



Iroko

Chlorophora excelsa Benth. & Hook f. Syn. - *Milicia excelsa* (Welw.) Benth. & Hook f., *Chlorophora regia* A. Chev. Syn. - *Milicia regia* A. Chev.

Commercial names:

English:	Iroko, African teak.
Spanish:	Iroko, Teca africana.
French:	Iroko.
Italian:	Iroko, Quercia africana, Teck africana.
Portuguese:	Iroko.
German:	Iroko.

Common names:

S. Leone:	Semli, Koetema.
Ivory Coast:	Odum, Agnu, Adédé, Iroko.
Nigeria:	Rokko, Loo, Osan.
Cameroon:	Abang, Adoum, Mbang, Obang.
Gabon:	Abang, Adoum, Mbang, Obang, Mandji, Abang, Eloun.
Congo:	Kambala, Kamba.
Zaire:	Lusanga, Molundu, Mokongo.
Angola:	Moreira, Amoreira, Muamba-camba.
Mozambique:	Tule, Mufula.
Liberia:	Ge-ay, Guuw.
Equ. Guinea:	Simmé.
Ghana:	Odum.

Physical properties:

Density:	630-650-670 kg/m ³	
Shrinkage:	Moderately unstable	
Shrinkage values:	Total	Unitary
Volumetric:	10%	(0.33-0.44)
Tangential:	5.5-5.8%	(0.25-0.28)
Radial:	3.5-3.7%	(0.13-0.19)
Hardness:	4	Semi-hard

Mechanical properties (Wood free of defects)

Static bending:	96-120 N/mm ²
Modulus of elasticity:	9,500-13,000 N/mm ²
Compression parallel to grain:	50-70 N/mm ²
Compression perpendicular to grain:	-
Shear:	7.0-12.4 N/mm ²
Toughness:	2.6-5.0 J/cm ²

Structural lumber:

Grade HS of the BS 5756 standard corresponds to D 40 strength grade.

Origin and availability:

The species *C. excelsa* has a wide distribution in tropical Africa, from Sierra Leone in the west to Tanzania in the east. The species *C. Regia* is confined to East Africa and its distribution extends from Senegal to Ghana. The forested area is important. Production and export are stable. Roundwood export is not permitted in the Ivory Coast or Ghana.

Wood description:

The color of the sapwood is pale yellow or yellowish white, and the color of the heartwood is yellowish brown, turning to golden brown when exposed to light. Exterior exposed wood takes on a greyish white color. The sapwood is clearly differentiated. The growth rings are visible. The wood rays are fine. The wood is generally straight grained. The texture of the grain varies from medium to coarse (open). Frequently the faces of quartersawn lumber display flecks similar to those of oak. Sometimes calcium carbonate deposits are present giving the wood a browner tone. These deposits can occasionally cause difficulty in sawing. This wood causes allergic reactions, irritation of the mucous membranes and skin irritations in some people, but these effects are not generalized.

Drying:

The drying rate is normal. The wood dries well and there are no risks of warping or checking. Nevertheless, during air drying sticker stains appear to a greater or lesser degree. These can be avoided by drying in a vertical position before stacking. Or, if there is enough room, after drying the wood can be exposed to the sun for a few weeks in order to obtain a uniform color.

The recommended drying schedules are number 7 from the CTBA, number 5 from the CTFT, number 15 from the PMTA, the E schedule from PRL, and T6-D2 (4/4) and T3-D1 (8/4) from the FPLM.

Natural durability and ease of penetration:

This wood is classified as durable or very durable against the action of fungi, durable against termites and susceptible to marine borers. The sapwood is susceptible to lyctids. The heartwood is not penetrable and the sapwood is penetrable.

Technological properties:

This is an easy wood to saw. When dried wood is sawed a good suction system is necessary to avoid possible allergic reactions caused by fine sawdust. There may be calcium carbonate in the wood that makes sawing difficult. These deposits can be identified easily by the darker brown color of the surrounding wood. Saws dull at a normal rate, and saws of steel or steel alloys can be used. Some sources state that stellite saws should be used if the diameter of the roundwood is large.

This wood has good qualities for obtaining rotary-cut and sliced veneer. Taking into account the average diameter of roundwood, the yield of sliced veneer is relatively high. This type of veneer only presents problems when deposits of calcium carbonate are present. When the wood displays slightly interlocked grain, it results in striped or fanciful figures that are highly valued in decoration and furniture making.

The wood can be worked well and good surfaces can be achieved. Deposits of calcium carbonate can seriously damage tool cutting edges, but normally they do not blunt them. There may be machining problems when the grain is interlocked. In this case reducing the cutting angle to 15-20° is recommended, especially for planing and brushing. An adequate suction system is recommended to avoid the allergic reactions previously mentioned.

This wood dulls tools at a normal rate and conventional tools can be used. Gluing, nailing and screwing properties are good. Finishing offers some difficulty, since the wood is repellent to paint, varnish and stains dried by an oxidizing agent. This is due to the presence of an antioxidant (chlorophorin) that impedes the drying of this type of finishes. This difficulty can be avoided by washing with alcohol (for example, methanol) or with ketones (it is totally inadvisable to wash with turpentine). There is no impediment to the use of stains or varnishes with a synthetic resin base modified with polyurethane or to the use of vinyl paints or polyurethane varnishes that dry by polymerization. In addition, these products can serve as a prime coat and, once dry, can constitute a support for other types of finish. When a special finish is desired a pretreatment with filler is advisable.

Applications:

Exterior carpentry: windows, doors, urban outdoor furniture./ Decorative veneer./ Structural plywood./ Interior carpentry: doors, flooring, floor planks, stairs./ Furniture and cabinetwork./ Naval construction: planking and decking./ Structural framing./ Glulam/ Turnery.