WOOD DESCRIPTION

Color: red brown
Sapwood: clearly demarcated
Texture: coarse
Grain: straight or interlocked
Interlocked grain: slight

Note: Red brown with purplish glints. Darkens with light. Deposits of black resin in the pores. Ribbon like aspect on quartersawn.

LOG DESCRIPTION

Diameter: from 60 to 150 cm
Thickness of sapwood: from 4 to 8 cm
Floats: no
Log durability: moderate (treatment recommended)

PHYSICAL PROPERTIES

Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity *:</td>
<td>0.69</td>
<td>0.07</td>
</tr>
<tr>
<td>Monnin hardness *:</td>
<td>3.3</td>
<td>0.6</td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0.42 %</td>
<td>0.07 %</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>6.7 %</td>
<td>1.3 %</td>
</tr>
<tr>
<td>Total radial shrinkage (RS):</td>
<td>4.8 %</td>
<td>0.5 %</td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point:</td>
<td>32 %</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>stable</td>
<td></td>
</tr>
</tbody>
</table>

MECHANICAL AND ACOUSTIC PROPERTIES

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushing strength *:</td>
<td>53 MPa</td>
<td>6 MPa</td>
</tr>
<tr>
<td>Static bending strength *:</td>
<td>87 MPa</td>
<td>14 MPa</td>
</tr>
<tr>
<td>Modulus of elasticity *:</td>
<td>11190 MPa</td>
<td>1380 MPa</td>
</tr>
</tbody>
</table>

(\*: at 12% moisture content, with 1 MPa = 1 N/mm²)

Musical quality factor: 97.6 measured at 2410 Hz

NATURAL DURABILITY AND TREATABILITY

Fungi and termite resistance refers to end-uses under temperate climate. Except for special comments on sapwood, natural durability is based on mature heartwood. Sapwood must always be considered as non-durable against wood degrading agents.

E.N. = Euro Norm

- Fungi (according to E.N. standards): class 2-3 - durable to moderately durable
- Dry wood borers: class D - durable (sapwood demarcated, risk limited to sapwood)
- Termites (according to E.N. standards): class M - moderately durable
- Treatability (according to E.N. standards): class 3 - poorly permeable
- Use class ensured by natural durability: class 3 - not in ground contact, outside
- Species covering the use class 5: no

Note: This species is listed in the European standard NF EN 350-2.

The French standard NF P 23-305 (December 2014) indicates that this species covers the use class 3.1 for untreated heartwood. However, Kosipo and Utile, that covers the use class 3.2 for untreated heartwood, have the same class of natural durability against fungi. In practice, Kosipo and Utile have the same uses for exterior joinery. Therefore, Kosipo can be considered covering the use class 3.2 for untreated heartwood.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: does not require any preservative treatment
In case of risk of temporary humidification: requires appropriate preservative treatment
In case of risk of permanent humidification: use not recommended

DRIYING

- Drying rate: normal to slow
  - Risk of distortion: high risk
  - Risk of casehardening: no
  - Risk of checking: no risk or very slight risk
  - Risk of collapse: no

Note: The drying of backsawn is more difficult and slower with higher risks of distortion. Quartersawn well dry is

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>M.C. (%)</th>
<th>Temperature (°C)</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>dry-bulb</td>
<td>wet-bulb</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>40</td>
<td>37</td>
<td>82</td>
</tr>
<tr>
<td></td>
<td>40</td>
<td>37</td>
<td>68</td>
</tr>
<tr>
<td></td>
<td>30</td>
<td>36</td>
<td>59</td>
</tr>
<tr>
<td></td>
<td>20</td>
<td>36</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>37</td>
<td>46</td>
</tr>
</tbody>
</table>
This drying schedule is given for information only and is applicable to thickness lower or equal to 38 mm. It must be used in compliance with the code of practice. For thickness from 38 to 75 mm, the air relative humidity should be increased by 5 % at each step. For thickness over 75 mm, a 10 % increase should be considered.

SAWING AND MACHINING

Blunting effect: high
Sawteeth recommended: stellite-tipped
Cutting tools: tungsten carbide
Peeling: good
Slicing: good

Note: Requires power. Sometimes difficulties due to interlocked grain (tearing). Blunting effect varies from quite high to very high (silica).

ASSEMLING

Nailing / screwing: good
Gluing: correct

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to SATA grading rules (1996)
For the “General Purpose Market”:
Possible grading for square edged timbers: choix I, choix II, choix III, choix IV
Possible grading for short length lumber: choix I, choix II
Possible grading for short length rafters: choix I, choix II, choix III
For the “Special Market”:
Possible grading for strips and small boards (ou battens): choix I, choix II, choix III
Possible grading for rafters: choix I, choix II, choix III

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 annex C (April 2009). It concerns structural graded timber in vertical uses with mean density upper 0.35 and thickness upper 22 mm.

END-USES

Exterior joinery
Sliced veneer
Interior panelling
Veneer for back or face of plywood
Stair (inside)
Shingled
Glued laminated
Interior joinery
Cabinetwork (high class furniture)
Current furniture or furniture components
Flooring
Exterior panelling
Light carpentry

Note: The adherence of finishing product may be difficult due to the presence of resin. Sanding must be done with care. Filling is necessary to obtain a good finish.

This list presents main known end-uses; they must be implemented according to the code of practice. Important remark: some end-uses are mentioned for information (traditional, regional or ancient end-uses).
<table>
<thead>
<tr>
<th>Country</th>
<th>Local name</th>
<th>Country</th>
<th>Local name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angola</td>
<td>LIFUCO</td>
<td>Cameroon</td>
<td>ATOM-ASSIÉ</td>
</tr>
<tr>
<td>Congo</td>
<td>DIAMUNI</td>
<td>Ivory Coast</td>
<td>KOSIPO</td>
</tr>
<tr>
<td>Gabon</td>
<td>ÉTOM</td>
<td>Ghana</td>
<td>KOSIPO</td>
</tr>
<tr>
<td>Ghana</td>
<td>PENKWA-AKOWAA</td>
<td>Nigeria</td>
<td>HEAVY SAPELE</td>
</tr>
<tr>
<td>Nigeria</td>
<td>OMU</td>
<td>Central African Republic</td>
<td>BAKANGA</td>
</tr>
<tr>
<td>Democratic Republic of the Congo</td>
<td>IMPOMPO</td>
<td>Germany</td>
<td>KOSIPO-MAHOGANY</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>OMU</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Wood Properties

#### Specific Gravity
- Very light to Very heavy

#### Mohrin Hardness
- Very soft to Very hard

#### Coefficient of Volumetric Shrinkage (%)
- Low to High

#### Total Tangential Shrinkage (%)
- Low to High

#### Total Radial Shrinkage (%)
- Low to High

#### Crushing Strength (MPa)
- Low to High

#### Static Bending Strength (MPa)
- Low to High

#### Modulus of Elasticity (x1000 MPa)
- Low to High

### Wood Behaviours

#### Resistance to Fungi
- Not durable to Very durable

#### Resistance to Dry Wood Insects Borers
- Susceptible to Durable

#### Resistance to Termites
- Susceptible to Durable

#### Treatability
- Not permeable to Easily permeable

#### Stability
- Poorly stable to Stable

#### Fibers Saturation Point
- 15% to 45%