

## Afzelia

**Family.** Leguminosae (Caesalpiniaceae)

**Botanical Name(s).**

*Afzelia africana*

*Afzelia bella*

*Afzelia bipindensis*

*Afzelia pachyloba*

*Afzelia quanzensis*

*Afzelia cuanzensis* (synonymous)

*Intsia cuanzensis* (synonymous)

**Continent.** Africa

**CITES.** The species of the genus *Afzelia* 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.

### Description of logs

**Diameter.** From 60 to 90 cm

**Thickness of sapwood.** From 2 to 5 cm

**Floats.** No

**Log durability.** Good

### Description of wood

**Colour reference.** Red brown

**Sapwood.** Clearly demarcated

**Texture.** Coarse

**Grain.** Straight or interlocked

**Interlocked grain.** Slight

**Notes.** Wood golden brown to light red brown, sometimes with darker veins. *Afzelia bipindensis* can often be identified by the presence of yellow powder at the heart.

### 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 <sup>1</sup>	0.80
Monnin hardness <sup>1</sup>	7.7
Coefficient of volumetric shrinkage	0.44 % per %
Total tangential shrinkage (St)	4.4 %
Total radial shrinkage (Sr)	3.0 %
Ratio St/Sr	1.5
Fibre saturation point	19 %
Thermal conductivity (λ)	0.26 W/(m.K)
Lower heating value	19,840 kJ/kg



Quarter sawn



Flat sawn

Crushing strength <sup>1</sup>	74 MPa
Static bending strength <sup>1</sup>	124 MPa
Modulus of elasticity <sup>1</sup>	17,020 MPa

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

### Natural durability and preservation

Resistance to fungi. Class 1 - very 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 4 - in ground or fresh water contact

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

Risk of collapse. No known specific risk

Notes. Difficulties in extracting moisture from the heart of pieces. Slow drying necessary (3 to 5 months).

Suggested drying program.

Phases	Duration (H)	MC (%) probes	T (°C)	Rh (%)	UGL (%)
<b>Prewarm 1</b>		> 50	50	86	16.5
<b>Prewarm 2</b>	3	> 50	52	85	16.0
<b>Drying</b>		> 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
<b>Conditioning</b>	6		58	(3)	(2)
<b>Cooling</b>	(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.** Not recommended or without interest

**Slicing.** Good

**Notes.** Peeling recommended only for decorative veneer. Sawdust may cause irritations. Some difficulties due to interlocked grain (tearing).

## Assembling

**Nailing and screwing.** Good but pre-boring necessary

**Notes.** Tends to split when nailing. Gluing may be difficult due wood extractives. High specific gravity: gluing must be especially performed in compliance with the code of practice.

## 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 French standard NF B 52-001-1 (2018), strength class D40 can be provided by visual grading.

## 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 in contact with water or ground)
- Bridges (parts not in contact with water or ground)
- Cabinetwork (high class furniture)
- Cooperage
- Current furniture or furniture components
- Decking
- Exterior joinery
- Exterior panelling
- Flooring
- Heavy carpentry
- Indoor staircases
- Industrial or heavy flooring
- Interior joinery
- Interior panelling
- Resistant to one or several acids
- Shingles
- Ship building (planking and deck)

- Ship building (ribs)
- Sliced veneer
- Wood frame house

**Notes.** Yellow powder often visible in areas near the heart contain substances that might hinder varnish drying. Filling is recommended to obtain a good finish.



Bordeaux Velodrome Stadium track (France)

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## Main local names

Country	Local name
Angola	N'kokongo
Angola	Uvala
Benin	Kpakpatin
Benin	Pakpajide
Cameroon	Doussié
Cameroon	M'bangá
Congo	N'kokongo
Côte d'Ivoire	Azodau
Côte d'Ivoire	Lingué
Democratic Republic of the Congo	Bolengu
Gabon	Édoumeuleu
Germany (importated tropical timber)	Afzelia
Ghana	Papao
Guinea-Bissau	Pau conta
Mozambique	Chanfuta
Mozambique	Mussacossa
Nigeria	Apa igbo
Portugal (importated tropical timber)	Chanfuta
Senegal	Lingué
Sierra Leone	Kpendei
Tanzania	Mbembakofi
Tanzania	Mkora

United Kingdom (importated tropical timber)

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