

# AFZELIA, DOUSSIÉ

<b>Botanical name:</b>	<i>Afzelia</i> spp., family FABACEAE-CAESALPINIOIDEAE
<b>Distribution:</b>	Tropical Africa
<b>Other important trade names:</b>	Apa (WAN), Chamfuta (MOC), Lingue (CI, F), Ovala (ANG), Azodau (CI)
<b>Abbreviation as per DIN EN 13556:</b>	AFXX

## Colour and structure of the wood:

Heartwood brown to red (fresh heartwood pale yellowish to light brown, darkening to copper brown with *A. bipindensis*), no colour stripes. Clear colour contrast between sapwood and heartwood (sap yellowish grey), narrow or medium width (depending on age and type 3 to 10 cm wide).

## Variations:

In individual cases, the colour can be affected by 3 cm large, grey or yellowish and non-darkening stains (flavonoid spots). Occasionally near black, irregular "veins" appear in the wood, which can simulate fungal infestation. Cross grain (of varying degrees).

## Properties:

Weight fresh [kg/m <sup>3</sup> ]	1000 – 1200	
Bulk density air-dry (12-15 % u) [g/cm <sup>3</sup> ]	0.74 – 0.93	
Compression strength $u_{12-15}$ [N/mm <sup>2</sup> ]	68 – 85	
Bending strength $u_{12-15}$ [N/mm <sup>2</sup> ]	110 – 150	
Modulus of elasticity (bending) $u_{12-15}$ [N/mm <sup>2</sup> ]	12200 – 17700	
Toughness [kJ/m <sup>2</sup> ]	60 – 87	
Hardness (BRINELL) $\perp$ to the grain $u_{12-15}$ [N/mm <sup>2</sup> ]	33 – 45	
Drying shrinkage (fresh up to $u_{12-15}$ )	radial [%]	1.0
	tangential [%]	1.5
Differential shrinkage [%/%]	radial	0.11 – 0.20
	tangential	0.17 – 0.32
pH value (suspension)	4.0 – 4.8	
pH value (surface)	5.1	
Natural durability (DIN-EN 350-2)	category 1	

## Observations:

The wood dust from *Afzelia* can lead to asthmatic complaints and dermatitis.

**Workability:**

With increased effort, the wood can be worked neatly and easily. The result is usually smooth surfaces and sharp edges. Carbide tipped tools are recommended. Nails and screws hold well, pre-drilling is essential for the latter. Bonding good to medium.

**Drying:**

The wood drying process is slow. Damage (warping) can be prevented to a great extent with the appropriate careful drying guidance. This is only to be expected with extremely irregular grain (cross grain) especially in medium planks with crack formation and side cuttings with warping. After kiln drying, wood should relax in a workshop climate for some days.

**Use:**

Afzelia is especially suitable for solid wood use because of its good physical, biological and mechanical properties: In outdoor construction, following the relevant surface protection, for example for windows and doors, in indoor construction for floors (parquet), stairs, handrails, frame structures, high-load tables, shelves etc.



Macroscopic cross-section of Afzelia  
(10 times magnification lens)



Wood surface of Afzelia (radial section)

**Natural durability:**

The wood is fungal infestation and insect resistant and can be used in outdoor construction in the long term. However, exposed components must be carefully protected with an appropriate surface treatment (even non-visible surfaces and edges), in order to prevent "washing out" (discolouring) of water-soluble substances by rainwater or condensate.

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### Surface treatment:

Surface treatment of wood is only required to maintain colour and repel moisture. Protective measures against fungi and insects are not necessary. The pH value is in the slightly acidic range. Local, flavonoid enrichments can result in the formation of stains in contact with UV rays. Very poor treatability (sapwood moderate). Discolouring possible in contact with iron ions (iron/tannin reaction).

### Coating systems:

The coating systems selected here are variants which ensure utmost durability and lasting quality.

Other coating systems are basically possible; however, they must be coordinated with Teknos.

Details on processing can be found in the technical data sheets for each product.

### Windows, doors, conservatories and folding shutters:

System coating	Translucent
Primer	AQUAPRIMER 2900-42
Intermediate	ANTISTAIN AQUA 2901-62
Intermediate	ANTISTAIN AQUA 2901-62
Topcoat	AQUATOP 2600-9X

System coating	Opaque
Primer	ANTISTAIN AQUA 2901-52
Intermediate	ANTISTAIN AQUA 2901-52
Topcoat	AQUATOP 2600-2X

System coating	Colourless
Primer	ANTISTAIN AQUA 2901-62
Intermediate	ANTISTAIN AQUA 2901-62
Topcoat	AQUATOP 2600-6X

Further information:

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## **Wood is a unique, beautiful and very versatile material**

The features and properties of wood vary greatly and therefore individual attention is required in processing and surface finishing.

With this Teknos wood data sheet we would like to go into detail on the features and range of applications in the coating of important wood species.

The data sheet originated from a collaboration with the Johann Heinrich von Thünen-Institute in Hamburg.

The pH values of wood have been determined as important chemical variables for the first time.

The concentration dependence of extracts such as tannic acids or tannins to the pH value is important.

A good surface coating and targeted selection of system structures shall be safer based on these variables determined by Thünen-Institute and demonstrate wood-related problem solving.

All system structures named in the data sheet are selected according to utmost durability and quality and are considered to be relevant systems. However, a practical test is always necessary.

Due to different application possibilities and stresses of parts to be coated, variations are required.

To select individual systems easily, the Teknos technical department will be happy to assist you.

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