Family: RUBIACEAE (angiosperm)
Scientific name(s): Fleroya ledermannii
Hallea ciliata (synonymous)
Mitragyna ciliata (synonymous)
Fleroya stipulosa
Hallea stipulosa (synonymous)
Mitragyna stipulosa (synonymous)

Commercial restriction: no commercial restriction

WOOD DESCRIPTION

Color: light brown
Sapwood: not demarcated
Texture: fine
Grain: straight or interlocked
Interlocked grain: slight

Note: Possible presence of brittleheart and coloured veins.

LOG DESCRIPTION

Diameter: from 60 to 80 cm
Thickness of sapwood: Floats: yes
Log durability: low (must be treated)

PHYSICAL PROPERTIES

Mean  Std dev.
Specific gravity *: 0,60  0,05
Monnin hardness *: 2,0  0,3
Coeff. of volumetric shrinkage: 0,44 %  0,11 %
Total tangential shrinkage (TS): 8,9 %  0,3 %
Total radial shrinkage (RS): 4,3 %  0,1 %
TS/RS ratio: 2,1
Fiber saturation point: 32 %

Stability: moderately stable

Crushing strength *: 46 MPa  9 MPa
Static bending strength *: 78 MPa  16 MPa
Modulus of elasticity *: 11020 MPa  2318 MPa

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

MECHANICAL AND ACOUSTIC PROPERTIES

Musical quality factor: 96,2 measured at 2651 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 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 2 - moderately 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.

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: rapid to normal
Risk of distortion: no risk or very slight risk
Risk of casehardening: no
Risk of checking: slight risk
Risk of collapse: no

Possible drying schedule:

<table>
<thead>
<tr>
<th>M.C. (%)</th>
<th>Temperature (°C)</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>dry-bulb 50</td>
<td>wet-bulb 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.
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: nood
Note: Blunting effect is variable.
Sawdust occasionally irritant.

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

Current furniture or furniture components
Veneer for back or face of plywood
Cabinetwork (high class furniture)
Boxes and crates
Interior panelling
Glued laminated
Wood-ware
Sliced veneer
Veneer for interior of plywood
Moulding
Interior joinery
Sculpture
Turned goods
Resistant to one or several acids
### 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>Angola</td>
<td>MIVUKO</td>
<td>Benin</td>
<td>AGBANTIN</td>
</tr>
<tr>
<td>Cameroon</td>
<td>ELOLOM</td>
<td>Congo</td>
<td>VUKU</td>
</tr>
<tr>
<td>Ivory Coast</td>
<td>BAHIA</td>
<td>Gabon</td>
<td>ELELOM-N’ZAM</td>
</tr>
<tr>
<td>Ghana</td>
<td>SUBAHA</td>
<td>Equatorial Guinea</td>
<td>ELELON</td>
</tr>
<tr>
<td>Nigeria</td>
<td>ABURA</td>
<td>Uganda</td>
<td>NZINGU</td>
</tr>
<tr>
<td>Central African Republic</td>
<td>ORO</td>
<td>Democratic Republic of the Congo</td>
<td>MVUKU</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>MBOI</td>
<td>Zambia</td>
<td>NZINGU</td>
</tr>
<tr>
<td>Germany</td>
<td>SUBAHA</td>
<td>France</td>
<td>BAHIA</td>
</tr>
</tbody>
</table>
### Physical Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity</td>
<td>0.2 - 1.2 (Very light to Very heavy)</td>
</tr>
<tr>
<td>Monnin hardness</td>
<td>1 - 20 (Very soft to Very hard)</td>
</tr>
<tr>
<td>Coefficient of volumetric shrinkage (%)</td>
<td>0.3 - 0.8 (Low to Medium)</td>
</tr>
<tr>
<td>Total tangential shrinkage (%)</td>
<td>4 - 12 (Low to High)</td>
</tr>
<tr>
<td>Total radial shrinkage (%)</td>
<td>2 - 10 (Low to High)</td>
</tr>
<tr>
<td>Crushing strength (MPa)</td>
<td>0 - 110 (Low to High)</td>
</tr>
<tr>
<td>Static bending strength (MPa)</td>
<td>25 - 200 (Low to High)</td>
</tr>
<tr>
<td>Modulus of elasticity (1000 MPa)</td>
<td>6 - 32 (Low to High)</td>
</tr>
</tbody>
</table>

### Resistance Properties

<table>
<thead>
<tr>
<th>Property</th>
<th>Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to fungi</td>
<td>Not durable, Poorly durable, Moderately durable, Durable, Very durable</td>
</tr>
<tr>
<td>Resistance to dry wood insects</td>
<td>Susceptible, Durable</td>
</tr>
<tr>
<td>Resistance to termites</td>
<td>Susceptible, Moderately durable, Durable</td>
</tr>
<tr>
<td>Treatability</td>
<td>Not permeable, Poorly permeable, Moderately permeable, Easily permeable</td>
</tr>
<tr>
<td>Stability</td>
<td>Poorly stable, Moderately stable, Stable</td>
</tr>
</tbody>
</table>

### Fibers Saturation Point

- 15% Low
- 25% Medium
- 32% High
- 45% Medium