



## Brown Ash

*Fraxinus excelsior L.*

### Commercial names:

Spanish:	Fresno
English:	Brown Ash.
French:	Frêne
Italian:	Frassino
Portugués:	Freixo
German:	Esche

### Common names:

Aragón:	Fresno, Fresno común, Frágino, Fleja
Cataluña:	Frix, Freijà, Frejú
Baleares:	Fleix, Abreuer, Estancasanch
Navarra:	Lizarra
Galicia:	Freixo
País Vasco:	Lizar

### Physical properties:

Density:	680-700-750 kg/m <sup>3</sup>	
Shrinkage:	Unstable	
Shrinkage values (ASTM):	Total	Unitary
Volumetric:	19,1%	(0,65)
Tangencial:	5,1%	(0,18-0,27-0,38)
Radial:	3,2%	(0,11-0,17-0,21)
Hardness:	4,0-5,3	Semi-hard

### Mechanical properties (Wood free of defects (ASTM))

Static bending:	130-160 N/mm <sup>2</sup>
Modulus of elasticity:	11,900-13,900 N/mm <sup>2</sup>
Compression parallel to grain:	43-59 N/mm <sup>2</sup>
Compression perpendicular to grain:	20,4 N/mm <sup>2</sup>
Shear:	12,0-13,4 N/mm <sup>2</sup>
Toughness:	6,7-8,8 N/mm <sup>2</sup>

### Origin and availability:

Present all over Europe, including the British Islands, the North of Africa and the East of Asia. In Spain it is located in the northern area, mostly in groves and riverbanks. Their forests are quite important. Its production and export stable.

### Description of the wood:

The colour of wood is pearly white, and it can be pink sometimes. Heartwood and sapwood are not differentiated. There are dark streaks in longitudinal breakdowns. The growth rings are perfectly differentiable. The wood rays are not very visible, these are fine textured, abundant, and with rectilinear trajectories.

The fibre is straight. The grain is coarse.

### Drying:

Drying speed being relatively fast. There are almost no defects during drying. There may be deformations and cracks in case high drying temperatures are used.

Recommended drying schedules are no3 from CTBA and «D» from PRL.

### Natural durability and ease of penetration:

The wood is classified as not durable against the action of fungi, anobiidae, termites, and cerambycidae (Hespherofanes); and not tied by lictides.

Both the heartwood and the sapwood are penetrable, but if the heartwood has a red core (chromogen fungus, which alters the colour of wood), then the heartwood is not penetrable.

### Technological properties:

Saw dulling is normal during sawing.

This is well suited for obtaining veneer by slicing.

There are no problems during mechanising and dulling is normal.

It is well suited for its bending.

Gluing and finishing present no problems. Boring holes is advisable before using nails or screws.

### Applications

Tool handles. / Decorative veneers. / Sports goods: rackets, hockey sticks, fitness machines, etc.. / Floors. / Bodywork: presents good tenacity properties. /

This wood is also good as combustible and high quality coal is obtained. Its root is appreciated in cabinetwork, due to the beautiful water it presents. Romans severely punished the tree felling or firing of this species which they devoted to manufacturing of war weapons, as catapults, thanks to the unbeatable tenacity properties it poses.

The bark and leaves have fraxina and tannin, out of which an excellent anti-rheumatic is obtained.