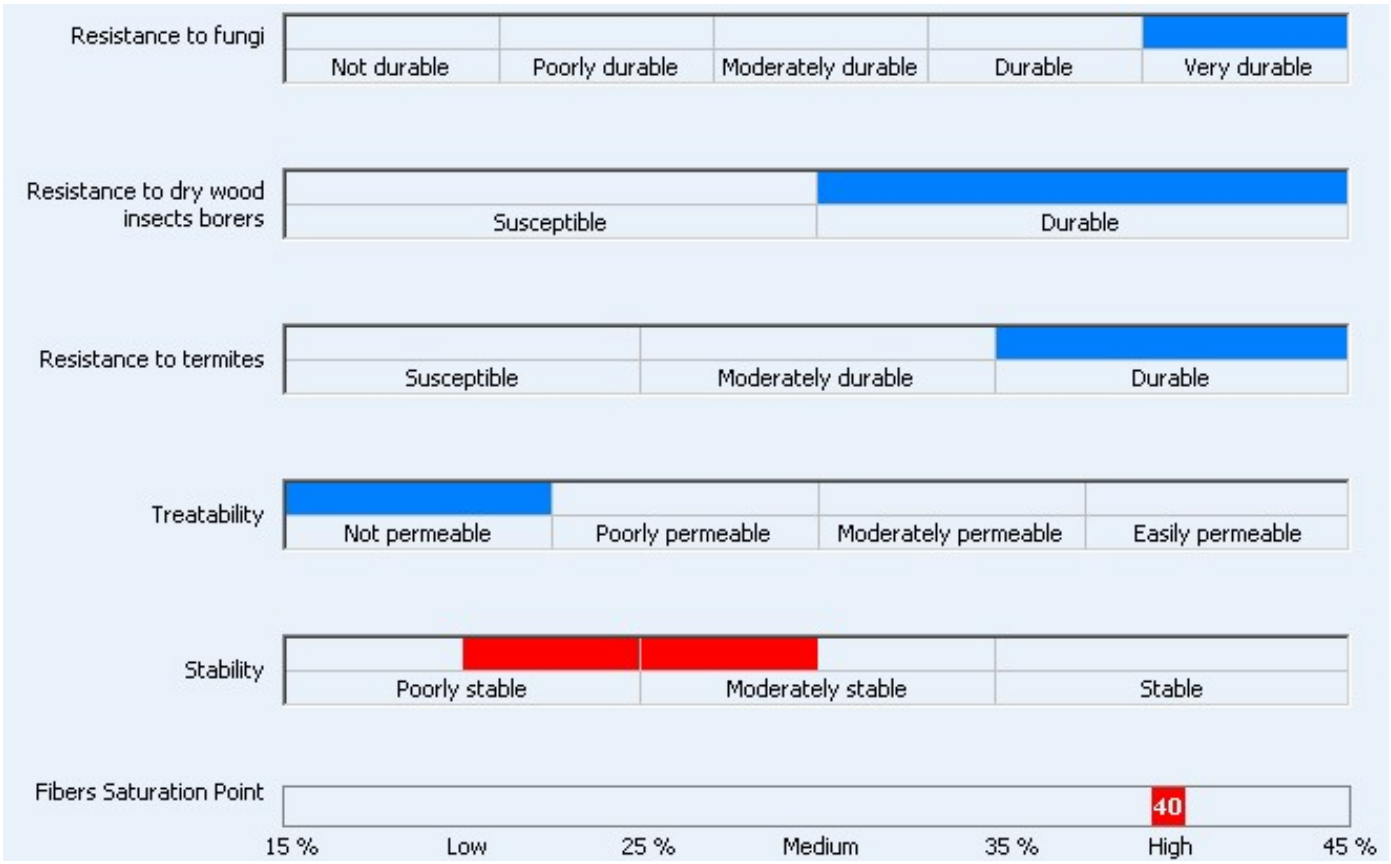
Note: Although not very used in France, GREENHEART is one of the most suitable species for end-uses in marine environment. Species resistant to acids. GREENHEART is also used for billiard cue.

MAIN LOCAL NAMES

Country	Local name	Country	Local name
Brazil	BIBIRU	Brazil	ITAUBA BRANCA
Guyana	BIBIRU	Guyana	DEMERARA
Guyana	GREENHEART	Suriname	BEEBEROE
Suriname	GROENHART	Suriname	SIPIROE
Venezuela	VIRUVIRU		

GREENHEART


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
40
15 %
Low
25 %
Medium
35 %
High
45 %