SCOTS PINE

Botanical name: *Pinus sylvestris,* family: PINACEAE

Distribution: Europe (as far as Asia Minor and Northwest Siberia)

Other important trade names: Kiefer, Föhre, Nordische Kiefer, Scots pine, redwood, (GB); pin commun (Fr); pino silvestre (It, Sp)

Abbreviation as per DIN EN 13556: PNSY

Colour and structure of the wood:

Heartwood brown to red to yellow, no colour stripes. Clear colour contrast between sapwood and heartwood, narrow to medium width (depending on the vigour or the tree age). The sapwood is near white and yellows on exposure to light. The heartwood is yellow to reddish brown and clearly darkens on exposure to light. The dark latewood bands form a clear raised “cathedral effect” formed by innermost growth rings (tangential) on the lateral surfaces or a stripe (radial). Woods with extremely narrow year rings are usually light in colour and appear almost unstructured. Growth zone boundaries clearly recognisable (through the colour contrast between darker latewood and lighter earlywood). The smell of the wood is distinctive (in fresh condition resinous, pleasantly aromatic).

Properties:

Weight fresh [kg/m³]		750 – 820 – 850
Bulk density air-dry (12-15 % u) [g/cm³]		0.51 – 0.55
Compression strength $u_{12\text{-}15}$ [N/mm²]		45 – 55
Bending strength $u_{12\text{-}15}$ [N/mm²]		79 – 100
Modulus of elasticity (bending) $u_{12\text{-}15}$ [N/mm²]		11000 – 13000
Toughness [kJ/m²]		40 – 70
Hardness (BRINELL) ⊥ to the grain $u_{12\text{-}15}$ [N/mm²]		14 – 23
Drying shrinkage (fresh up to $u_{12\text{-}15}$)	radial [%]	3,0
	tangential [%]	4.5
Differential shrinkage [%/%]	radial	0.15 – 0.19
	tangential	(0.25) – 0.36
pH value (suspension)		5.1
pH value (surface)		4.2
Natural durability (DIN-EN 350-2)	from natural forests	category 3 – 4

Additional information:

In isolated cases evidence shows that an allergy can be triggered through the resin in hypersensitive persons.

Workability:

Clear knot-free pinewood is good for sawing, planing, drilling, milling and nailing; large and loose knots can lead to problems in processing. The wood also can be sliced and cut easily. Resinous wood can stick to tools fast and thus lead to a considerable loss in quality. Nails and screws hold well, even without pre-drilling. Problems in bonding occur in contact with resin and increase with a greater resin content.

Drying:

Drying generally runs without any problems. It should take place relatively soon after cutting, because pine sapwood is highly susceptible to blue stain fungi in damp condition.

Use:

Outdoor or indoor use. Especially suitable for: Outdoor construction with no ground contact (only heartwood), exterior cladding (facades), frame structure (windows, house doors, conservatories), wall and ceiling coverings (internal), furniture, packaging material.

Macroscopic cross-section of pine
(10 times magnification lens)

Wood surface of pine (radial section)

Surface treatment:

Very resinous wood can lead to discolouring particularly with light coatings. Sapwood is extremely susceptible to fungi and must be protected with deep effect. Treatability poor or very poor (sapwood good; EN 350–2, 1994).

Coating systems:

The coating systems selected here are variants which ensure utmost durability and lasting quality.

Other coating systems are basically possible; however, they must be coordinated with Teknos.

Details on processing can be found in the technical data sheets for each product.

Windows, doors, conservatories and folding shutters:

System coating	Translucent
Wood preservative	GORI 356 / TEKNOL AQUA 1410-01
Primer	AQUAPRIMER 2900-22
Intermediate	AQUAFILLER 6500-01
Topcoat	AQUATOP 2600-9X

System coating	Opaque
Wood preservative	GORI 356 / TEKNOL AQUA 1410-01
Primer	ANTISTAIN AQUA 5200-01
Intermediate	ANTISTAIN AQUA 5200-01
Topcoat	AQUATOP 2600-2X

System coating	Colourless
Wood preservative	GORI 356 / TEKNOL AQUA 1410-01
Intermediate	AQUAFILLER 6500-01
Topcoat	AQUATOP 2600-6X

Further information:

Teknos A/S
Industrivej 19
DK-6580 Vamdrup
Tel: +45 76 93 94 00
www.teknos.com

Wood is a unique, beautiful and very versatile material

The features and properties of wood vary greatly and therefore individual attention is required in processing and surface finishing.

With this Teknos wood data sheet we would like to go into detail on the features and range of applications in the coating of important wood species.

The data sheet originated from a collaboration with the Johann Heinrich von Thünen-Institute in Hamburg.

The pH values of wood have been determined as important chemical variables for the first time.

The concentration dependence of extracts such as tannic acids or tannins to the pH value is important.

A good surface coating and targeted selection of system structures shall be safer based on these variables determined by Thünen-Institute and demonstrate wood-related problem solving.

All system structures named in the data sheet are selected according to utmost durability and quality and are considered to be relevant systems. However, a practical test is always necessary.

Due to different application possibilities and stresses of parts to be coated, variations are required.

To select individual systems easily, the Teknos technical department will be happy to assist you.