

Mukulungu

Family. Sapotaceae

Botanical Name(s).

Autranella congolensis

Mimusops congolensis (synonymous)

Continent. Africa

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

Description of logs

Diameter. From 80 to 120 cm

Thickness of sapwood. From 2 to 3 cm

Floats. No

Log durability. Good

Description of wood

Colour reference. Red brown

Sapwood. Clearly demarcated

Texture. Fine

Grain. Straight or interlocked

Interlocked grain. Slight

Notes. Heart of logs tends to split. Wood red brown with darker brown veins. Grain sometimes oblique.

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	0.94
Monnin hardness ¹	7.7
Coefficient of volumetric shrinkage	0.66 % per %
Total tangential shrinkage (St)	8.4 %
Total radial shrinkage (Sr)	7.4 %
Ratio St/Sr	1.1
Fibre saturation point	26 %
Thermal conductivity (λ)	0.30 W/(m.K)
Lower heating value	
Crushing strength ¹	74 MPa
Static bending strength ¹	119 MPa
Modulus of elasticity ¹	17,060 MPa

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

Natural durability and preservation



Quarter sawn



Half-quarter sawn

Resistance to fungi. Class 1 - very durable

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

Resistance to termites. Class D - durable

Treatability. Class 3 - poorly permeable

Use class ensured by natural durability.

Class 4 - in ground or fresh water contact

Notes. This species is listed in the European standard NF EN 350 (2016). This species naturally covers the use class 5 (wood permanently or regularly submerged in salt water, sea water or brackish water) due to its high specific gravity and silica content. According to the European standard NF EN 335 (2013), performance length might be modified by the intensity of end-use exposition.

Requirement of a preservative treatment

Against dry wood borer. Does not require any preservative treatment

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. High risk

Risk of casehardening. No known specific risk

Risk of checking. High risk

Risk of collapse. No known specific risk

Notes. Must be dried carefully.

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. High

Sawteeth recommended. Stellite-tipped

Cutting tools. Tungsten carbide

Peeling. Not recommended or without interest

Slicing. Good

Notes. Requires power. Sawdust very irritant for throat and nose.

Assembling

Nailing and screwing. Good but pre-boring necessary

Notes. 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

According to French standard NF B 52-001-1 (2018), strength class D40 can be provided by visual grading.

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 panelling
- Flooring
- Heavy carpentry
- Hydraulic works (seawater)
- Indoor staircases
- Industrial or heavy flooring
- Interior panelling
- Poles
- Resistant to one or several acids
- Sleepers
- Sliced veneer
- Vehicle or container flooring



Belfry and sawtooth cladding in Mukulungu and posts in Tali – By J.Y. Riaux, Mindourou (Cameroon).

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Main local names

Country	Local name
Angola	Kungulu
Cameroon	Élang
Cameroon	Élanzok
Central African Republic	Bouanga
Congo	Mfua
Democratic Republic of the Congo	Mukulungu
Gabon	Akola
Nigeria	Uku