**Family:** DIPTEROCARPACEAE (angiosperm)

**Scientific name(s):**
- Shorea assamica* (voir note)
- Shorea hypochra* (voir note)
- Shorea spp.* (voir note)

**Commercial restriction:** no commercial restriction

**Note:** * Shorea sub-genus Anthoshorea.

## WOOD DESCRIPTION

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>creamy white</td>
</tr>
<tr>
<td>Sapwood</td>
<td>not demarcated</td>
</tr>
<tr>
<td>Texture</td>
<td>medium</td>
</tr>
<tr>
<td>Grain</td>
<td>straight or interlocked</td>
</tr>
<tr>
<td>Interlocked grain</td>
<td>slight</td>
</tr>
</tbody>
</table>

**Note:** Logs are almost floatable. Sometimes brittleheart. Wood cream white becoming yellow brown with age. Ribbon like aspect on quartersawn. Grain sometimes highly interlocked.

## LOG DESCRIPTION

- Diameter: from 90 to 150 cm
- Thickness of sapwood: Floats: no
- Log durability: moderate (treatment recommended)

## PHYSICAL PROPERTIES

### MECHANICAL AND ACOUSTIC PROPERTIES

- Specific gravity *: Mean 0.72, Std dev.
- Monnin hardness *: Mean 3.3, Std dev.
- Coeff. of volumetric shrinkage: Mean 0.58%, Std dev.
- Total tangential shrinkage (TS): Mean 8.5%, Std dev.
- Total radial shrinkage (RS): Mean 4.0%, Std dev.
- TS/RS ratio: Mean 2.1, Std dev.
- Fiber saturation point: Mean 33%, Std dev.
- Crushing strength *: Mean 65 MPa, Std dev.
- Static bending strength *: Mean 91 MPa, Std dev.
- Modulus of elasticity *: Mean 13890 MPa, Std dev.
- Muscular quality factor: Mean 140.7 measured at 2804 Hz, Std dev.

### 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**

- Funghis (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)
- Species covering the use class 5: No

**Note:** This species is listed in the European standard NF EN 350-2. Presence of black holes. Variable treatability.

## 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: rapid to normal</th>
<th>Risk of distortion: slight risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of casehardening: no</td>
<td>Risk of checking: no risk or very slight risk</td>
</tr>
<tr>
<td>Risk of collapse: no</td>
<td>Possible drying schedule: 4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>M.C. (%)</th>
<th>Temperature (°C)</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>42</td>
<td>39</td>
<td>82</td>
</tr>
<tr>
<td>50</td>
<td>48</td>
<td>43</td>
<td>74</td>
</tr>
<tr>
<td>40</td>
<td>48</td>
<td>43</td>
<td>74</td>
</tr>
<tr>
<td>30</td>
<td>48</td>
<td>43</td>
<td>74</td>
</tr>
<tr>
<td>15</td>
<td>54</td>
<td>46</td>
<td>63</td>
</tr>
</tbody>
</table>

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

Note: High silica content. Tendency to wooliness. Filling recommended to obtain a good finish.

**ASSEMBLING**

- Nailing / screwing: good but pre-boring necessary
- Gluing: correct

Note: Sometimes risks of splits when nailing.

**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**

- Interior joinery
- Flooring
- Veneer for interior of plywood
- Sliced veneer
- Vehicle or container flooring
- Glued laminated

- Interior panelling
- Stairs (inside)
- Veneer for back or face of plywood
- Current furniture or furniture components
- Light carpentry
## 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>Cambodia</td>
<td>KOKI PHNOM</td>
<td>Indonesia</td>
<td>DAMAR PUTHI</td>
</tr>
<tr>
<td>Indonesia</td>
<td>MERANTI PUTIH</td>
<td>Peninsular Malaysia</td>
<td>MELAPI</td>
</tr>
<tr>
<td>Peninsular Malaysia</td>
<td>WHITE MERANTI</td>
<td>Malaysia (islands)</td>
<td>MERANTI JERIT</td>
</tr>
<tr>
<td>Malaysia (islands)</td>
<td>MERANTI LAPIS</td>
<td>Malaysia (islands)</td>
<td>MERANTI TEMAK</td>
</tr>
<tr>
<td>Thailand</td>
<td>KABAK KHAO</td>
<td>Myanmar</td>
<td>MAKAI</td>
</tr>
<tr>
<td>Thailand</td>
<td>PA NONG</td>
<td>Thailand</td>
<td>KANAWANG</td>
</tr>
<tr>
<td>Thailand</td>
<td>PHA-YOM</td>
<td>Thailand</td>
<td>PENDAN</td>
</tr>
<tr>
<td>Vietnam</td>
<td>CHAI</td>
<td>Thailand</td>
<td>SUAL</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>Very light</td>
<td>Light</td>
<td>Medium</td>
</tr>
<tr>
<td>-----------------</td>
<td>-----------</td>
<td>-------</td>
<td>--------</td>
</tr>
<tr>
<td>Monnin hardness</td>
<td>Very soft</td>
<td>Soft</td>
<td>Medium</td>
</tr>
<tr>
<td>Coefficient of volumetric shrinkage (%)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Total tangential shrinkage (%)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Total radial shrinkage (%)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Crushing strength (MPa)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Static bending strength (MPa)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>Modulus of elasticity (&lt;1000 MPa)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
</tbody>
</table>

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

### Resistance to dry wood insects borers
- 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
- 15 %
- Low
- 25 %
- Medium
- 33%
- High
- 45 %