**FABACEAE-CAESALPINIOIDEAE** (angiosperm)

**Family:** FABACEAE-CAESALPINIOIDEAE

**Scientific name(s):** Koompassia malaccensis

**Commercial restriction:** no commercial restriction

### WOOD DESCRIPTION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>red brown</td>
</tr>
<tr>
<td>Sapwood</td>
<td>clearly demarcated</td>
</tr>
<tr>
<td>Texture</td>
<td>coarse</td>
</tr>
<tr>
<td>Grain</td>
<td>straight or interlocked</td>
</tr>
<tr>
<td>Interlocked grain</td>
<td>marked</td>
</tr>
</tbody>
</table>

**Note:** Pink when freshly sawn, weathering to orange-red or yellow-brown. Frequent concentric layers of phloem.

### LOG DESCRIPTION

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>from 60 to 210 cm</td>
</tr>
<tr>
<td>Thickness of sapwood</td>
<td></td>
</tr>
<tr>
<td>Floats</td>
<td>no</td>
</tr>
<tr>
<td>Log durability</td>
<td>moderate (treatment recommended)</td>
</tr>
</tbody>
</table>

### 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>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity *</td>
<td>0.88</td>
<td>0.05</td>
</tr>
<tr>
<td>Monnin hardness *</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>6.6%</td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS)</td>
<td>4.8%</td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>1.4</td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point</td>
<td>27%</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>stable</td>
<td></td>
</tr>
</tbody>
</table>

**Note:** Medium hardness.

### 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>66 MPa</td>
<td></td>
</tr>
<tr>
<td>Static bending strength *</td>
<td>113 MPa</td>
<td></td>
</tr>
<tr>
<td>Modulus of elasticity *</td>
<td>23000 MPa</td>
<td></td>
</tr>
</tbody>
</table>

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

### 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

- **Funghi (according to E.N. standards):** class 2 - durable
- **Dry wood borers:** susceptible
- **Termites (according to E.N. standards):** class S - susceptible
- **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 S:** No

**Note:** This species is listed in the European standard NF EN 350-2. According to this standard, KEMPAS treatability is considered as low. However, according to some literature references, it would be easy to treat. According to the European standard NF EN 335, performance length might be modified by the intensity of end-use exposition.

### REQUIREMENT OF A PRESERVATIVE TREATMENT

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

Drying rate: slow
Risk of distortion: high risk
Risk of casehardening: no
Risk of checking: high risk
Risk of collapse: no

Note: Frequent concentric layers of phloem induces drying heterogeneousness and may cause wood damages.

Possible drying schedule: 2

<table>
<thead>
<tr>
<th>M.C. (%)</th>
<th>Temperature (°C)</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>50</td>
<td>47</td>
</tr>
<tr>
<td>40</td>
<td>50</td>
<td>45</td>
</tr>
<tr>
<td>30</td>
<td>55</td>
<td>47</td>
</tr>
<tr>
<td>20</td>
<td>70</td>
<td>55</td>
</tr>
<tr>
<td>15</td>
<td>75</td>
<td>58</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: fairly high
Sawteeth recommended: stellite-tipped
Cutting tools: tungsten carbide
Peeling: not recommended or without interest
Slicing: nood

Note: As for drying, concentric layers of phloem may lead to sawing damages.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
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

Industrial or heavy flooring
Sleepers
Vehicle or container flooring
Turned goods
Cooperage

Flooring
Heavy carpentry
Exterior joinery
Sliced veneer
## 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>Indonesia</td>
<td>MENGGERIS</td>
<td>Indonesia</td>
<td>TOEMALING</td>
</tr>
<tr>
<td>Peninsular Malaysia</td>
<td>IMPAS</td>
<td>Peninsular Malaysia</td>
<td>KEMPAS</td>
</tr>
<tr>
<td>Peninsular Malaysia</td>
<td>MENGRI S</td>
<td>Papua New Guinea</td>
<td>KEMPAS</td>
</tr>
<tr>
<td>Thailand</td>
<td>YUAN</td>
<td></td>
<td></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 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
- 35% High
- 45%