

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 color can vary from purple-brown to orangey-brown to red-brown, slightly veined.

LOG DESCRIPTION

Diameter: 19 – 31.5 inches
Thickness of Sapwood: 1.2 – 4.7 inches
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.

	<u>Mean</u>	<u>Std. Dev.</u>
Specific Gravity*:	0.94	0.13
Janka Hardness (lbs):	2,690	
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/ACOUSTIC

	<u>Mean</u>
Crushing Strength*:	14,068 lbf
Static Bending Strength*:	23,206 lbf
Modulus of Elasticity*:	3,402,585 lbf

Musical Quality Factor: 148.5 measured at 2888 Hz

**At 12% moisture content.*

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:	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

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

M.C. (%)	Temperature (°F)		
	Dry-Bulb	Wet-Bulb	Air Humidity (%)
Green	107.6	102.2	82
50	118.4	109.4	74
40	118.4	109.4	74
30	118.4	109.4	74
15	129.2	114.8	63

This schedule is given for information only and is applicable to thickness lower or equal to 1.5 in. It must be used in compliance with the code of practice. For thickness from 1.5 to 3 in, the air relative humidity should be increased by 5% at each step. For thickness over 3 in, 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)

END-USES

Sliced Veneer
Furniture or Furniture Components
Interior/Exterior Paneling
Cabinetwork (high class furniture)
Flooring
Wood frame house
Tool handles
Ship building (ribs)
Musical instruments
Moulding
Wood-ware
Stairs (interior)
Arched goods
Sculpture
Cooperage

MAIN LOCAL NAMES

Country	Local Name
Brazil	Jatai, Jatoba, Jutai Acu
Guyana	Locust
Peru	Azucar-Huayo
Venezuela	Algarrobo
United Kingdom	Locust
Columbia	Algarrobo
France	Courbaril

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

Works Cited:

CIRAD'S *Biomass, Wood, Energy, Bioproducts Research Unit (BioWooEB)*
 Meier, E. (2015), Wood, United States of America