SIMAROUBACEAE (angiosperm)

Family: SIMAROUBACEAE (angiosperm)
Scientific name(s): Simarouba amara
Quassia simarouba (synonymous)
Commercial restriction: no commercial restriction

WOOD DESCRIPTION

Color: creamy white
Sapwood: not demarcated
Texture: coarse
Grain: straight
Interlocked grain: absent
Interlocked grain: absent

Note: Cream white to light yellow. Sometimes oily veins.

LOG DESCRIPTION

Diameter: from 50 to 90 cm
Thickness of sapwood: 50
Floats: yes
Log durability: low (must be treated)

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>0,41</td>
<td>0,04</td>
</tr>
<tr>
<td>Monnin hardness *</td>
<td>1,1</td>
<td>0,5</td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0,36 %</td>
<td>0,08 %</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>6,3 %</td>
<td>0,6 %</td>
</tr>
<tr>
<td>Total radial shrinkage (RS)</td>
<td>2,8 %</td>
<td>0,5 %</td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>2,3</td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point</td>
<td>32 %</td>
<td></td>
</tr>
</tbody>
</table>

Stability: stable

CRUSHING STRENGTH *
Crushing strength *: 34 MPa 6 MPa

STATIC BENDING STRENGTH *
Static bending strength *: 59 MPa 11 MPa

MODULUS OF ELASTICITY *
Modulus of elasticity *: 10070 MPa 1711 MPa

Musical quality factor: 86,3 measured at 2747 Hz

MECHANICAL AND ACOUSTIC PROPERTIES

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 1 - easily permeable
- Use class ensured by natural durability: class 1 - inside (no dampness)
- Species covering the use class 5: No

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**

<table>
<thead>
<tr>
<th>Drying rate: rapid</th>
<th>Possible drying schedule: 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk of distortion: no risk or very slight risk</td>
<td>M.C. (%)</td>
</tr>
<tr>
<td>Risk of casehardening: no</td>
<td>30</td>
</tr>
<tr>
<td>Risk of checking: no risk or very slight risk</td>
<td>20</td>
</tr>
<tr>
<td>Risk of collapse: no</td>
<td>15</td>
</tr>
</tbody>
</table>

Note: Prone to blue stain before and during drying.

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: good

**ASSEMBLING**

- Nailing / screwing: poor
- Gluing: correct

**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 "SIMAROUBA". 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**

- Veneer for interior of plywood
- Boxes and crates
- Current furniture or furniture components
- Stringed instruments (sounding board)
- Matches
- Interior panelling
- Fiber or particle boards

- Veneer for back or face of plywood
- Blockboard
- Sliced veneer
- Moulding
- Turned goods
- Interior joinery
- Wood-ware

Note: Filling is recommended in order to obtain a good finish.
## 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>Bolivia</td>
<td>CHIRUANA</td>
<td>Brazil (Amazon)</td>
<td>MARUPA</td>
</tr>
<tr>
<td>Brazil (Amazon)</td>
<td>MARUPAUBA</td>
<td>Brazil</td>
<td>PARAHYBA</td>
</tr>
<tr>
<td>Brazil</td>
<td>PARAIBA</td>
<td>Brazil</td>
<td>TAMANQUEIRA</td>
</tr>
<tr>
<td>Colombia</td>
<td>SIMARUBA</td>
<td>Ecuador</td>
<td>CEDRO AMARGO</td>
</tr>
<tr>
<td>Ecuador</td>
<td>CUNA</td>
<td>Ecuador</td>
<td>GUITARRO</td>
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<tr>
<td>Guyana</td>
<td>SIMARUPA</td>
<td>French Guiana</td>
<td>SIMAROUBA</td>
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<tr>
<td>Peru</td>
<td>MARUPA</td>
<td>Suriname</td>
<td>SOEMAROBEBA</td>
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<tr>
<td>Venezuela</td>
<td>CEDRO BLANCO</td>
<td>Venezuela</td>
<td>SIMAROUBA</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>BITTERWOOD</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Specific Gravity
- 0.2: Very light
- 0.3: Light
- 0.4: Medium
- 0.5: Heavy
- 0.6: Very heavy

### Monnin Hardness
- 0: Very soft
- 2: Soft
- 4: Medium
- 6: Hard
- 8: Very hard

### Coefficient of Volumetric Shrinkage (%)
- 0.5: Low
- 0.6: Medium
- 0.7: High

### Total Tangential Shrinkage (%)
- 4: Low
- 5: Medium
- 6: High

### Total Radial Shrinkage (%)
- 2: Low
- 4: Medium
- 6: High

### Crushing Strength (MPa)
- 0: Low
- 20: Medium
- 40: High

### Static Bending Strength (MPa)
- 25: Low
- 75: Medium
- 100: High

### Modulus of Elasticity (≤1000 MPa)
- 6: Low
- 8: Medium
- 14: High

### 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%: Low
- 25%: Medium
- 32%: Medium
- 35%: High
- 45%: High