BALSA

Family: MALVACEAE (angiosperm)
Scientific name(s): Ochroma pyramidale
Ochroma lagopus (synonymous)
Commercial restriction: no commercial restriction

WOOD DESCRIPTION

Color: creamy white
Sapwood: not demarcated
Texture: coarse
Grain: straight
Interlocked grain: absent
Note: Wood cream white to pink white.

LOG DESCRIPTION

Diameter: from 50 to 80 cm
Thickness of sapwood:
Floats: yes
Log durability: low (must be treated)

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 *:	0,14	
Monnin hardness *:	0,3	
Coeff. of volumetric shrinkage:	0,21 %	
Total tangential shrinkage (TS):	5,2 %	
Total radial shrinkage (RS):	2,2 %	
TS/RS ratio:	2,4	
Fiber saturation point:	34 %	

Stability: moderately stable

MECHANICAL AND ACOUSTIC PROPERTIES

	Mean	Std dev.
Crushing strength *:	11 MPa	
Static bending strength *:	24 MPa	
Modulus of elasticity *:	5140 MPa	

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

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: Impregnation in autoclave is not recommended. Impregnation by soaking satisfactory.

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: normal to slow
Risk of distortion: high risk
Risk of casehardening: yes
Risk of checking: high risk
Risk of collapse: no
Note: Kiln drying is preferable to air drying to reduce the defects. Drying must be done slowly and carefully.

Possible drying schedule: 3

M.C. (%)	Temperature (°C) dry-bulb	wet-bulb	Air humidity (%)
Green	60	56	81
30	68	58	61
20	74	60	51
15	80	61	41

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: not recommended or without interest
Slicing: not recommended or without interest
Note: Sharp tools are necessary to avoid fuzzy surface.

ASSEMBLING

Nailing / screwing: poor
Gluing: correct

COMMERCIAL GRADING

Appearance grading for sawn timbers: Specific grading according to uses

FIRE SAFETY

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

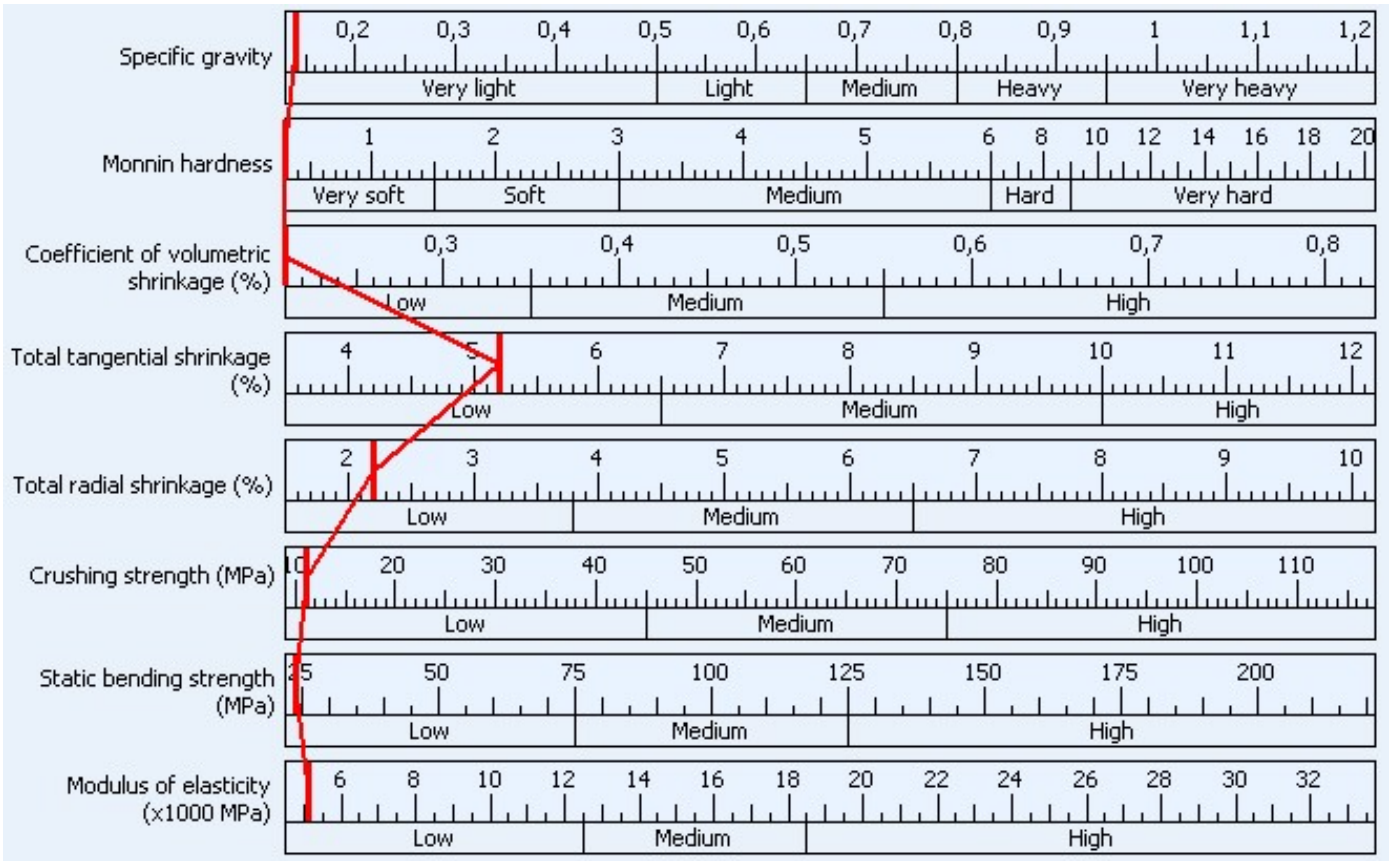
Euroclasses grading: -
Out of grading (low density).

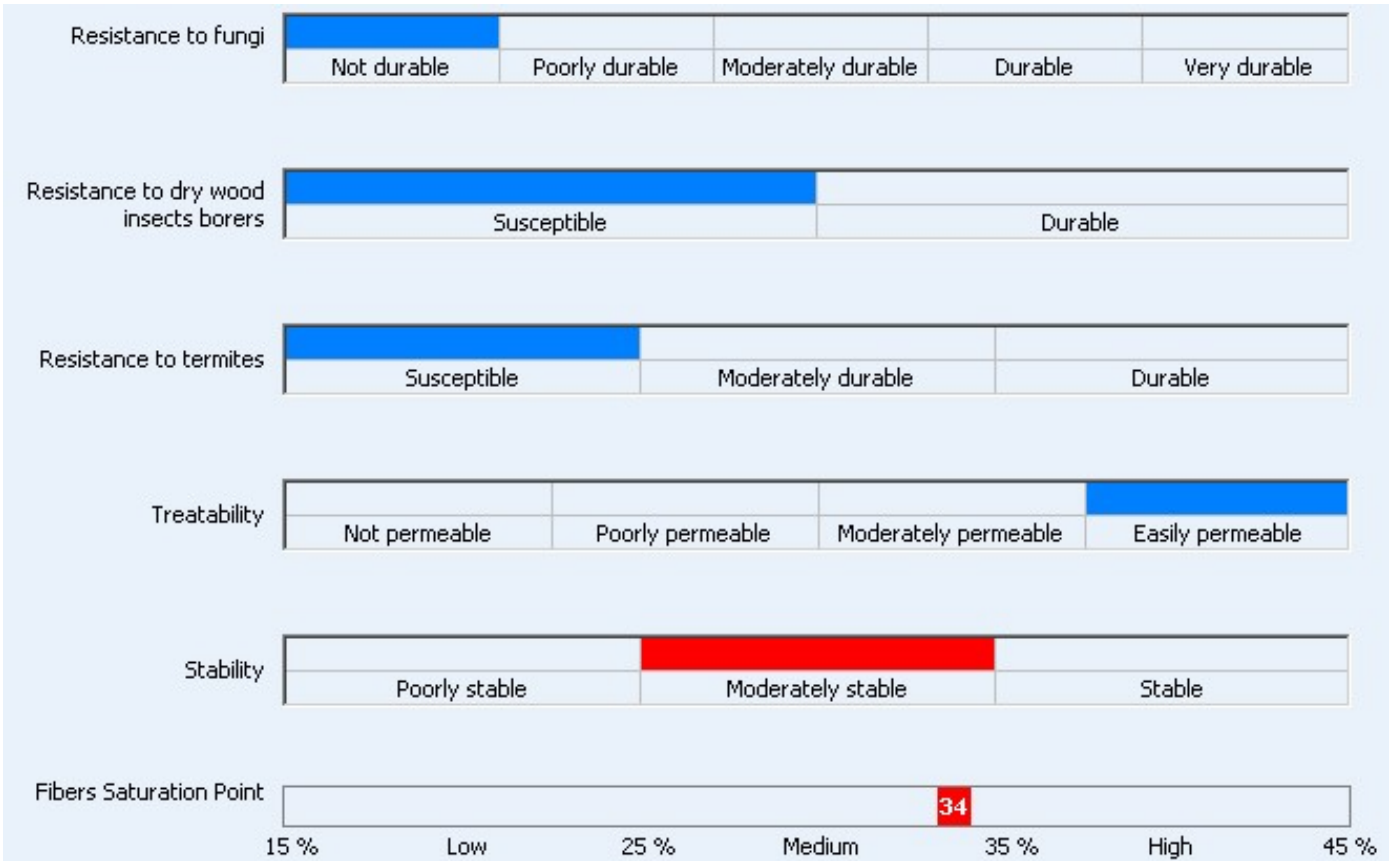
END-USES

Insulation
Model building
Note: Filling is required to obtain a good finish.
Floats
Wood-ware

MAIN LOCAL NAMES

Country	Local name	Country	Local name
Brazil	PAU DE BALSA	Colombia	LANU
Ecuador	BALSA	Guatemala	LANILLA
Honduras	BALSA	Honduras	GUANO
Nicaragua	GATILLO	Peru	BALSA
Peru	PALO DE BALSA	Peru	TOPA
Salvador	ALGODON	Trinidad and Tobago	BOIS FLOT
Venezuela	BALSO		


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)
20 30 40 50 60 70 80 90 100 110
Low
Medium
High
Static bending strength (MPa)
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
34
15 %
Low
25 %
Medium
35 %
High
45 %