

Iroko

Family. Moraceae

Botanical Name(s).

Milicia excelsa

Chlorophora excelsa (synonymous)

Milicia regia

Chlorophora regia (synonymous)

Continent. Africa

CITES.

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

Description of logs

Diameter. From 80 to 100 cm

Thickness of sapwood. From 5 to 10 cm

Floats. No

Log durability. Moderate (treatment recommended)

Description of wood

Colour reference. Yellow brown

Sapwood. Clearly demarcated

Texture. Coarse

Grain. Interlocked

Interlocked grain. Slight

Notes. Yellow brown to more or less dark brown, with golden glints. Ribbon-like aspect on quartersawn, darker veins on slab. Possible presence of very hard white calcium carbonate deposits, sometimes surrounded by a darker colour.

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	0.64
Monnin hardness ¹	4.1
Coefficient of volumetric shrinkage	0.44 % per %
Total tangential shrinkage (St)	5.4 %
Total radial shrinkage (Sr)	3.5 %
Ratio St/Sr	1.5 %
Fibre saturation point	23
Thermal conductivity (λ)	0.22 W/(m.K)
Lower heating value	19,900 kJ/kg
Crushing strength ¹	54 MPa
Static bending strength ¹	87 MPa



Flat sawn



Quarter sawn

Modulus of elasticity ¹	12,840 MPa
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¹ At 12 % moisture content, with 1 MPa = 1 N/mm

Natural durability and preservation

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 D - durable

Treatability. Class 4 - not permeable

Use class ensured by natural durability.

Class 3 - not in ground contact, outside

Notes. This species is listed in the NF EN 350 standard (2016). This species naturally covers the use class 5 wood permanently or regularly submerged in salt water, sea water or brackish water). Heartwood does not cover use class 4 required for end uses in contact with permanent humidity (example: contact with ground). On the other hand, this species can be used outside without any treatment if the construction is well-drained and does not have a water trap. According to the European standard NF EN 335 of May 2013, performance length might be modified by conditions in which it is used.

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. Normal

Risk of distortion. Slight risk

Risk of casehardening. No known specific risk

Risk of checking. No risk or very slight risk

Risk of collapse. No known specific risk

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)		Arrêt	(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. Fairly high

Sawteeth recommended. Stellite-tipped

Cutting tools. Tungsten carbide

Peeling. Good

Slicing. Good

Notes. The calcium carbonate deposits in some logs severely damage tools. Very irritant sawdust. Risks of tearing (irregular grain).

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

According to European standard EN 1912 (2012) and associated national standards, strength class D40 can be provided by visual grading. Strength class D30 can also 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

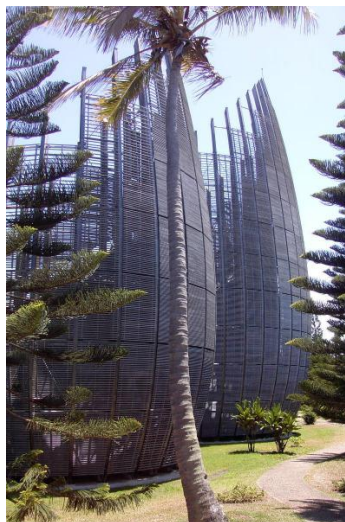
Default grading for solid wood, according to requirements of European standard EN 14081-1+A1 (August 2019).

It concerns structural graded timber in vertical uses and ceiling with mean density upper 0.35 and thickness upper 22 mm.

End-uses

- Bridges (parts not in contact with water or ground)
- Cabinetwork (high class furniture)
- Cooperage
- Current furniture or furniture components
- Decking
- Exterior joinery
- Flooring
- Glued laminated
- Interior joinery
- Interior panelling
- Light carpentry
- Ship building (planking and deck)
- Sliced veneer
- Stairs (inside)
- Turned goods
- Vehicle or container flooring
- Veneer for back or face of plywood
- Veneer for interior of plywood

Notes. Filling is recommended. Wood sometimes resistant to wood finish product. Iroko contains a non-saturated phenolic compound: chlorophorin, a powerful anti-oxidant. Paints or varnishes free of siccativ oil are therefore used for finishing. These synthetic, resin-based paints and varnishes (such as vynilic paints and polyurethane varnishes) can also be used as an undercoat.



Glued laminated framework, Jean-Marie Tjibaou Cultural Centre - Nouméa, New Caledonia (picture J. Gérard).

Main local names

Country	Local name
Angola	Moreira
Belgium (importated tropical timber)	Kambala
Benin	Lokotin
Cameroon	Abang
Central African Republic	Bangui
Congo	Kambala

Côte d'Ivoire	Iroko
Democratic Republic of the Congo	Kambala
Democratic Republic of the Congo	Lusanga
Democratic Republic of the Congo	Mokongo
Democratic Republic of the Congo	Moloundou
Equatorial Guinea	Abang
Gabon	Abang
Gabon	Mandji
Ghana	Odoum
Guinea	Simmé
Liberia	Semli
Mozambique	Mufula
Mozambique	Tule
Nigeria	Rokko
Sierra Leone	Semli