African mahogany

Family. Meliaceae

Botanical Name(s).

Khaya anthotheca
Khaya grandifoliola
Khaya ivorensis
Khaya klainei (synonymous)

Continent. Africa

CITES. The species of the genus Khaya are listed in Appendix II of CITES (Washington Convention 2023). Only African populations are concerned. The products concerned are logs, sawn wood, veneer, plywood and engineered wood.

Quarter sawn

Flat sawn

Description of logs

Diameter. From 80 to 120 cm

Thickness of sapwood. From 3 to 8 cm

Floats. Yes

Log durability. Moderate (treatment recommended)

Description of wood

Colour reference. Red brown

Sapwood. Clearly demarcated

Texture. Medium

Grain. Interlocked

Interlocked grain. Slight

Notes. Sometimes, presence of tension wood and brittleheart. Wood pink brown to deep red with copper reflection.

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]	0.57
Monnin hardness[1]	2.5
Coefficient of volumetric shrinkage	0.39 % per %
Total tangential shrinkage (St)	5.5 %
Total radial shrinkage (Sr)	3.7 %
Ratio St/Sr	1.5
Fibre saturation point	28 %
Thermal conductivity (λ)	0.20 W/(m.K)
Lower heating value	
Crushing strength[1]	46 MPa
Static bending strength[1]	77 MPa
Modulus of elasticity[1]	11,820 MPa

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

Notes. K. grandifoliola is fairly hard. Physical and mechanical properties of K. ivorensis are lower than other species.

Natural durability and preservation

Resistance to fungi. Class 3 - moderately durable

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

Resistance to termites. Class S - susceptible

Treatability. Class 4 - not permeable

Use class ensured by natural durability.

Class 2 - inside or under cover (dampness possible)

Notes. This species is listed in the European standard NF EN 350 (2016). The AFRICAN MAHOGANY 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 ...).

Requirement of a preservative treatment

Against dry wood borer. Does not require any preservative treatment

In case of temporary humidification. Requires appropriate preservative treatment

In case of permanent humidification. Use not recommended

Drying

Drying rate. Rapid

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. Risks of distortion may increase in presence of tension wood or interlocked grain occasionnally high.

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
Prewarm 1		> 50	55	84	15.5
Prewarm 2	3	> 50	57	83	15.0
Drying		> 50	60	76	12.5
		50 - 40	60	73.0	11.6
		40 - 35	60	69.0	10.7
		35 - 30	60	62.0	9.5
		30 - 27	63	55.0	8.2
		27 - 24	64	50.0	7.5
		24 - 21	65	46.0	6.9
		21 - 18	65	39.0	6.0
		18 - 15	68	32.0	5.0
		15 - 12	70	29.0	4.5
		12 - 9	70	25.0	4.0
		9 - 6	70	24.0	3.9
Conditioning	6		63	(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.

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(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. Ordinary or alloy steel

Cutting tools. Ordinary

Peeling. Good

Slicing. Good

Notes. Tendency to woolliness (tension wood) in sawing. Risks of tearing (interlocked grain) in planing. Ribbon like aspect on quartersawn. Dusts can cause irritation.

Assembling

Nailing and screwing. Good

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

- Cabinetwork (high class furniture)
- Current furniture or furniture components
- Exterior joinery
- Exterior panelling
- Interior joinery
- Interior panelling
- Light carpentry
- Open boats
- Ship building (planking and deck)
- Sliced veneer
- Veneer for back or face of plywood

Notes. Pores sometimes filled with black deposits. Filling is recommended to obtain a better finish.

Main local names

Country	Local name
Angola	N'dola
Angola	Undia nunu

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Benin	Kaju
Cameroon	Mangona
Cameroon	N'gollon
Central African Republic	Déké
Congo	N'dola
Côte d'Ivoire	Acajou bassam
Côte d'Ivoire	Acajou blanc
Côte d'Ivoire	Krala
Equatorial Guinea	Caoba del galon
Equatorial Guinea	Zamanguila
France (importated tropical timber)	Acajou bassam
France (importated tropical timber)	Acajou blanc
France (importated tropical timber)	Acajou d'afrique
Gabon	Zaminguila
Germany (importated tropical timber)	Khaya mahogani
Ghana	African mahogany
Ghana	Ahafo
Ghana	Takoradi mahogany
Nigeria	Akuk
Nigeria	Benin mahogany
Nigeria	Ogwango
Uganda	Eri kire
Uganda	Munyama
United Kingdom (importated tropical timber)	African mahogany
United Kingdom (importated tropical timber)	Heavy african mahogany

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