YEMANE

Family: LAMIACEAE (angiosperm)
Scientific name(s): Gmelina arborea
Commercial restriction: no commercial restriction
Note: Also called GMELINA, used for reforestation outside its native area.

WOOD DESCRIPTION

| Color:       | light yellow          |
| Sapwood:     | not clearly demarcated|
| Texture:     | medium                |
| Grain:       | interlocked           |
| Interlocked grain: | slight              |

Note: Wood light yellow to yellow brown with reddish or brownish veins. Oily to the touch. Presence of knots of variable sizes.

LOG DESCRIPTION

Diameter: from 40 to 80 cm
Thickness of sapwood: from 5 to 7 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>Property</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity *</td>
<td>0,49</td>
<td>0,03</td>
</tr>
<tr>
<td>Monnin hardness *</td>
<td>1,9</td>
<td>0,3</td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0,45 %</td>
<td>0,08 %</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>5,9 %</td>
<td>0,5 %</td>
</tr>
<tr>
<td>Total radial shrinkage (RS)</td>
<td>2,8 %</td>
<td>0,3 %</td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>2,1</td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point:</td>
<td>26 %</td>
<td></td>
</tr>
<tr>
<td>Stability:</td>
<td>moderately stable to stable</td>
<td></td>
</tr>
</tbody>
</table>

Physical and mechanical properties of plantation timbers and timbers from natural forest are often similar, on condition that planted trees have reached enough maturity.

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>32 MPa</td>
<td>7 MPa</td>
</tr>
<tr>
<td>Static bending strength *</td>
<td>64 MPa</td>
<td>9 MPa</td>
</tr>
<tr>
<td>Modulus of elasticity *</td>
<td>9120 MPa</td>
<td>1711 MPa</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

Fungi (according to E.N. standards): class 4 - poorly 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: Wood poorly to moderately resistant to fungi.

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: no risk or very slight risk
Risk of casehardening: yes
Risk of checking: no risk or very slight risk
Risk of collapse: no

Possible drying schedule: 6

<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>41</td>
</tr>
<tr>
<td>50</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>30</td>
<td>54</td>
<td>46</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
<td>51</td>
</tr>
<tr>
<td>15</td>
<td>60</td>
<td>51</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: normal
Sawteeth recommended: ordinary or alloy steel
Cutting tools: ordinary
Peeling: good
Slicing: nood

ASSEMBLING

Nailing / screwing: poor
Gluing: correct

COMMERCIAL GRADING

Appearance grading for sawn timbers: Grading depending on the source

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

- Sliced veneer
- Boxes and crates
- Veneer for interior of plywood
- Interior panelling
- Fiber or particle boards
- Sculpture
- Current furniture or furniture components
- Matches
- Interior joinery
- Musical instruments
- Pulp
- Pencils
## 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>India</td>
<td>GAMARI</td>
<td>India</td>
<td>GUMARI</td>
</tr>
<tr>
<td>India</td>
<td>GUMHAR</td>
<td>India</td>
<td>SEWAN</td>
</tr>
<tr>
<td>India</td>
<td>GUMHU</td>
<td>Laos</td>
<td>MAI 5O</td>
</tr>
<tr>
<td>Myanmar</td>
<td>YEMANE</td>
<td>Thailand</td>
<td>SAW</td>
</tr>
<tr>
<td>Thailand</td>
<td>SOR</td>
<td>France</td>
<td>GMELINA</td>
</tr>
</tbody>
</table>
Specific gravity

Monnin hardness

Coefficient of volumetric shrinkage (%)

Total tangential shrinkage (%)

Total radial shrinkage (%)

Crushing strength (MPa)

Static bending strength (MPa)

Modulus of elasticity (≤1000 MPa)

Resistance to fungi

Resistance to dry wood insects borers

Resistance to termites

Treatability

Stability

Fibers Saturation Point