

Sapelli/Sapele

Family. Meliaceae

Botanical Name(s).

Entandrophragma cylindricum

Continent. Africa

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

Description of logs

Diameter. From 70 to 120 cm

Thickness of sapwood. From 4 to 8 cm

Floats. Yes

Log durability. Moderate (treatment recommended)

Description of wood

Colour reference. Red brown

Sapwood. Clearly demarcated

Texture. Fine

Grain. Interlocked

Interlocked grain. Slight to very marked

Notes. Some logs are not floatable. Wood pinkish brown to copper red brown. Possible presence of ring shakes and blister grains (longitudinal fissure in the shape of barley grain on the curved surface of round timber, generally concealed by the bark and linked to a disfunction in tree growth). Cedar like scent.

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	0.69
Monnin hardness ¹	4.2
Coefficient of volumetric shrinkage	0.47 % per %
Total tangential shrinkage (St)	7.2 %
Total radial shrinkage (Sr)	5.0 %
Ratio St/Sr	1.4
Fibre saturation point	29 %
Thermal conductivity (λ)	0.23 W/(m.K)
Lower heating value	17,810 kJ/kg
Crushing strength ¹	62 MPa
Static bending strength ¹	102 MPa
Modulus of elasticity ¹	13,960 MPa

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



Flat-sawn



Quarter sawn

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 M - moderately durable

Treatability. Class 3 - poorly permeable

Use class ensured by natural durability.

Class 3.1 according to NF P 23-305 standard (December 2014). Class 3.2 may be considered with preservation treatment or, without treatment, subject to sound drainage design (FD P 20 651 - 2011).

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

Requirement of a preservative treatment

Against dry wood borer. Does not require any preservative treatment

In case of temporary humidification. Sapwood excluded, this wood is suitable for temporary humidification situations without preservative treatment, provided it is designed to be sound and draining (FD P 20 651 - 2011).

In case of permanent humidification. Use not recommended

Drying

Drying rate. Normal

Risk of distorsion. High risk

Risk of casehardening. No known specific risk

Risk of checking. Slight risk

Risk of collapse. No known specific risk

Notes. Quartersawn drying is slower.

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
Prewarm 1		> 50	50	86	16.5
Prewarm 2	3	> 50	52	85	16.0
Drying		> 50	55	82	14.7
		50 - 40	55	80.0	13.8
		40 - 35	55	75.0	12.6
		35 - 30	56	73.0	12.0
		30 - 27	58	67.0	10.5
		27 - 24	60	58.0	8.9
		24 - 21	62	50.0	7.5
		21 - 18	64	45.0	6.8
		18 - 15	65	37.0	5.7
		15 - 12	65	34.0	5.3
		12 - 9	65	28.0	4.5
		9 - 6	65	24.0	4.0
Conditioning	6		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. Ordinary or alloy steel

Cutting tools. Ordinary

Peeling. Good

Slicing. Good

Notes. Tendency to tearing in planing (interlocked grain).

Assembling

Nailing and screwing. Good

Notes. Tends to stain when gluing.

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: <https://www.atibt.org/files/upload/technical-publications/Contrats-et-usages-Bois-tropicaux/PAMPHLET-3-MAIN-GRADING-RULES-FOR-SAWN-TROPICAL-TIMBER.pdf>).

Visual grading for structural applications

According to European standard EN 1912 (2012) and associated national standards, strength class D40 can be provided by visual grading. Strength class D35 can be provided by visual grading according to French standard NF B 52-001-1 (2018).

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
- Flooring
- Indoor staircases
- Interior joinery
- Interior panelling
- Light carpentry
- Ship building (planking and deck)
- Sliced veneer
- Veneer for back or face of plywood
- Veneer for interior of plywood

Notes. Light and regular interlocked grain: appreciated for slicing. Highly interlocked grain: troublesome for some end-uses.



Benches in Sapelli – Design by J.Y. Riaux, Mindourou (Cameroon).

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Main local names

Country	Local name
Angola	Undianuno
Cameroon	Assié
Cameroon	Sapelli
Central African Republic	M'boyo
Congo	Undianuno
Côte d'Ivoire	Aboudikro
Democratic Republic of the Congo	Lifaki
Gabon	Undianuno
Germany (importated tropical timber)	Sapelli-mahogany
Ghana	Penkwa
Ghana	Sapelewood
Nigeria	Sapele
Uganda	Muyovu
United Kingdom (importated tropical timber)	Sapele