**OLACACEAE** (angiosperm)

Family: Fraxinus excelsior

Scientific name(s): Fraxinus excelsior

Commercial restriction: no commercial restriction

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### WOOD DESCRIPTION

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

Note: Creamy white wood when fresh, it turns yellow with light. Grain is sometimes weavy. Heart of some logs is marked with veins or black areas.

### LOG DESCRIPTION

- **Diameter:** from 40 to 100 cm
- **Thickness of sapwood:**
- **Floats:** pointless
- **Log durability:** moderate (treatment recommended)

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### 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>Property</th>
<th>Mean</th>
<th>Std dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity *:</td>
<td>0,68</td>
<td></td>
<td>Crushing strength *:</td>
<td>51 MPa</td>
<td></td>
</tr>
<tr>
<td>Monnin hardness *:</td>
<td>5,1</td>
<td></td>
<td>Static bending strength *:</td>
<td>113 MPa</td>
<td></td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage:</td>
<td>0,48 %</td>
<td></td>
<td>Modulus of elasticity *:</td>
<td>12900 MPa</td>
<td></td>
</tr>
<tr>
<td>Total tangential shrinkage (TS):</td>
<td>9,6 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total radial shrinkage (RS):</td>
<td>5,7 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TS/RS ratio:</td>
<td>1,7</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber saturation point:</td>
<td>32 %</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Stability: moderately stable

### MECHANICAL AND ACOUSTIC PROPERTIES

- **TS/RS ratio:**

### 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: heartwood durable but sapwood not clearly demarcated

- **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: normal to slow
Risk of distortion: high risk
Risk of casehardening: no
Risk of checking: high risk
Risk of collapse: no

Note: Risk of splits or deformations are weak with natural drying.

Possible drying schedule: 6

<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>Green</td>
<td>42</td>
<td>41</td>
</tr>
<tr>
<td>50</td>
<td>48</td>
<td>43</td>
</tr>
<tr>
<td>30</td>
<td>54</td>
<td>46</td>
</tr>
<tr>
<td>20</td>
<td>60</td>
<td>51</td>
</tr>
<tr>
<td>15</td>
<td>60</td>
<td>51</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: normal
Sawteeth recommended: stellite-tipped
Cutting tools: tungsten carbide
Peeling: good
Slicing: nood

Note: ASH wood has a good aptitude for bending.

ASSEMBLING

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

Note: Must take some precautions for gluing because of the wood slight porosity and its light acidity.

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

Sliced veneer
Tool handles (resilient woods)
Seats
Cabinetwork (high class furniture)
Cooperage

Interior joinery
Flooring
Arched goods
Turned goods

Note: This wood is particularly renowned for its flexibility (aptitude for bending) and its resistance to impacts.
# 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>ESCHE</td>
<td>Spain (temperate timber)</td>
<td>FRESNO</td>
</tr>
<tr>
<td>France (temperate timber)</td>
<td>FRÊNE</td>
<td>Italia (temperate timber)</td>
<td>FRASSINO</td>
</tr>
<tr>
<td>United Kingdom (temperate timber)</td>
<td>ASH</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property</td>
<td>Scale</td>
<td>Not durable</td>
<td>Poorly durable</td>
</tr>
<tr>
<td>----------------------------------</td>
<td>------------------------------</td>
<td>-------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Resistance to fungi</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resistance to dry wood insects</td>
<td></td>
<td>Susceptible</td>
<td></td>
</tr>
<tr>
<td>Resistance to termites</td>
<td></td>
<td>Susceptible</td>
<td>Moderately durable</td>
</tr>
<tr>
<td>Treatability</td>
<td></td>
<td>Not permeable</td>
<td>Poorly permeable</td>
</tr>
<tr>
<td>Stability</td>
<td></td>
<td>Poorly stable</td>
<td>Moderately stable</td>
</tr>
<tr>
<td>Fibers Saturation Point</td>
<td></td>
<td>15% Low</td>
<td>25% Medium</td>
</tr>
</tbody>
</table>