

Common name:	MAÇARANDUBA
Family:	SAPOTACEAE
Scientific name(s):	Manilkara bidentata Manilkara huberi

LOG DESCRIPTION		WOOD DESCRIPTION	
Diameter:	from 60 to 120 cm	Colour:	Red brown
Thickness of sapwood:	from 4 to 6 cm	Sapwood:	Clearly demarcated
Floats:	no	Texture:	Fine
Durability in forest :	Good	Grain:	Straight
		Interlocked grain:	Absent
Note:	Dark red brown with purplish shades.		

PHYSICAL PROPERTIES			MECHANICAL PROPERTIES		
Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.					
	mean	standard deviation		mean	standard deviation
Density *:	1.10 g/cm ³	0.05	Crushing strength *:	89 MPa	8
Monnin hardness*:	12.9	2.1	Static bending strength *:	170 MPa	18
Coef of volumetric shrinkage:	0.75 %	0.06	Modulus of elasticity *:	24410 MPa	3274
Total tangential shrinkage:	9.4 %	0.8			
Total radial shrinkage:	7.1 %	0.8			
Fibre saturation point:	27 %				
Stability:	Poorly stable		(* : at 12 % moisture content ; 1 MPa = 1 N/mm ²)		

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.

Fungi:	Class 1 - very durable	* ensured by natural durability (according EN standards).
Dry wood borers:	Durable; sapwood demarcated (risk limited to sapwood)	
Termites:	Class D - Durable	
Treatability:	4 - not permeable	
Biological hazard class*:	4 - in ground or fresh water contact or high dampness	
Note:	Due to its high specific gravity and hardness, this species naturally covers the biological hazard class 5 (end-uses in marine environment or in brackish water).	

COUNTRIES - LOCAL NAMES

Countries	Local names	Countries	Local names
Brazil	MAÇARANDUBA	United Kingdom	BULLET WOOD
Brazil	MAPARAJUBA	U.S.A.	BEEFWOOD
Brazil	PARAJU	U.S.A.	BULLET WOOD
Colombia	BALATA		
Colombia	NISPERO		
French Guiana	BALATA FRANC		
French Guiana	BALATA GOMME		
French Guiana	BALATA ROUGE		
French Guiana	BOIS ABEILLE		
Guyana	BALATA		
Guyana	BEEFWOOD		
Guyana	BULLET WOOD		
Panama	NISPERO		
Peru	PAMASHTO		
Peru	QUINILLA COLORADA		
Surinam	BOLLETRIE		
Venezuela	BALATA		
Venezuela	MASSARANDU		

MAÇARANDUBA

REQUIREMENT OF A PRESERVATIVE TREATMENT

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

DRYING

Possible drying schedule

Drying rate:	Slow	Temperature (°C)			Air humidity (%)
		M.C. (%)	dry-bulb	wet-bulb	
Risk of distortion:	High risk				
Risk of casehardening:	Yes				
Risk of checking:	High risk				
Risk of collapse:	No	30	42	41	94
		25	42	39	82
		20	48	43	74
		15	48	43	74

This shedule is given for information only and is applicable to thickness < 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.

Note: Surface drying prior to kiln drying is recommended.

SAWING AND MACHINING

Blunting effect:	Fairly high
Sawteeth recommended:	Stellite-tipped
Cutting tools:	Tungsten carbide
Peeling:	Not recommended or without interest
Slicing:	Good
Note:	Requires power.

ASSEMBLING

Nailing / Screwing:	Good but pre-boring necessary
Gluing:	Correct (for interior only)
Note:	Gluing requires care (very dense wood).

END-USES

Main known end-uses; they must to be implemented according to the code of practice.

Important remark: some end-uses are mentionned for information (traditional, regional or ancient end-uses).

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

Hydraulic works (fresh water)	<u>Bridges (parts not in contact with water or ground)</u>
-------------------------------	--

Bridges (parts in contact with water or ground)

Sleepers

Posts

Stakes

Wood frame house

Sliced veneer

Stringed instruments (bow)

Ship building (planking and deck)

Arched goods

Sculpture

Tool handles (resilient woods)

Turned goods

Shingles

Industrial or heavy flooring

Heavy carpentry

Stairs (inside)

Current furniture or furniture components
