**Family:** FAGACEAE (angiosperm)

**Scientific name(s):** Castanea sativa

**Commercial restriction:** no commercial restriction

### WOOD DESCRIPTION

- **Color:** light yellow
- **Sapwood:** clearly demarcated
- **Texture:** medium
- **Grain:** straight
- **Interlocked grain:** absent

### LOG DESCRIPTION

- **Diameter:** from 25 to 60 cm
- **Thickness of sapwood:**
- **Floats:** pointless
- **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>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity *:</td>
<td>0,64</td>
<td></td>
</tr>
<tr>
<td>Monnin hardness *:</td>
<td>2,9</td>
<td></td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage:</td>
<td>0,42</td>
<td>%</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS):</td>
<td>6,9</td>
<td>%</td>
</tr>
<tr>
<td>Total radial shrinkage (RS):</td>
<td>4,2</td>
<td>%</td>
</tr>
<tr>
<td>TS/RS ratio:</td>
<td>1,6</td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point:</td>
<td>30</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>46</td>
<td>MPa</td>
</tr>
<tr>
<td>Static bending strength *:</td>
<td>71</td>
<td>MPa</td>
</tr>
<tr>
<td>Modulus of elasticity *:</td>
<td>13300</td>
<td>MPa</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 2 - 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 4 - not permeable
- **Use class ensured by natural durability:** class 3 - not in ground contact, outside

**Species covering the use class 5:** No

**Note:** This species is listed in the European standard NF EN 350-2.

Durability is linked to the presence of water soluble tanins. It decreases with tanins washing in case of harsh exposition.

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:** use not recommended
**DRYING**

Drying rate: normal to slow

- Risk of distortion: slight risk
- Risk of casehardening: no
- Risk of checking: high risk
- Risk of collapse: yes

Note: Risk of humidity pockets.

Possible drying schedule: 6

<table>
<thead>
<tr>
<th>M.C. (%)</th>
<th>Dry-bulb</th>
<th>Wet-bulb</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>42</td>
<td>41</td>
<td>94</td>
</tr>
<tr>
<td>50</td>
<td>48</td>
<td>43</td>
<td>74</td>
</tr>
<tr>
<td>30</td>
<td>54</td>
<td>46</td>
<td>63</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
<td>51</td>
<td>62</td>
</tr>
<tr>
<td>15</td>
<td>60</td>
<td>51</td>
<td>62</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: ordinary
- Peeling: good
- Slicing: nood

Note: Wood easy to split (manufacturing of split shingles).

**ASSEMBLING**

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

Note: Must be careful for nailing and screwing because of the wood’s great tendency to split (small nail diameter, no nail near the ends and need for pre-holes in case of screwing). Nail or screw corrosion if in contact with humidity.

**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**

- Flooring
- Interior panelling
- Exterior joinery
- Exterior panelling
- Cooperage
- Stakes

Interior joinery
- Cabinetwork (high class furniture)
- Sliced veneer
- Heavy carpentry
- Shingles
- Fiber or particle boards

Note: Tanins create a risk of smudges on woods if not well dried or if processed in a non protected area or if no product is used for protection or 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>Germany (temperate timber)</td>
<td>EDELKASTANIE</td>
<td>Germany (temperate timber)</td>
<td>KASTANENBAUM</td>
</tr>
<tr>
<td>Spain (temperate timber)</td>
<td>CASTAÑO</td>
<td>France (temperate timber)</td>
<td>CHÂTAIGNIER</td>
</tr>
<tr>
<td>Italia (temperate timber)</td>
<td>CASTAGNO</td>
<td>United Kingdom (temperate timber)</td>
<td>CHESTNUT</td>
</tr>
<tr>
<td>United Kingdom (temperate timber)</td>
<td>SWEET CHESTNUT</td>
<td>United Kingdom (temperate timber)</td>
<td>CHESTNUT</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)**

- 0: Low
- 20: Medium
- 40: High

**Static bending strength (MPa)**

- 25: Low
- 50: Medium
- 75: High

**Modulus of elasticity (≤1000 MPa)**

- 6: Low
- 8: Medium
- 12: 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\%: High