SALI

Family: BURSERACEAE (angiosperm)

Scientific name(s): Tetragastris altissima
Tetragastris balsamifera
Tetragastris hostmannii
Tetragastris panamensis

Commercial restriction: no commercial restriction

Note: The genus Trattinickia is also commercialized under the name AMESCLAO.

WOOD DESCRIPTION

Color: orange - yellow
Sapwood: clearly demarcated
Texture: fine
Grain: interlocked
Interlocked grain: slight

Note: Wood light brown to orangey yellow. Sometimes frequent small black resinous spots.

LOG DESCRIPTION

Diameter: from 50 to 60 cm
Thickness of sapwood: from 4 to 6 cm
Floats: no
Log durability: moderate (treatment recommended)

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 *:	0,87	0,07
Monnin hardness *:	7,2	0,9
Coeff. of volumetric shrinkage:	0,60 %	0,07 %
Total tangential shrinkage (TS):	8,6 %	1,2 %
Total radial shrinkage (RS):	5,2 %	1,0 %
TS/RS ratio:	1,7	
Fiber saturation point:	26 %	

Stability: poorly stable

MECHANICAL AND ACOUSTIC PROPERTIES

	Mean	Std dev.
Crushing strength *:	71 MPa	7 MPa
Static bending strength *:	128 MPa	18 MPa
Modulus of elasticity *:	17490 MPa	2593 MPa

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

Musical quality factor: 103,6 measured at 2659 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 2 - 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 3 - poorly permeable
Use class ensured by natural durability: class 3 - not in ground contact, outside
Species covering the use class 5: No

Note: The possible presence of few demarcated sapwood may have an influence on the expected durability. 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: requires appropriate preservative treatment
In case of risk of temporary humidification: does not require any 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: no
Risk of checking: high risk
Risk of collapse: no

Possible drying schedule: 1

M.C. (%)	Temperature (°C) dry-bulb	wet-bulb	Air humidity (%)
Green	40	37	82
40	44	38	68
30	44	36	59
20	46	36	52
15	49	37	46

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: Requires power. Sawing and machining are more or less easy according to the species and the interlocked grain. Variable silica content.

ASSEMBLING

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

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to NHLA grading rules (January 2007)
Possible grading: FAS, Select, Common 1, Common 2, Common 4
In French Guiana, the local name of this species is "SALI". Grading is done according to local rules "Bois guyanais classés".
Possible grading: Choix 1, choix 2, choix 3, choix 4

FIRE SAFETY

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

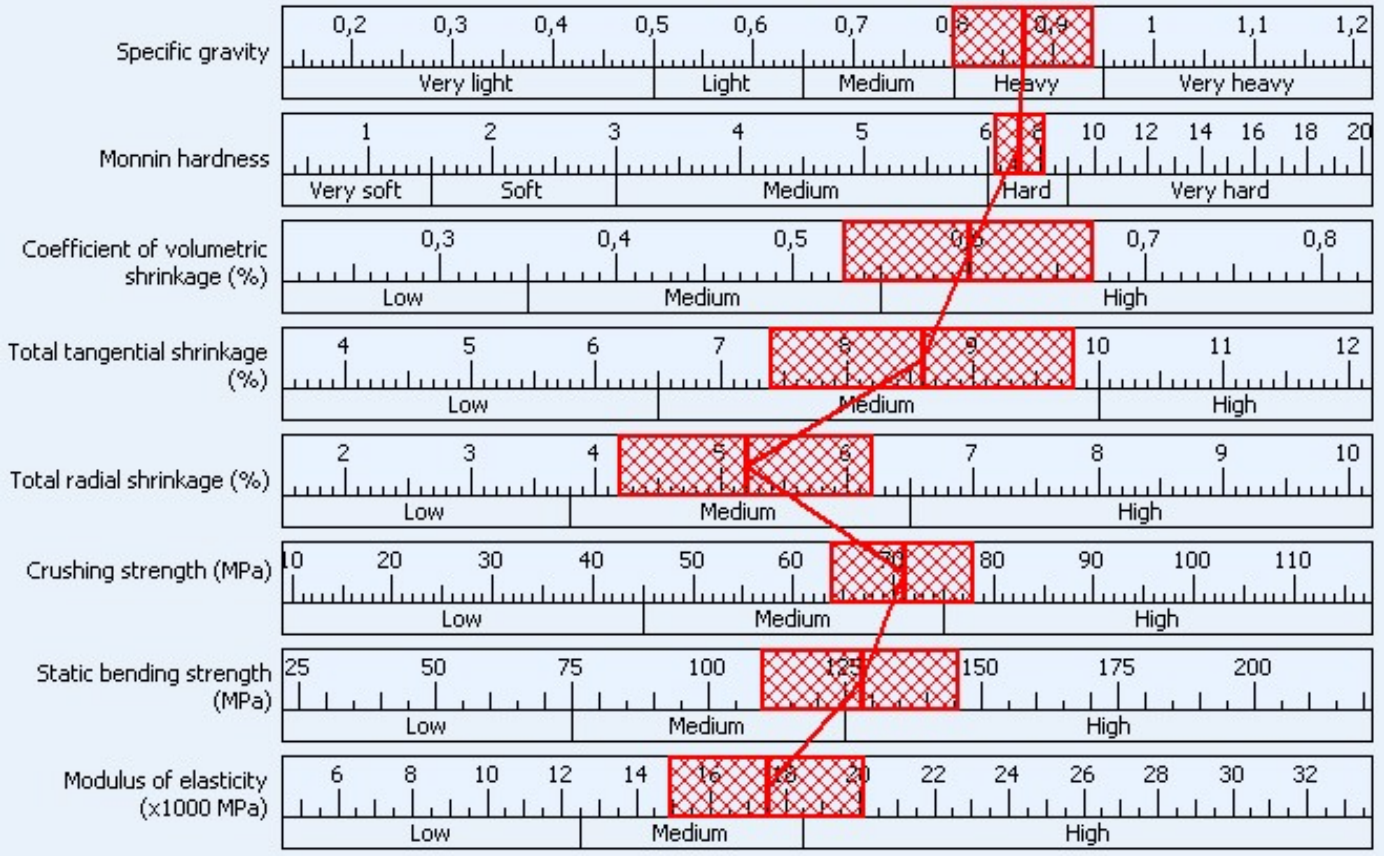
Euroclasses grading: D s2 d0
Default grading for solid wood, according to requirements of European standard EN 14081-1 annex C (April 2009). It concerns structural graded timber in vertical uses with mean density upper 0.35 and thickness upper 22 mm.

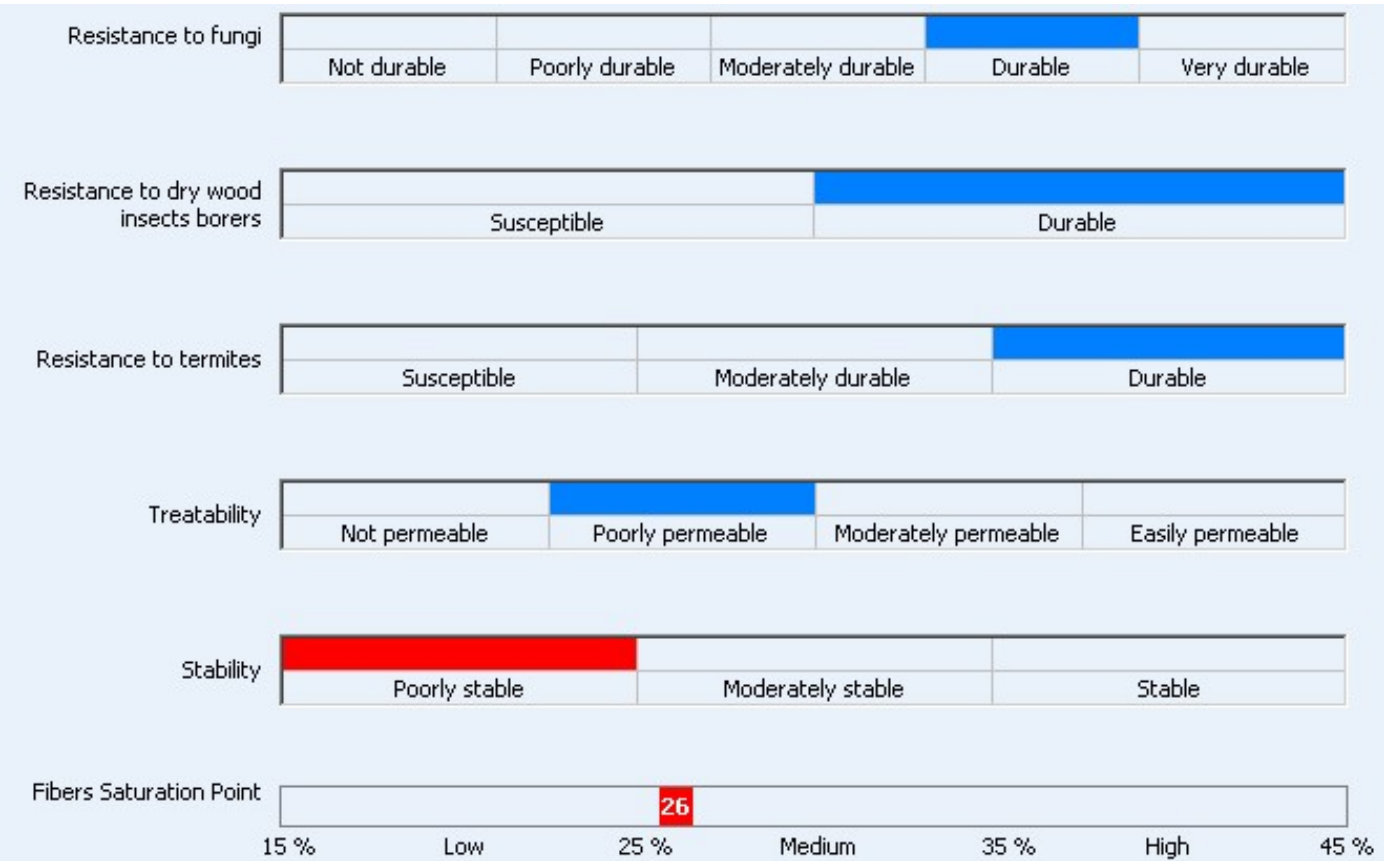
END-USES

Industrial or heavy flooring
Stairs (inside)
Interior joinery
Bridges (parts not in contact with water or ground)
Flooring
Exterior joinery
Heavy carpentry
Vehicle or container flooring

MAIN LOCAL NAMES

Country	Local name	Country	Local name
Brazil	AMESCLAO	Brazil	BREU GRANDE
Brazil	BREU MANGA	Brazil	BREU PRETO
Colombia	TREMENTINO AZUCARERO	Cuba	PALO COCHINO
Ecuador	COPAL	Guyana	HAIAWABALLI
Guyana	JOELIBALLI-TATAROE	French Guiana	BOIS COCHON
French Guiana	ENCENS ROUGE	French Guiana	SALI
Puerto Rico	MASA	Puerto Rico	PALO DE ACEITE
Suriname	JOELIBALLI-TATAROE	Suriname	SALIE


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
26
15 % Low 25 % Medium 35 % High 45 %