

Mubala

Family. Leguminosae (Mimosaceae)

Botanical Name(s).

Pentaclethra macrophylla

Continent. Africa

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

Description of logs

Diameter. From 50 to 100 cm

Thickness of sapwood. From 2 to 5 cm

Floats. No

Log durability. Good

Description of wood

Colour reference. Red brown

Sapwood. Clearly demarcated

Texture. Coarse

Grain. Straight or interlocked

Interlocked grain. Slight

Notes. Sapwood pale yellow with occasional brown spots. Heartwood dark brown with dark coloured veins on the radial face. Tangential face slightly striped.

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	0.95
Monnin hardness ¹	8.8
Coefficient of volumetric shrinkage	0.46 % per %
Total tangential shrinkage (St)	9.9 %
Total radial shrinkage (Sr)	5.4 %
Ratio St/Sr	1.8
Fibre saturation point	25 %
Thermal conductivity (λ)	0.31 W/(m.K)
Lower heating value	
Crushing strength ¹	78 MPa
Static bending strength ¹	122 MPa
Modulus of elasticity ¹	19,160 MPa

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

Natural durability and preservation



Quarter sawn



Flat sawn

Resistance to fungi. Class 1-2 - very durable to durable

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

Resistance to termites. Class M - moderately durable

Treatability. Class 3-4 - poorly or not permeable

Use class ensured by natural durability.

Class 4 - in ground or fresh water contact

Requirement of a preservative treatment

Against dry wood borer. Requires a preservative treatment against termites

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. Slight risk

Risk of casehardening. No known specific risk

Risk of checking. Slight risk

Risk of collapse. No known specific risk

Notes.

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
Prewarm 1		> 50	40	86	17.0
Prewarm 2	4	> 50	43	85	16.5
Drying		> 50	45	83	15.7
		50 - 40	45	80.0	14.6
		40 - 35	45	77.0	13.8
		35 - 30	45	74.0	12.9
		30 - 27	47	69.0	11.5
		27 - 24	49	61.0	9.9
		24 - 21	50	52.0	8.4
		21 - 18	53	48.0	7.7
		18 - 15	56	41.0	6.6
		15 - 12	59	36.0	5.9
		12 - 9	61	30.0	5.0
		9 - 6	65	29.0	4.7
Conditioning	8		58	(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. Normal

Sawteeth recommended. Stellite-tipped

Cutting tools. Tungsten carbide

Peeling. Not recommended or without interest

Slicing. Not recommended or without interest

Notes. Logs should be taken out of the forest and converted as quickly as possible after felling to avoid seasoning losses.

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 the ATIBT grading rules (2017), the main choices are: FAS (First And Second), n°1 Common and select, n°2 Common (see details of these rules on the ATIBT website).

Visual grading for structural applications

No visual grading for structural applications

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

- Bridges (parts in contact with water or ground)
- Bridges (parts not in contact with water or ground)
- Cooperage
- Decking
- Exterior joinery
- Heavy carpentry
- Hydraulic works (fresh water)
- Industrial or heavy flooring
- Pit props
- Poles
- Sleepers
- Stakes
- Tool handles (resilient woods)
- Vehicle or container flooring

Main local names

Country	Local name
Congo	Essiri
Côte d'Ivoire	Ovala
Democratic Republic of the Congo	Mubala