

Kurokai

Family. Burseraceae

Botanical Name(s).

Protium p.p.

Continent. Latin America

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

Description of logs

Diameter. From 40 to 60 cm

Thickness of sapwood. -

Floats. Yes

Log durability. Low (treatment necessary)

Description of wood

Colour reference. Light brown

Sapwood. Not demarcated

Texture. Medium

Grain. Straight or interlocked

Interlocked grain. Slight

Notes. Presence of shakes in some logs. Heartwood light brown to pinkish brown.

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	2.7
Coefficient of volumetric shrinkage	0.57 % per %
Total tangential shrinkage (St)	10.0 %
Total radial shrinkage (Sr)	5.5 %
Ratio St/Sr	1.8
Fibre saturation point	28 %
Thermal conductivity (λ)	0.22 W/(m.K)
Lower heating value	
Crushing strength ¹	57 MPa
Static bending strength ¹	85 MPa
Modulus of elasticity ¹	14,350 MPa

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

Natural durability and preservation

Resistance to fungi. Class 5 - not durable



Quarter sawn



Flat sawn

Resistance to dry wood borers. Class S - susceptible (risk in all the wood)

Resistance to termites. Class S - susceptible

Treatability. Class 3 - poorly permeable

Use class ensured by natural durability.

Class 1 - inside (no dampness)

Requirement of a preservative treatment

Against dry wood borer. Requires appropriate preservative treatment

In case of temporary humidification. Use not recommended

In case of permanent humidification. Use not recommended

Drying

Drying rate. Normal to slow

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. Drying must be done with care in order to reduce the risks of distortion and prevent the extension of original shakes. Sometimes, risks of casehardening.

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	83	15.2
		50 - 40	53	80.0	14.1
		40 - 35	54	80.0	13.9
		35 - 30	55	75.0	12.5
		30 - 27	57	70.0	11.0
		27 - 24	58	61.0	9.4
		24 - 21	59	51.0	7.9
		21 - 18	60	47.0	7.3
		18 - 15	61	39.0	6.1
		15 - 12	62	35.0	5.6
		12 - 9	62	30.0	5.0
		9 - 6	62	26.0	4.4
Conditioning	8		55	(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. Fairly high

Sawteeth recommended. Stellite-tipped

Cutting tools. Tungsten carbide

Peeling. Good

Slicing. Not recommended or without interest

Notes. Logs should be debarked prior to sawing in order to avoid resin accumulation. Blunting effect quite important due to silica.

Assembling

Nailing and screwing. Good but pre-boring necessary

Notes. Tends to split when nailing.

Commercial grading

Appearance grading for sawn timbers.

According to NHLA grading rules (2015) Possible grading: FAS, Select, Common 1, Common 2, Common 3 In French Guiana, the local name of this species is "Encens". Grading is done according to local rules "Bois guyanais classés". Possible grading: choix 1, choix 2, choix 3, choix 4

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

- Blockboard
- Boxes and crates
- Current furniture or furniture components
- Fiber or particle boards
- Formwork
- Interior panelling
- Veneer for back or face of plywood
- Veneer for interior of plywood

Main local names

Country	Local name
Bolivia	Carano
Brazil	Almecega
Brazil	Aruru
Brazil	Breu
Colombia	Anime
Colombia	Carano
Colombia	Currucay
Ecuador	Anime blanco
French Guiana	Encens blanc, gris, rouge
French Guiana	Tinguimoni

Main local names

Country	Local name
Guyana	Haiawa
Guyana	Kurokay
Guyana	Porokay
Peru	Copal-caspi
Suriname	Tinguimoni
Venezuela	Anime
Venezuela	Azucarito
Venezuela	Carano