Afzelia

Atibt
Doussié; NEN-EN 13556: afzelia (GB), doussié (F), Afzelia (D), Code AFXX

Other names
Afzelia doussié, doussié, afzelia pachyloba, pachyloba, (Angola (alleen afzelia doussié, dousié), Cameroon, Gabon, Congo, Nigeria), Afzelia apa (Cameroon, Gabon, Congo, Nigeria, Ghana, Ivoorkust, Liberia, Senegal, Sudan, Centraal Afrikaanse republiek), Afzelia lingue, apa, lingue, aligna, papao (Congo (behalve Afzelia lingue), Nigeria, Ghana, Ivoorkust, Liberia, Senegal, Sudan, Centraal Afrikaanse republiek), Afzelia chanfuta, chanfuta, chamfute (Congo, Mozambique, Tanzania), Bolengu (Congo DR).

Botanic name
Afzelia bipindensis Harms., Afzelia pachyloba Harms., Afzelia africana Pers., Afzelia quanzensis Welw., Afzelia spp. The botanical species are somewhat linked to the different wood species names. Afzelia bipindensis supplies the doussiés, Afzelia pachyloba supplies the pachyloba and Afzelia quanzensis supplies the chanfuta.

Family
Leguminosae (Caesalpiniaceae).

Growth area
Tropical Africa with specific distribution of the different species. Afzelia bipindensis: Angola, Cameroon, Gabon, Congo, Nigeria; Afzelia pachyloba: Cameroon, Gabon, Congo, Nigeria; Afzelia africana: Nigeria, Ghana, Ivory Coast, Liberia, Senegal, Sudan, Central African Republic; Afzelia quanzensis: Congo, Mozambique, Tanzania.

Tree Description	Afzelia bipendensis and Afzelia pachyloba grow over 30 m high, diameter 1-1.2 m, rootlets 1-1.2 m high, branch-free trunk 15-25 m. Afzelia africana is smaller and has a somewhat poorer trunk shape. Afzelia quanzensis grows 21-25 m high, diameter 1.2 m, branch-free trunk length 3.5-6 m.
Supply	Round and sawn lumber.
Wood Description	The different afzelia species are known for their excellent properties, but in practice doussié (Afzelia bipindensis) is considered the best. Based on the color of the contents in barrels and cracks, Afzelia bipindensis with yellow contents can be distinguished from Afzelia pachyloba with white contents. Depending on growing conditions, the properties of the wood may vary slightly. The heartwood is dark yellow to reddish-brown in color. The sapwood is pale yellow and 30-50 mm wide.
Wood Recognition	Slightly crosswise brown wood with yellow or white inclusions, on the head surface large vessels with eye-shaped parenchyma. Only A. bipindensis fluoresces. Distinguishable from the related and in properties similar merbau by the lack of water-soluble constituents.
Grain	Cross-thread most prominent in Afzelia bipindensis, other species also irregular thread.

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Texture	Moderately coarse to coarse.
Voluminous mass	(620-)820(-950) kg/m³ at 12% moisture content, fresh 1100 kg/m³ (moisture content approximately 50%).
Shrinkage	Radial 1.0% and tangential 1.4%.
Drying	The wood is easy to dry but it is very slow, shrinking little during drying. The risk of drying defects is especially small with Afzelia bipindensis because air-dried, this species will have only some head cracks, while the cracks in the other species will be a bit longer and deeper. Once properly dried, the wood will hardly deform. When wet, exposure to frost should be avoided because of a high risk of frost cracking. A calibration line is available for various species for making electrical wood moisture measurements. An application wood moisture content of 16% is recommended for siding.
Hardness	Longitudinal plane 8200N.
Machinability	Machinability both with hand tools and mechanically is variable. Depending on volume mass, wire progression and content substances, machinability is good to difficult. Burns may occur during cutting with some saw types. A cutting angle of 15° reduces the risk of indentations when planing in the presence of cross-thread. Because of the large amount of dust generated by the dried wood, good extraction is necessary.
Nailing & Screwing	Pre-drilling is necessary and the use of stainless steel fasteners is recommended
Adhesives	Good.
Bend	Moderate
Surface finish	Good if contents have been removed from the surface by wiping well with ammonia and if the paint system is geared to leach water-soluble contents. One of these contents is the yellow, partially water-soluble dye Afzeline, which can cause discoloration in the paint layer. Brown, yellow, pink or translucent white substances may occur in the wood vessels and sometimes even in the surrounding tissue, and large concentrations of them may be visible on smooth finished wood as stains that are not acceptable for transparent finishes. These stains cannot be removed by solvent or chemical means. Transparent finishes on exterior work are subject to decay fairly quickly and are discouraged.
Impregnability	Heartwood 4, sapwood 2 (according to NEN-EN 350).

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Details	Afzelia is highly resistant to the action of acids. It contains many constituents and some of them can cause corrosion in damp afzelia in contact with iron. The constituents also prevent the curing of freshly poured concrete and cause pulverization of dry concrete. If afzelia may come into contact with cement or concrete, it should be treated with a waterproof alkali-resistant coating. Some of the constituents are water-soluble and under continually moist conditions such as in water and soil contact or in poorly ventilated rooms, they will leach out, reducing the natural durability of the wood over time. In addition to the African afzelia species described here, there are also Asian afzelia species such as Afzelia xylocarpa (Kurz) Craib (=Afzelia siamica, maka mong and Afzelia cochinchinensis, beng), whose properties are similar to the closely related wood species merbau.
Applications	Because of its appearance and stability, afzelia has been used in numerous applications in the past. In exterior applications for frames, windows, doors wheel tracks (also outdoors), exterior paneling, street furniture, garden furniture, wagon and bodywork construction, bridge decks, ship decks, lock gates, barrels for chemical products. In interior applications for flooring (strips and parquet, sports hall), interior paneling, construction wood, sills, steps, benches, sports equipment, laboratory tables and for turning and sculpture.
Quality Requirements	African afzelia is mentioned in the list of approved wood species for application in wooden façade elements (SKH-Publication 99-05) allowing the manufacture of frames with KOMO product certificate.
Strength class	Classified as D35 depending on origin and quality.

Sustainability

Relative resistance to mold
Heartwood class 1 (NEN-EN 350: practical experience and field research).

Relative resistance to animal organisms
Heartwood: drywood borers, termites D (S) and marine borers S (NEN-EN 350).

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