Bilinga / Opepe*

Family. Rubiaceae

Botanical Name(s).

Nauclea diderrichii
Sarcocephalus diderrichii (synonymous)
Nauclea trillesii (synonymous)
Nauclea gilletii
Nauclea xanthoxylon
Sarcocephalus xanthoxylon (synonymous)

Continent. Africa

CITES. This species is not listed in the CITES Appendices (Washington Convention 2025).

Notes. * Common commercial name

Flat sawn

Quarter sawn

Description of logs

Diameter. From 60 to 90 cm

Thickness of sapwood. From 3 to 5 cm

Floats. No

Log durability. Good

Description of wood

Colour reference. Orange yellow

Sapwood. Clearly demarcated

Texture. Medium

Grain. Interlocked

Interlocked grain. Marked

Notes. Heartwood golden yellow or orangey yellow slightly moiré.

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]	0.76
Monnin hardness[1]	5.3
Coefficient of volumetric shrinkage	0.55 % per %
Total tangential shrinkage (St)	7.5 %
Total radial shrinkage (Sr)	4.5 %
Ratio St/Sr	1.7
Fibre saturation point	25 %
Thermal conductivity (λ)	0.25 W/(m.K)
Lower heating value	19,600 kJ/kg
Stability	Moderately stable wood
Crushing strength[1]	63 MPa

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Static bending strength[1]	95 MPa
Modulus of elasticity[1]	14,660 MPa

[1] At 12 % moisture content, with 1 MPa = 1 N/mm²

Natural durability and heartwood treatability

Resistance of heartwood to xylophagous fungi. Durability class 1 - very durable

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

Resistance of heartwood to termites. Class D - durable

Heartwood treatability. Class 2 - moderately permeable

Use class ensured by natural durability of heartwood.

Class 4 - in ground or fresh water contact

Notes. This species is listed in the European standard NF EN 350 (2016). Bilinga naturally covers the use class 5 (wood permanently or regularly submerged in salt water, sea water or brackish water). 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. Slight risk

Risk of casehardening. No known specific risk

Risk of checking. Risk of surface splitting in outdoor uses in dry, hot environments

Risk of collapse. No known specific risk

Notes. Difficult to dry due to high interlocked grain.

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Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
Prewarm 1		> 50	50	87	17.0
Prewarm 2	4	> 50	50	86	16.5
Drying		> 50	53	85	15.7
		50 - 40	53	82.0	14.6
		40 - 35	54	78.0	13.4
		35 - 30	55	77.0	12.9
		30 - 27	57	73.0	11.9
		27 - 24	58	68.0	10.7
		24 - 21	60	61.0	9.3
		21 - 18	62	52.0	7.9
		18 - 15	64	43.0	6.6
		15 - 12	65	39.0	6.0
		12 - 9	65	31.0	5.0
		9 - 6	65	28.0	4.5
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. Ordinary or alloy steel

Cutting tools. Ordinary

Peeling. Not recommended or without interest

Slicing. Good

Assembling

Nailing and screwing. Good but pre-boring necessary

Notes. Wood presents slight tendency to split when nailing. Wood is acidic: to be taken into account 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 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 D50 can be provided by visual grading. Strength class D35 can also be provided by visual grading according to French standard NF B 52-001-1 (2018).

Fire safety

Conventional French grading.

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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)
- Cabinetwork (high class furniture)
- Current furniture or furniture components
- Decking
- Exterior panelling
- Flooring
- Heavy carpentry
- Hydraulic works (seawater)
- Industrial or heavy flooring
- Interior joinery
- Interior panelling
- Poles
- Resistant to one or several acids
- Ship building (planking and deck)
- Sleepers
- Sliced veneer
- Vehicle or container flooring

Notes. Risk of surface splitting in outdoor uses in dry, hot environments. Needs filling before polishing. Resistant to one or several acids.

Main local names

Country	Local name
Angola	Engolo
Benin	Opépé
Cameroon	Akondoc
Central African Republic	Kilu
Congo (Republic of)	Linzi
Congo (Republic of)	Mokessé
Congo (Republic of)	N'gulu-maza
Côte d'Ivoire	Badi
Democratic Republic of the Congo	Bonkingu
Democratic Republic of the Congo	N'gulu-maza
Equatorial Guinea	Aloma
Gabon	Bilinga
Germany (importated tropical timber)	Aloma
Ghana	Kusia
Nigeria	Opepe
Sierra Leone	Bundui
Uganda	Kilingi
United Kingdom (importated tropical timber)	Opepe

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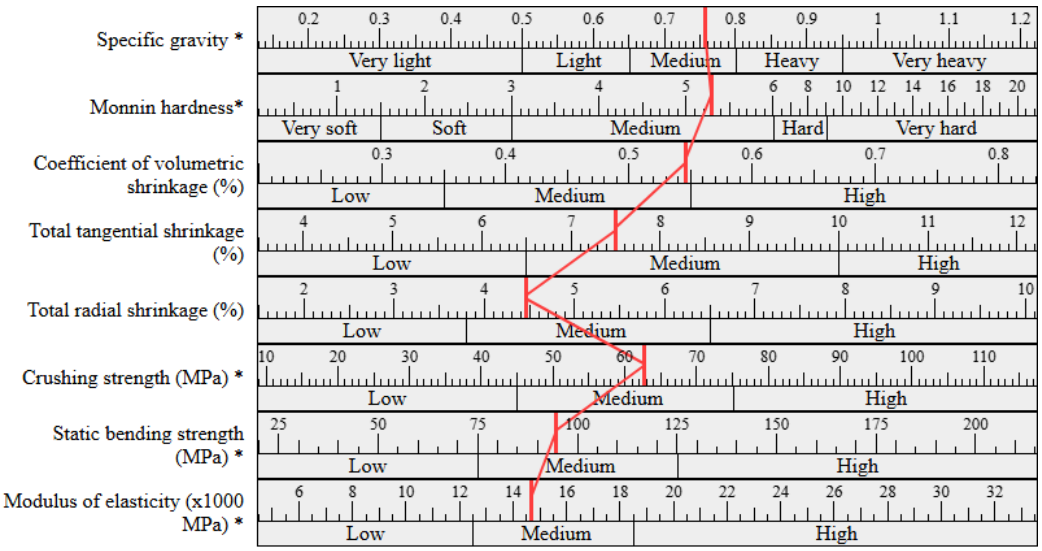
Physical and mechanical properties chart



*: at 12% moisture content

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Glued laminated indoor structure at the Mary Queen of the Apostles Basilica in Yaoundé (Cameroon)

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