

Family: FABACEAE-CAESALPINIOIDEAE (angiosperm)

Scientific name(s): Hymenaea courbaril
 Hymenaea intermedia
 Hymenaea martiana
 Hymenaea oblongifolia
 Hymenaea parvifolia

Commercial restriction: no commercial restriction

WOOD DESCRIPTION

Color: red brown
 Sapwood: clearly demarcated
 Texture: medium
 Grain: straight or interlocked
 Interlocked grain: slight

Note: Slight internal stresses.

The colour can vary from purple brown or orangey brown to red brown slightly veined.

LOG DESCRIPTION

Diameter: from 50 to 80 cm
 Thickness of sapwood: from 3 to 12 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 *:	0.94	0.13
Monnin hardness *:	10.5	2.6
Coeff. of volumetric shrinkage:	0.59 %	0.11 %
Total tangential shrinkage (TS):	7.5 %	1.2 %
Total radial shrinkage (RS):	3.9 %	1.4 %
TS/RS ratio:	1.9	
Fiber saturation point:	23 %	

Stability: moderately stable to stable

Note: H. intermedia and H. parvifolia are heavier and more resistant.

MECHANICAL AND ACOUSTIC PROPERTIES

	Mean	Std dev.
Crushing strength *:	97 MPa	15 MPa
Static bending strength *:	160 MPa	31 MPa
Modulus of elasticity *:	23460 MPa	6002 MPa

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

Musical quality factor: 148.5 measured at 2888 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 2-3 - durable to moderately durable

Dry wood borers: class D - durable (sapwood demarcated, risk limited to sapwood)

Termites (according to E.N. standards): class M - moderately durable

Treatability (according to E.N. standards): class 4 - not permeable

Use class ensured by natural durability: class 3 - not in ground contact, outside

Species covering the use class 5: no

Note: Resistance to fungi and to termites is variable according to the species.

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: does not require any 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
 Risk of distortion: slight risk
 Risk of casehardening: no
 Risk of checking: slight risk
 Risk of collapse: no

Possible drying schedule: 4

	M.C. (%)	Temperature (°C)		Air humidity (%)
		dry-bulb	wet-bulb	
Green	42	39	82	
50	48	43	74	
40	48	43	74	
30	48	43	74	
15	54	46	63	

Note: Initial air drying under cover prior to kiln drying is recommended. Risks of cracks more or less important according to specific gravity.

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: good

Note: Due to hardness, the use of stellite is recommended for industrial production.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
 Gluing: correct (for interior only)
 Note: Gluing must be done with care (very dense wood).

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 "COURBARIL". 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 : 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 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

Cabinetwork (high class furniture)	Current furniture or furniture components
Sliced veneer	Industrial or heavy flooring
Flooring	Stairs (inside)
Wood frame house	Exterior joinery
Exterior panelling	Interior panelling
Tool handles (resilient woods)	Turned goods
Ship building (ribs)	Vehicle or container flooring
Musical instruments	Arched goods
Wood-ware	Sculpture
Moulding	Cooperage

Note: End-uses under permanent humidification (contact with water or with ground) are possible with the species presenting a very good durability.

MAIN LOCAL NAMES

<u>Country</u>	<u>Local name</u>	<u>Country</u>	<u>Local name</u>
Brazil	JATAI	Brazil	JATOBA
Brazil	JUTAI	Brazil	JUTAI AÇU
Brazil	JUTAI ROXO	Colombia	ALGARROBO
Guyana	LOCUST	French Guiana	COURBARIL
Peru	AZUCAR-HUAYO	Suriname	RODE LOKUS
Venezuela	ALGARROBO	France	COURBARIL
United Kingdom	LOCUST		



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