

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

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.

LOG DESCRIPTION

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

PHYSICAL PROPERTIES

Physical and mechanical properties are based on mature heartwood specimens. These properties can vary greatly depending on origin and growth conditions.

	<u>Mean</u>	<u>Std. dev.</u>
Specific gravity *:	0.55	
Monnin hardness *:	2.3	
Coeff. of volumetric shrinkage:	0.45 %	
Total tangential shrinkage (TS):	9.0 %	
Total radial shrinkage (RS):	4.5 %	
TS/RS ratio:	2.0	
Fiber saturation point:	32 %	

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

	<u>Mean</u>	<u>Std. dev.</u>
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: class D - durable (sapwood demarcated, risk limited to sapwood)

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

Treatability (according to E.N. standards): class 4 - not permeable

Use class ensured by natural durability: class 2 - inside or under cover (dampness possible)

Species covering the use class 5: no

Note: This species is mentioned in the standard NF EN 350 (2016).

MARITIME PINE heartwood is associated with a durability class 3-4 (moderately to slightly durable) towards fungal attack and a treatability class 4 (not impregnable).

Given the statements relative to use classes without preservative treatment recommended for wood of durability class 3 or 4 in the standard NF EN 460 (1994) and the damages regularly observed on MARITIME PINE structures in use class 3, this species was allocated to use class 2 in this technical data sheet from May 2022.

The service life can be modified by the situation of exposure (as described in the standard EN 335 (2013)).

MARITIME PINE sapwood is easily treated.

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 known specific risk

POSSIBLE DRYING SCHEDULE

M.C. (%)	Temperature (°C)		Air humidity (%)
	dry-bulb	wet-bulb	
Green	40	37	82
40	44	38	68
30	44	36	59
20	46	36	52
15	49	37	46



This drying 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: good

Gluing: correct

Note: Difficult gluing for woods with a high percentage of resin. 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: According to European standard EN 1912 (2012) and associated national standards (see explanatory note), strength classes C18 or C24 can be provided by visual grading. Strength classes C14, C18, C24 or C30 can be provided by visual grading according to French standard NF B 52-001-1 (2011).

FIRE SAFETY

Conventional French grading: Thickness > 18 mm : M3 (moderately inflammable)

Thickness < 18 mm : M4 (easily inflammable)

Euroclasses grading: D-s2, d0

Default grading for solid wood, according to requirements of European standard EN 14081-1 (April 2016).

It concerns structural graded timber in vertical uses and ceiling 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



This list presents main known end-uses; they must be implemented according to the code of practice. Important remark: some end-uses are mentioned for information (traditional, regional or ancient end-uses).

MAIN LOCAL NAMES

<u>Country</u>	<u>Local name</u>	<u>Country</u>	<u>Local name</u>
Germany (temperate timber)	SEEKIEFER	Spain (temperate timber)	PINO MARITIMO
France (temperate timber)	PIN MARITIME	Italia (temperate timber)	PINO MARITTIMO
Portugal (temperate timber)	PINHIERO BRAVO	United Kingdom (temperate timber)	MARITIME PINE

