

Common name:	GRAPIA
Family:	CAESALPINIACEAE
Scientific name(s):	Apuleia leiocarpa
Note:	The variety "molaris" is found in the Amazonian forest, mainly in flooded areas. The main species, Apuleia leiocarpa is found mainly in the South of Brazil, in the Atlantic coast forests, easily colonizing cleared areas.

LOG DESCRIPTION		WOOD DESCRIPTION	
Diameter:	from 60 to 90 cm	Colour:	Yellow
Thickness of sapwood:	from 5 to 11 cm	Sapwood:	Clearly demarcated
Floats:	no	Texture:	Medium
Durability in forest :	Good	Grain:	Straight or interlocked
		Interlocked grain:	Marked
Note:	Lemon-yellow becoming light brown with age. Slight ribbon like aspect, a bit moiré. Irregular interlocked grain.		

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 *:	0.79 g/cm ³	0.06			
Monnin hardness*:	6.7	1.8	Crushing strength *:	63 MPa	8
Coef of volumetric shrinkage:	0.52 %	0.05	Static bending strength *:	116 MPa	21
Total tangential shrinkage:	7.5 %	1.4	Modulus of elasticity *:	15880 MPa	1850
Total radial shrinkage:	4.2 %	0.9			
Fibre saturation point:	22 %				
Stability:	Moderately stable to 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 3 moderately durable	* ensured by natural durability (according EN standards).
Dry wood borers:	Durable; sapwood demarcated (risk limited to sapwood)	
Termites:	Class M - Moderately durable	
Treatability:	3 - poorly permeable	
Use class*:	2 - inside or under cover (dampness possible)	
Note:	<p>The natural durability of Grapia is very variable. In some cases, this variability can be observed inside the same piece of wood. This species cannot be used without appropriate preservative treatment for end-uses under use class 3 except for some parts of a work such as windows, less exposed than others (entrance doors, shutters ...).</p> <p>This species naturally covers the use class 5 (end-uses in marine environment or in brackish water) due to its high silica content. However, it is not recommended to use it in case of strong structural constraints due to its medium mechanical properties; it is most suitable for end-uses like shipbuilding.</p>	

MAIN LOCAL NAMES

Countries	Local names	Countries	Local names
Argentina	IBIRA PERE	Paraguay	GRAPIA
Bolivia	ALMENDRILLO	Paraguay	YVIRA-PERE
Bolivia	AMARILLO	Peru	ANA
Brazil	AMARELAO	Venezuela	GATEADO
Brazil	BARAJUBA	Venezuela	MAPURITE
Brazil	FERRO		
Brazil	GARAPA		
Brazil	GEMA-DE-OVO		
Brazil	GRAPIA		
Brazil	JATAI-AMARELO		
Brazil	MUIRAJUBA		
Brazil	MUIRATAUA		
Colombia	COBRE		

GRAPIA

REQUIREMENT OF A PRESERVATIVE TREATMENT

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

DRYING

Possible drying schedule

Drying rate:	Slow	Temperature (°C)			Air humidity (%)
		M.C. (%)	dry-bulb	wet-bulb	
Risk of distortion:	Slight risk	Green	50	47	84
Risk of casehardening:	No	40	50	45	75
Risk of checking:	Slight risk	30	55	47	67
Risk of collapse:	No	20	70	55	47
		15	75	58	44

This schedule 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.

SAWING AND MACHINING

Blunting effect:	High
Sawteeth recommended:	Stellite-tipped
Cutting tools:	Tungsten carbide
Peeling:	Not recommended or without interest
Slicing:	Not recommended or without interest
Note:	Slicing is very difficult due to the high silica content. In machining, due to the irregular interlocked grain, it is recommended to reduce the feed rate and the cutting angle.

ASSEMBLING

Nailing / Screwing:	Good but pre-boring necessary
Gluing:	Correct

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: Finishing is easy but filling is recommended.

Exterior joinery
Light carpentry
Heavy carpentry
Hydraulic works (seawater)
Ship building (ribs)
Cooperage
Turned goods
Current furniture or furniture components
Wood frame house
Flooring
Industrial or heavy flooring
Interior joinery
Ship building
Stairs (inside)
Vehicle or container flooring
Cabinetwork (high class furniture)
Tool handles (resilient woods)
Formwork
Boxes and crates
Wood-ware
