**WOOD DESCRIPTION**

- **Color:** light brown
- **Sapwood:** not clearly demarcated
- **Texture:** medium
- **Grain:** interlocked
- **Interlocked grain:** slight

**LOG DESCRIPTION**

- **Diameter:** from 60 to 90 cm
- **Thickness of sapwood:** from 3 to 5 cm
- **Floats:** yes
- **Log durability:** low (must be treated)

**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 *:</td>
<td>0,63</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monnin hardness *:</td>
<td>3,3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0,53%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>6,5%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS):</td>
<td>4,2%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio:</td>
<td>1,5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point:</td>
<td>26%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>- moderately stable to stable</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**MECHANICAL AND ACOUSTIC PROPERTIES**

<table>
<thead>
<tr>
<th>Property</th>
<th>Mean</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crushing strength *:</td>
<td>63 MPa</td>
<td></td>
</tr>
<tr>
<td>Static bending strength *:</td>
<td>70 MPa</td>
<td></td>
</tr>
<tr>
<td>Modulus of elasticity *:</td>
<td>10790 MPa</td>
<td></td>
</tr>
<tr>
<td>(*: at 12% moisture content, with 1 MPa = 1 N/mm²)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Musical quality factor:</td>
<td>113,6%</td>
<td>measured at 2470 Hz</td>
</tr>
</tbody>
</table>

**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.

**Species covering the use class 5:** No

**Fungi (according to E.N. standards):** class 5 - not durable

**Dry wood borers:** susceptible - sapwood not or slightly demarcated (risk in all the wood)

**Termites (according to E.N. standards):** class 5 - susceptible

**Treatability (according to E.N. standards):** class 3 - poorly permeable

**Use class ensured by natural durability:** class 1 - inside (no dampness)

**REQUIREMENT OF A PRESERVATIVE TREATMENT**

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

<table>
<thead>
<tr>
<th>Drying rate: normal to slow</th>
<th>Possible drying schedule: 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of distortion: slight risk</td>
<td></td>
</tr>
<tr>
<td>Risk of casehardening: no</td>
<td>M.C. (%)</td>
</tr>
<tr>
<td>Risk of checking: slight risk</td>
<td>dry-bulb</td>
</tr>
<tr>
<td>Risk of collapse: no</td>
<td></td>
</tr>
</tbody>
</table>

Note: Drying must be handled with care.

This 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: fairly high
- Sawteeth recommended: stellite-tipped
- Cutting tools: tungsten carbide
- Peeling: good
- Slicing: good

Note: More or less difficult to machine (interlocked grain, fibrous wood). Some species are siliceous. Canarium and Santiria are the most suitable for peeling.

ASSEMBLING

- Nailing / screwing: good
- Gluing: correct

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to MGR grading rules (2009)
Possible grading: Prime, Select, Standard, Serviceable, Utility

FIRE SAFETY

Conventional French grading: Thickness > 14 mm : M.3 (moderately inflammable)
Thickness < 14 mm : M.4 (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

<table>
<thead>
<tr>
<th>Boxes and crates</th>
<th>Veneer for interior of plywood</th>
</tr>
</thead>
<tbody>
<tr>
<td>Veneer for back or face of plywood</td>
<td>Sliced veneer</td>
</tr>
<tr>
<td>Matches</td>
<td>Current furniture or furniture components</td>
</tr>
<tr>
<td>Interior joinery</td>
<td>Interior panelling</td>
</tr>
<tr>
<td>Light carpentry</td>
<td></td>
</tr>
<tr>
<td>Country</td>
<td>Local name</td>
</tr>
<tr>
<td>-------------------------</td>
<td>------------</td>
</tr>
<tr>
<td>Andaman (islands)</td>
<td>DHUP</td>
</tr>
<tr>
<td>India</td>
<td>DHUWHITE</td>
</tr>
<tr>
<td>Indonesia</td>
<td>KENARI</td>
</tr>
<tr>
<td>Peninsular Malaysia</td>
<td>UPI</td>
</tr>
<tr>
<td>Philippines</td>
<td>DULIT</td>
</tr>
<tr>
<td>Thailand</td>
<td>MA-KERM</td>
</tr>
</tbody>
</table>
### Specific Gravity
- Very light
- Light
- Medium
- Heavy
- Very heavy

### Monnin Hardness
- Very soft
- Soft
- Medium
- Hard
- Very hard

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

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

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

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

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

### Modulus of Elasticity (≤1000 MPa)
- Low
- Medium
- High

### Resistance to Fungi
- Not durable
- Poorly durable
- Moderately durable
- Durable
- Very durable

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

### Resistance to Termites
- Susceptible
- Moderately durable
- Durable

### Treatability
- Not permeable
- Poorly permeable
- Moderately permeable
- Easily permeable

### Stability
- Poorly stable
- Moderately stable
- Stable

### Fibers Saturation Point
- Low
- Medium
- High