Family: FABACEAE-CAESALPINIOIDEAE (angiosperm)
Scientific name(s): Microberlinia brazzavillensis  
Microberlinia bisulcata
Commercial restriction: no commercial restriction

WOOD DESCRIPTION
Color: light brown
Sapwood: clearly demarcated
Texture: coarse
Grain: interlocked
Interlocked grain: slight

LOG DESCRIPTION
Diameter: from 60 to 100 cm
Thickness of sapwood: from 6 to 10 cm
Floats: no
Log durability: moderate (treatment recommended)

Note: Wood yellow brown to light brown, with dark brown veins. Sometimes highly interlocked grain.

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>0.79</td>
<td>0.03</td>
<td>Crushing strength *:</td>
<td>62 MPa</td>
</tr>
<tr>
<td>Monnin hardness *:</td>
<td>5.0</td>
<td>0.9</td>
<td>Static bending strength *:</td>
<td>110 MPa</td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage:</td>
<td>0.56 %</td>
<td>0.07 %</td>
<td>Modulus of elasticity *:</td>
<td>17520 MPa</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS):</td>
<td>11.0 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS):</td>
<td>8.8 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio:</td>
<td>1.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point:</td>
<td>30 %</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Std dev.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(*: at 12% moisture content, with 1 MPa = 1 N/mm²)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

MECHANICAL AND ACOUSTIC PROPERTIES
Musical quality factor: 82.6 measured at 2623 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

Funghi (according to E.N. standards): class 3 - moderately durable
Dry wood borers: 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 2 - inside or under cover (dampness possible)
Species covering the use class 5: No

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
DRYING

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

Note: Sawnwoods must be properly stacked, dried slowly and preferably on quartersawn in order to reduce distortions.

Possible drying schedule: 5

<table>
<thead>
<tr>
<th>M.C. (%)</th>
<th>Temperature (°C)</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>42</td>
<td>41</td>
</tr>
<tr>
<td>25</td>
<td>42</td>
<td>39</td>
</tr>
<tr>
<td>20</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>15</td>
<td>48</td>
<td>43</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: tungsten carbide
Peeling: not recommended or without interest
Slicing: nood
Note: Risk of tearing in presence of highly interlocked grain.

ASSEMBLING

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

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

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  | Cabinetetwork (high class furniture)
Current furniture or furniture components | Interior panelling
Turned goods  | Wood-ware
Tool handles (resilient woods)  | Wood frame house
### 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>Cameroon</td>
<td>ALLEN ELE</td>
<td>Gabon</td>
<td>ZINGANA</td>
</tr>
<tr>
<td>Germany</td>
<td>ZEBRANO</td>
<td>United Kingdom</td>
<td>ZEBRANO</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>ZEBRAWOOD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### ZINGANA

#### Tables and Graphs

<table>
<thead>
<tr>
<th>Specific gravity</th>
<th>Very light</th>
<th>Light</th>
<th>Medium</th>
<th>Heavy</th>
<th>Very heavy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monnin hardness</td>
<td>Very soft</td>
<td>Soft</td>
<td>Medium</td>
<td>Hard</td>
<td>Very hard</td>
</tr>
<tr>
<td>Coefficient of volumetric shrinkage (%)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total tangential shrinkage (%)</td>
<td>Low</td>
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<tr>
<td>Total radial shrinkage (%)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Crushing strength (MPa)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Static bending strength (MPa)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Modulus of elasticity (&lt;1000 MPa)</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

#### 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

- 15%
- 25%
- Medium
- 35%
- High
- 45%