Family: PINACEAE (gymnosperm)
Scientific name(s): Pinus pinaster
Commercial restriction: no commercial restriction

Note: Naturally growing west of the Mediterranean basin, MARITIME PINE is largely used in plantations (in the Landes area).

**WOOD DESCRIPTION**

| Color: | yellow |
| Sapwood: | clearly demarcated |
| Texture: | coarse |
| Grain: | straight |
| Interlocked grain: | absent |

Diameter: from 20 to 60 cm
Thickness of sapwood: from 6 to 12 cm
Floats: pointless
Log durability: moderate (treatment recommended)

Note: The abundant sapwood is pale yellow. The heartwood is yellow with reddish brown veins. The resin (and turpentine) odour is strong on green woods.

**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>Mean</th>
<th>Std dev</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specific gravity *:</td>
<td>0,55</td>
</tr>
<tr>
<td>Monnin hardness *:</td>
<td>2,3</td>
</tr>
<tr>
<td>Coeff. of volumetric shrinkage:</td>
<td>0,45 %</td>
</tr>
<tr>
<td>Total tangential shrinkage (TS):</td>
<td>9,0 %</td>
</tr>
<tr>
<td>Total radial shrinkage (RS):</td>
<td>4,5 %</td>
</tr>
<tr>
<td>TS/RS ratio:</td>
<td>2,0</td>
</tr>
<tr>
<td>Fiber saturation point:</td>
<td>32 %</td>
</tr>
</tbody>
</table>

Stability: moderately stable to poorly stable

Note: Density of tapped woods is higher (till 0,75).

European standard EN 14081-1 "Timber structures - Strength graded structural timber with rectangular cross-section" gives the scope of the requirements found in NF B 52001 and applying to timber structures for visual grading of French timbers.

**MECHANICAL AND ACOUSTIC PROPERTIES**

Crushing strength *: 39 MPa
Static bending strength *: 80 MPa
Modulus of elasticity *: 8800 MPa

(*: 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 3-4 - moderately to poorly durable
Dry wood borers: durable - sapwood demarcated (risk limited to sapwood)

**Termites (according to E.N. standards):** class 5 - susceptible

**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.
Use class 3 is only for wood components without sapwood.
According to the European standard NF EN 335, performance length might be modified by the intensity of end-use exposition.
Sapwood of MARITIME PINE is permeable to preservative products.

**REQUIREMENT OF A PRESERVATIVE TREATMENT**

Against dry wood borer attacks: does not require any 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: rapid to normal
Risk of distortion: high risk
Risk of casehardening: yes
Risk of checking: slight risk
Risk of collapse: no

Possible drying schedule: 3

<table>
<thead>
<tr>
<th>M.C. (%)</th>
<th>Temperature (°C)</th>
<th>Air humidity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Green</td>
<td>dry-bulb</td>
<td>wet-bulb</td>
</tr>
<tr>
<td>30</td>
<td>66</td>
<td>58</td>
</tr>
<tr>
<td>20</td>
<td>74</td>
<td>60</td>
</tr>
<tr>
<td>15</td>
<td>80</td>
<td>61</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

**ASSEMBLING**

Nailing / screwing: good
Gluing: correct
Note: Difficult gluing for woods with a high percentage of resin. But drying over 70°C practically eliminates this problem.

**COMMERCIAL GRADING**

Appearance grading for sawn timbers: According to European standard EN 1611-1 (October 1999)
Possible grading (on 2 sides): G2-0, G2-1, G2-2, G2-3, G2-4
Possible grading (on 4 sides): G4-0, G4-1, G4-2, G4-3, G4-4

Visual grading for structural applications: Traded timber with CE marking. Possible strength classes: C14, C18, C24 or C30 related to the European standard EN 14081 (May 2006).

**FIRE SAFETY**

Conventional French grading: Thickness > 18 mm : M.3 (moderately inflammable)
Thickness < 18 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**

Interior panelling
Veneer for back or face of plywood
Moulding
Glued laminated
Light carpentry
Boxes and crates
Poles
Exterior panelling

Flooring
Current furniture or furniture components
Interior joinery
Wood frame house
Heavy carpentry
Formwork
Exterior joinery
## 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>SEEKIEFER</td>
<td>Spain (temperate timber)</td>
<td>PINO MARITIMO</td>
</tr>
<tr>
<td>France (temperate timber)</td>
<td>PIN MARITIME</td>
<td>Italia (temperate timber)</td>
<td>PINO MARITTIMO</td>
</tr>
<tr>
<td>Portugal (temperate timber)</td>
<td>PINHIERO BRAVO</td>
<td>United Kingdom (temperate timber)</td>
<td>MARITIME PINE</td>
</tr>
</tbody>
</table>