ANACARDIACEAE (angiosperm)

Scientific name(s):
- Astronium balansae
- Astronium fraxinifolium
- Astronium graveolens
- Astronium lecontei
- Astronium urundeuva

Commercial restriction: no commercial restriction

WOOD DESCRIPTION

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>dark brown</td>
</tr>
<tr>
<td>Sapwood</td>
<td>clearly demarcated</td>
</tr>
<tr>
<td>Texture</td>
<td>fine</td>
</tr>
<tr>
<td>Grain</td>
<td>straight or interlocked</td>
</tr>
<tr>
<td>Interlocked grain</td>
<td>slight</td>
</tr>
</tbody>
</table>

Note: Pinkish brown to yellow brown, becoming red brown to dark brown, with very irregularly spaced black brown veins.

LOG DESCRIPTION

<table>
<thead>
<tr>
<th>Property</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diameter</td>
<td>from 60 to 80 cm</td>
</tr>
<tr>
<td>Thickness of sapwood</td>
<td>from 4 to 10 cm</td>
</tr>
<tr>
<td>Floats</td>
<td>no</td>
</tr>
<tr>
<td>Log durability</td>
<td>good</td>
</tr>
</tbody>
</table>


PHYSICAL PROPERTIES

<table>
<thead>
<tr>
<th>Property</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity *</td>
<td>0.80</td>
<td>0.11</td>
</tr>
<tr>
<td>Monnin hardness *</td>
<td>6.1</td>
<td></td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage</td>
<td>0.56</td>
<td></td>
</tr>
<tr>
<td>Total tangential shrinkage (TS)</td>
<td>7.9</td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS)</td>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio</td>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point</td>
<td>22%</td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>poorly stable</td>
<td></td>
</tr>
</tbody>
</table>

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>76 MPa</td>
<td></td>
</tr>
<tr>
<td>Static bending strength *</td>
<td>96 MPa</td>
<td></td>
</tr>
<tr>
<td>Modulus of elasticity *</td>
<td>16500 MPa</td>
<td></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 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: No

Note: According to the European standard NF EN 335, performance length might be modified by the intensity of end-use exposition.

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: normal
Risk of distortion: slight risk
Risk of casehardening: no
Risk of checking: slight risk
Risk of collapse: no

Possible drying schedule: 5

<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>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: fairly high
Sawteeth recommended: stellite-tipped
Cutting tools: tungsten carbide
Peeling: not recommended or without interest
Slicing: nood

ASSEMBLING

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

COMMERCIAL GRADING

Appearance grading for sawn timbers: According to NHLA grading rules (January 2007)
Possible grading: FAS, Select, Common 1, Common 2, Common 3

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

Cabinetwork (high class furniture) Sliced veneer
Flooring Wood-ware
Turned goods Exterior joinery
Interior joinery Interior panelling
Heavy carpentry Musical instruments
Tool handles (resilient woods) Sculpture
## 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</td>
<td>ADERNO-PRETO</td>
<td>Brazil</td>
<td>BARACATIARA</td>
</tr>
<tr>
<td>Brazil</td>
<td>GONÇALEIRO</td>
<td>Brazil</td>
<td>GONÇALO-ALVEZ</td>
</tr>
<tr>
<td>Brazil</td>
<td>GUARI-BU-PRETO</td>
<td>Brazil</td>
<td>GUARITA</td>
</tr>
<tr>
<td>Brazil</td>
<td>MIRUEIRA</td>
<td>Brazil</td>
<td>MUIRACATIARA</td>
</tr>
<tr>
<td>Brazil</td>
<td>SANGUESSUGUEIRA</td>
<td>Colombia</td>
<td>GUSANERO</td>
</tr>
<tr>
<td>Ecuador</td>
<td>GUASANGO</td>
<td>Mexico</td>
<td>PALO DE CULEBRA</td>
</tr>
<tr>
<td>Paraguay</td>
<td>URUNDAY-PARA</td>
<td>Venezuela</td>
<td>GATEADO</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

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

### Coefficient of Volumetric Shrinkage (%)

- 0.3: Low
- 0.4: Medium
- 0.5: High

### Total Tangential Shrinkage (%)

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

### Total Radial Shrinkage (%)

- 2: Low
- 3: Medium
- 4: High

### Crushing Strength (MPa)

- 10: Low
- 20: Medium
- 30: High

### Static Bending Strength (MPa)

- 25: Low
- 50: Medium
- 75: 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 Borrers

- 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%: High