

Bulletwood

Family. Sapotaceae

Botanical Name(s).

Manilkara bidentata

Manilkara huberi

Manilkara p.p.

Continent. Latin America

CITES. This species is not listed in the CITES Appendices (Washington Convention 2023).

Description of logs

Diameter. From 60 to 120 cm

Thickness of sapwood. From 4 to 6 cm

Floats. No

Log durability. Good

Description of wood

Colour reference. Red brown

Sapwood. Clearly demarcated

Texture. Fine

Grain. Straight

Interlocked grain. Absent

Notes. Dark red brown with purplish shades.

Physics and mechanics

The properties indicated are for mature wood. These properties may vary significantly depending on the origin and growing conditions of the wood.

Property	Average value
Specific gravity ¹	1.10
Monnin hardness ¹	12.9
Coefficient of volumetric shrinkage	0.75 % per %
Total tangential shrinkage (St)	9.4 %
Total radial shrinkage (Sr)	7.1 %
Ratio St/Sr	1.3
Fibre saturation point	27 %
Thermal conductivity (λ)	0.35 W/(m.K)
Lower heating value	19,070 kJ/kg
Crushing strength ¹	89 MPa
Static bending strength ¹	170 MPa
Modulus of elasticity ¹	24,410 MPa

¹ At 12 % moisture content, with 1 MPa = 1 N/mm

Natural durability and preservation



Flat sawn



Quarter sawn

Resistance to fungi. Class 1 - very durable

Resistance to dry wood borers. Class D - durable (sapwood demarcated, risk limited to sapwood)

Resistance to termites. Class D - durable

Treatability. Class 4 - not permeable

Use class ensured by natural durability.

Class 4 - in ground or fresh water contact

Notes. This species is listed in the European standard NF EN 350 (2016). This species naturally covers the use class 5 (wood permanently or regularly submerged in salt water, sea water or brackish water) due to its high specific gravity and hardness. According to the European standard NF EN 335 (2013), performance length might be modified by the intensity of end-use exposition.

Requirement of a preservative treatment

Against dry wood borer. Does not require any preservative treatment

In case of temporary humidification. Does not require any preservative treatment

In case of permanent humidification. Does not require any preservative treatment

Drying

Drying rate. Slow

Risk of distorsion. High risk

Risk of casehardening. Yes

Risk of checking. High risk

Risk of collapse. No known specific risk

Notes. Air drying prior to kiln drying is recommended.

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
Prewarm 1		> 40	35	87	18.0
Prewarm 2	6	> 40	38	85	17.0
Drying		> 40	41	82	15.7
		40 - 35	44	81.0	15.0
		35 - 30	46	80.0	14.5
		30 - 25	48	77.0	13.5
		25 - 20	50	72.0	12.0
		20 - 18	52	63.0	10.0
		18 - 16	54	54.0	8.5
		16 - 14	56	47.0	7.4
		14 - 12	58	41.0	6.5
		12 - 9	60	34.0	5.6
Conditioning	8		55	(3)	(2)
Cooling	(1)		Stop	(3)	(2)

(1)) Cooling: until the temperature inside the kiln no longer exceeds external temperature by more than 30 °C.

(2) UGL = final H% x 0,8 to 0,9.

(3) Subtract RH from the UGL determined in (2) and temperature, using the Hailwood-Horrobin equation.

Sawing and machining

Blunting effect. Fairly high

Sawteeth recommended. Stellite-tipped

Cutting tools. Tungsten carbide

Peeling. Not recommended or without interest

Slicing. Good

Notes. Requires power.

Assembling

Nailing and screwing. Good but pre-boring necessary

Notes. Very high specific gravity: gluing must be especially performed in compliance with the code of practice.

Commercial grading

Appearance grading for sawn timbers.

According to NHLA grading rules (2015) Possible grading: FAS, Select, Common 1, Common 2, Common 3 In French Guiana, the local name of this species is "Balata franc". Grading is done according to local rules "Bois guyanais classés". Possible grading: choix 1, choix 2, choix 3, choix 4

Visual grading for structural applications

According to French standard NF B 52-001-1 (2018), strength class D50 can be provided by visual grading. Strength class D70 can be provided by visual grading according to French standard NF B 52-001-1/A2 (2015).

Fire safety

Conventional French grading.

Thickness > 14 mm: M3 (moderately inflammable)

Thickness < 14 mm: M4 (easily inflammable)

Euroclasses grading. D-s2, d0

Default grading for solid wood, according to requirements of European standard EN 14081-1+A1 (August 2019). It concerns structural graded timber in vertical uses and ceiling with mean density upper 0.35 and thickness upper 22 mm.

End-uses

- Arched goods
- Bridges (parts in contact with water or ground)
- Bridges (parts not in contact with water or ground)
- Current furniture or furniture components
- Decking
- Heavy carpentry
- Hydraulic works (fresh water)
- Indoor staircases
- Industrial or heavy flooring
- Poles
- Sculpture
- Shingles
- Ship building (planking and deck)
- Sleepers
- Sliced veneer
- Stakes
- Stringed instruments (bow)
- Tool handles (resilient woods)
- Turned goods
- Wood frame house

Notes. In Brazil, *M. elata* and *M. longifolia* are used for pulpwood.



Floating decks, Port-Louis (France).

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Main local names

Country

Brazil

Brazil

Brazil

Colombia

Colombia

French Guiana

French Guiana

French Guiana

French Guiana

Guyana

Guyana

Guyana

Panama

Peru

Peru

Suriname

United Kingdom (importated tropical timber)

United States of America (importated tropical timber)

United States of America (importated tropical timber)

Venezuela

Venezuela

Local name

Maçaranduba

Maparajuba

Paraju

Balata

Nispero

Balata franc

Balata gomme

Balata rouge

Bois abeille

Balata

Beefwood

Bulletwood

Nispero

Pamashto

Quinilla colorada

Bolletrie

Bulletwood

Beefwood

Bulletwood

Balata

Massarandu