SAPELE

Family: Meliaceae (angiosperm)
Scientific name(s): Entandrophragma cylindricum
Commercial restriction: no commercial restriction

WOOD DESCRIPTION

Color: red brown
Sapwood: clearly demarcated
Texture: fine
Grain: interlocked
Interlocked grain: slight

Note: Some logs are not floatable. Wood pinkish brown to copper red brown. Possible presence of ring shadows and blister grains (longitudinal fissure in the shape of barley grain on the curved surface of round timber, generally concealed by the bark and linked to a disfunction in tree growth). Cedar like scent.

LOG DESCRIPTION

Diameter: from 70 to 120 cm
Thickness of sapwood: from 4 to 8 cm
Floats: yes
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>Property</th>
<th>Mean</th>
<th>Std dev.</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity <em>:</em></td>
<td>0.69</td>
<td>0.04</td>
<td>Crushing strength <em>:</em></td>
<td>62 MPa</td>
</tr>
<tr>
<td>Monnin hardness <em>:</em></td>
<td>4.2</td>
<td>1.0</td>
<td>Static bending strength <em>:</em></td>
<td>102 MPa</td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0.47%</td>
<td>0.06%</td>
<td>Modulus of elasticity <em>:</em></td>
<td>13960 MPa</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS):</td>
<td>7.2%</td>
<td>0.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS):</td>
<td>5.0%</td>
<td>0.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point</td>
<td>29%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MECHANICAL AND ACOUSTIC PROPERTIES

Musical quality factor: 109.4 measured at 2656 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 3 - 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. The French standard NF P 23-305 (December 2014) indicates that this species covers the use class 3.1 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
Risk of distortion: high risk
Risk of casehardening: no known specific risk
Risk of checking: slight risk
Risk of collapse: no known specific risk
Note: Quartersawn drying is slower.

POSSIBLE DRYING SCHEDULE

<table>
<thead>
<tr>
<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>
</tr>
<tr>
<td>Green</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td>50</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>40</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>30</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>15</td>
<td>54</td>
<td>46</td>
</tr>
</tbody>
</table>
SAPELE

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: normal
Sawteeth recommended: ordinary or alloy steel
Cutting tools: ordinary
Peeling: good
Slicing: good
Note: Log turning sawing recommended (internal stresses). Tendency to tearing in planing (interlocked grain). Sanding requires care.

ASSEMBLING

Nailing / screwing: good
Gluing: correct
Note: Tends to stain when gluing.

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 lumbers: 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
Visual grading for structural applications: According to European standard EN 1912 (2012) and associated national standards (see explanatory note), strength class D40 can be provided by visual grading. Strength class D35 can be provided by visual grading according to French standard NF B 52-001-1 (2011).

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 (April 2016).
It concerns structural graded timber in vertical uses and ceiling with mean density upper 0.35 and thickness upper 22 mm.

END-USES

Sliced veneer
Current furniture or furniture components
Interior joinery
Veneer for interior of plywood
Flooring
Ship building (planking and deck)
Cabinetwork (high class furniture)
Exterior joinery
Interior panelling
Veneer for back or face of plywood
Stairs (inside)
Light carpentry
Note: Light and regular interlocked grain: appreciated for slicing. Highly interlocked grain: troublesome for some end-uses.

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).
### MAIN LOCAL NAMES

<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>UNDIANUNO</td>
<td>Cameroon</td>
<td>ASSIÉ</td>
</tr>
<tr>
<td>Cameroon</td>
<td>SAPELLI</td>
<td>Congo</td>
<td>UNDIANUNO</td>
</tr>
<tr>
<td>Côte d'Ivoire</td>
<td>ABOUDIKRO</td>
<td>Gabon</td>
<td>UNDIANUNO</td>
</tr>
<tr>
<td>Ghana</td>
<td>PENKWA</td>
<td>Ghana</td>
<td>SAPELEWOOD</td>
</tr>
<tr>
<td>Nigeria</td>
<td>SAPELE</td>
<td>Uganda</td>
<td>MUYOVU</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>M'BOYO</td>
<td>Democratic Republic of the Congo</td>
<td>LIFAKI</td>
</tr>
<tr>
<td>Germany</td>
<td>SAPELLI-MAHOGANY</td>
<td>United Kingdom</td>
<td>SAPELE</td>
</tr>
</tbody>
</table>
### SAPELE

#### Caractéristiques physiques et mécaniques

<table>
<thead>
<tr>
<th>Caractéristique</th>
<th>Valeurs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spécificité apparente</td>
<td>0.2 à 1.2</td>
</tr>
<tr>
<td>Durci par Monnin</td>
<td>1 à 20</td>
</tr>
<tr>
<td>Coefficient de rétrécissement volumétrique (%)</td>
<td>0.3 à 0.8</td>
</tr>
<tr>
<td>Rétrécissement tangentiel (%)</td>
<td>4 à 12</td>
</tr>
<tr>
<td>Rétrécissement radial (%)</td>
<td>2 à 10</td>
</tr>
<tr>
<td>Force de compression (MPa)</td>
<td>10 à 110</td>
</tr>
<tr>
<td>Force de flexion statique (MPa)</td>
<td>25 à 200</td>
</tr>
<tr>
<td>Module d'élasticité (1000 MPa)</td>
<td>6 à 32</td>
</tr>
</tbody>
</table>

#### Résistance aux agents biodégradants

- **Résistance aux champignons**
  - Non résistant
  - Très faiblement résistant
  - Résistant modérément
  - Résistant
  - Très résistant

- **Résistance aux insectes et Depauphines**
  - VULNERABLE
  - DURABLE

- **Résistance aux termites**
  - Vulnérable
  - Résistant modérément
  - DURABLE

#### Traitabilité

- **Non percutible**
  - Mal percutible
  - Percutible modérément
  - Facilement percutible

#### Stabilité

- **Poussiéreux**
  - Stables
  - Stables modérément
  - Stables

**Point de saturation des fibres**

- **15 %**
- **25 %**
- **35 %**
- **45 %**