WALLABA

Family: FABACEAE-CAESALPINIOIDEAE (angiosperm)
Scientific name(s): Eperua falcata
Eperua grandiflora
Eperua rubiginosa
Commercial restriction: no commercial restriction

WOOD DESCRIPTION

Color: red brown
Sapwood: clearly demarcated
Texture: medium
Grain: straight
Interlocked grain: absent

Note: Wood red brown to dark brown, with lighter veins. Very important internal stresses. Presence of resin veins. Unpleasant odour when green.

LOG DESCRIPTION

Diameter: from 40 to 70 cm
Thickness of sapwood: from 4 to 6 cm
Floats: no
Log durability: good

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 <em>:</em></td>
<td>0.88</td>
<td>0.06</td>
<td>72 MPa</td>
<td>7 MPa</td>
</tr>
<tr>
<td>Monnin hardness <em>:</em></td>
<td>7.0</td>
<td>1.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0.42 %</td>
<td>0.09 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>6.5 %</td>
<td>1.1 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS)</td>
<td>2.3 %</td>
<td>0.6 %</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>2.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point</td>
<td>29 %</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stability: moderately stable

MECHANICAL AND ACOUSTIC PROPERTIES

Crushing strength *:* 72 MPa
Static bending strength *:* 120 MPa
Modulus of elasticity *:* 18450 MPa

Musical quality factor: 97.2 measured at 2766 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 1 - very durable
Dry wood borers: durable - sapwood demarcated (risk limited to sapwood)

Termites (according to E.N. standards): class D - durable

Treatability (according to E.N. standards): class 4 - not permeable

Use class ensured by natural durability: class 4 - in ground or fresh water contact
Species covering the use class 5: Yes

Note: This species is listed in the European standard NF EN 350-2.
Natural durability class and use class mentioned are those of Eperua falcata. Eperua grandiflora and Eperua rubiginosa have a poorer durability.
Eperua falcata naturally covers use class 5 (end-uses in marine environment and in brackish water) due to its high density.

REQUIREMENT OF A PRESERVATIVE TREATMENT

Against dry wood borer attacks: does not require any preservative treatment

In case of risk of temporary humidification: does not require any preservative treatment

In case of risk of permanent humidification: does not require any preservative treatment
DRYING

Drying rate: slow
Risk of distortion: high risk
Risk of casehardening: no
Risk of checking: high risk
Risk of collapse: no
Note: Initial surface drying is necessary before kiln drying in order to reduce defects.

Possible drying schedule: 6

<table>
<thead>
<tr>
<th>Temperature (°C)</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>M.C. (%)</td>
<td>dry-bulb</td>
</tr>
<tr>
<td>Green 50</td>
<td>42</td>
</tr>
<tr>
<td>30</td>
<td>48</td>
</tr>
<tr>
<td>20</td>
<td>54</td>
</tr>
<tr>
<td>15</td>
<td>60</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: not recommended or without interest
Note: Requires power. Resin may clog sawteeth and cutters. Resin exudation is not a problem with dry woods.

ASSEMBLING

Nailing / screwing: good but pre-boring necessary
Gluing: correct
Note: Tends to split when nailing.

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to NHLA grading rules (January 2007)
Possible grading: FAS, Select, Common 1, Common 2, Common 4
In French Guiana, the local name of this species is "WAPA". Grading is done according to local rules "Bois guyanais classés".
Possible grading: Choix 1, choix 2, choix 3, choix 4

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

Hydraulic works (fresh water) | Sleepers
Poles | Stakes
Bridges (parts in contact with water or ground) | Bridges (parts not in contact with water or ground)
Exterior panelling | Shingles
Heavy carpentry | Exterior joinery
Current furniture or furniture components | Industrial or heavy flooring
Flooring | Wood frame house
Cooperage

Note: Internal stresses restrict the uses. Careful sanding and filling are recommended.
### 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>Brazil (Amazon)</td>
<td>APA</td>
<td>Brazil (Amazon)</td>
<td>APAZEIRO</td>
</tr>
<tr>
<td>Brazil (Amazon)</td>
<td>COPAI BARANA</td>
<td>Brazil (Amazon)</td>
<td>ESPADEIRA</td>
</tr>
<tr>
<td>Guyana</td>
<td>ITURI WALLABA</td>
<td>Guyana</td>
<td>WALLABA</td>
</tr>
<tr>
<td>French Guiana</td>
<td>BIOUSDOU</td>
<td>French Guiana</td>
<td>WAPA</td>
</tr>
<tr>
<td>Suriname</td>
<td>BIJ LHOUT</td>
<td>Suriname</td>
<td>WALABA</td>
</tr>
<tr>
<td>Venezuela</td>
<td>UAPA</td>
<td>Venezuela</td>
<td>PALO MACHETE</td>
</tr>
</tbody>
</table>
### Specific gravity

- 0.2: Very light
- 0.3: Light
- 0.4: Medium
- 0.5: Heavy
- 0.6: Very heavy

### Mohr hardness

- 1: Very soft
- 2: Soft
- 3: Medium
- 4: Hard
- 5: Very hard

### Coefficient of volumetric shrinkage (%)

- 0.3: Low
- 0.6: Medium
- 0.9: High

### Total tangential shrinkage (%)

- 4: Low
- 5: Medium
- 6: High

### Total radial shrinkage (%)

- 3: Low
- 4: Medium
- 5: High

### Crushing strength (MPa)

- 10: Low
- 50: Medium
- 110: High

### Static bending strength (MPa)

- 25: Low
- 75: Medium
- 150: High

### Modulus of elasticity (≤1000 MPa)

- 6: Low
- 8: Medium
- 10: 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%: Medium