HARDWOOD — THE FACTS
This brochure is intended for all who wish to know more about hardwood, its uses and properties. It is directed to the public as well as to professionals; craftsmen, carpenters, joiners, architects, forest owners, schools, consumers. The selection of species is limited geographically to the area around the Baltic sea and to species which are used commercially or have an estimated commercial potential. The brochure presents an overall view, those who want more information are referred to our website.

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HARDWOOD
– THE FACTS

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ALDER

Alder is relatively soft and brittle

Alder has slightly better properties than pine and can be used in the same way in furniture and fittings. Black alder (*Alnus glutinosa*) and grey alder (*Alnus incana*) share roughly the same properties. Black alder is found throughout Europe, with the exception of the southwesternmost parts. It grows on moist and wet land, often beside running water or on lake shores.

Technical properties

Alder is easy to machine, split, turn and nail, and causes little wear to tools. It is also suitable for veneer making. The timber dries easily and fairly quickly, with little damage. Alder is easy to glue and finish. It has little resistance to decay in contact with the soil, but stands up very well under water. Alder remains stable during moisture variation, which makes it suitable for things like drawers, wood-carving, modelling and wooden clogs. It does not conduct heat and is therefore a good choice for saunas.

The odd case of contact dermatitis has been reported.

Appearance and taste

Shortly after felling, the wood is light yellow but in contact with the air rapidly develops a warm, light to dark reddish-brown hue. Between the growth rings, which are clearly visible, traces of brown can sometimes be seen, caused by harmless kambium insects.
Areas of use

Traditionally used for floodgates, water ducts, ladles and barrels.

Contemporary uses: furniture and fittings such as cladding, sauna interiors, kitchen interiors, indoor doors or flooring not exposed to excessive wear. Also used for woodwork, core material, model-building and clogs. Future uses may include natural or stained alder as an alternative to mahogany.

Tips

Use white oil to prevent alder from darkening with time.

The brown-coloured heartwood is as durable as the lighter wood.

Do not use alder outdoors without rot-proofing it, except when using it under water.

Miscellaneous

Alder chips are used for smoking fish or meat. The smoke from moist chips enriches the food with beneficial phenolic antioxidants. Alder charcoal for grilling is also a good choice.

Alder wood is sometimes referred to as the mahogany of the North.
**ELM**

**Elm is a hardwood species of medium strength**

Elm (*Ulmus glabra*) is suitable for tasks where strong resistance to impact and abrasion is required. Hard, relatively tough and with little tendency to crack, elm is found in many parts of Europe.

**Technical properties**

In general, elm is hard to split. It dries relatively quickly and is fairly resistant to cracking. Good workability, with medium wear on tools. Straight-grained elm without knots has good bendability, comparable to that of beech. Medium resistance to decay in the heartwood. Good finishing results, but take care to avoid blistering as elm is large-pored.

The timber is said to cause skin rash (although there are no case reports).

**Appearance**

The sapwood running from greyish-white to yellow comprises only a small part of the timber. The heartwood is dark, ranging from blackish-brown to reddish-brown.

The contrasting size of the pores and the different grain patterns in spring and summer wood mean that elm has a very special appearance in tangential surfaces. A varnished or oiled surface gives elm a beautiful, shimmering lustre.
**Areas of use**

Highly suitable for surfaces exposed to wear and impact. Traditional and contemporary use: joinery and handicrafts, furniture, turned articles, plywood, doorsteps, floors and shipbuilding applications. Also good for ladders, sports apparatus, bows, toys, tools and coffins.

**Tips**

Some people find the smell of sawn, raw elm unpleasant.

Normally no problems with nailing/screwing, but pre-drilling is recommended.

The wood has a high fuel value – which rises with the tree’s speed of growth.

In colour, elm wood resembles mahogany.

**Miscellaneous**

In ancient Nordic mythology, *Embla* was the first woman on earth, created from an elm tree.

During the Viking era, the best bows were made from elm. The earliest archaeological find of an elm bow dates back 8,000 years.

The greatest obstacle to more widespread use of elm wood is Dutch elm disease, a fungus blight spread by the elm bark beetle. In places, it has reduced stands dramatically. Efforts are under way in many places to develop a resistant species.

In London, when a 17th century system of water supply pipes made from elm was dug up in modern times, it was completely intact.
ASH

Ash is tough and very hard

Ash (*Fraxinus Excelsior*) is suitable for tasks where strong resistance to impact is required. The tree is found in most parts of Europe except for the northernmost regions and the Iberian peninsula.

Technical properties

Ash is a useful species in many respects. It is hard, tough, easily split and easy to work with. It is also suitable for turning. The wood is easy to finish and resin-free. Some risk of blistering at high drying temperatures. Easy to glue. Ash and beech are two of the best wood species for steaming and making curved profiles from. This quality, combined with its toughness, makes ash eminently suitable for the manufacture of curved products such as floor hockey and field hockey clubs.

Appearance

The sapwood ranges from light yellow to light grey in colour. In young trees, the heartwood often has the same colour, but it darkens with age and in old trees can be very dark, referred to as ‘olive ash’. A varnished or oiled surface acquires a shimmering, magical lustre that is not often found in other species. Not suitable for outdoor use without a very good finish. Difficult to impregnate.

There are no known specific health risks associated with this wood species.
Photo from Österbymo Trävaru.
Areas of use

Highly suitable for surfaces exposed to wear: floors, tabletops, shelves, banisters, etc. Suitable for use in many areas associated with handicrafts, sport and athletics: tool handles, gym apparatus, clubs, bows, billiard cues, boat interiors, oars, etc.

Tips

A finish with a UV filter should be used to prevent colour fading.

Drilling is advisable prior to nailing/screwing.

Straight-grained ash is easily split and has a very high fuel value – which rises with the tree’s speed of growth.

Miscellaneous

According to ancient Nordic mythology, the first man on earth, Ask, was created from the ash tree. His wife, Embla, was created from the elm tree.

The Icelandic name for ash is askr, meaning spear. In ancient Greece, the spears and arrows of the gods were made from ash.

Ash is the species that comes into leaf first in the spring and sheds its leaves first in the autumn. This is why it is often referred to as the royal tree.

In Nordic agrarian society of old, the ash’s branches were often pruned in late summer. Both branches and leaves were dried and used as animal feed. Keen-eyed observers still detect traces of this practice in the contemporary agricultural landscape.
Aspen is medium hard and medium tough

The aspen (*Populus tremula*) is represented throughout Europe, except in the southernmost and southwestern regions. Aspen spreads vegetatively with rootsuckers, and an individual tree can be over 1,000 years old, although in most cases 100 years is the maximum. Aspen is relatively soft yet still hard enough to use in furniture, cladding or flooring, for instance in a bedroom where a light surface is called for.

**Technical properties**

Aspen is easy to saw, split, cut, turn and work with manually, but the surface sometimes tends to become ‘fluffy’. Tools must always be very sharp to ensure a smooth surface. Care is needed when drying aspen, but it dries quickly and shrinks relatively little, after which it keeps its shape. The wood is easy to nail/screw without cracking, but nail retainability is relatively poor. Bending solid lengths of aspen is inadvisable.

The wood is easy to glue, and has excellent deep-staining properties. Painting and glazing require a degree of proficiency. The heartwood is difficult to impregnate. There is little resistance to decay when aspen is in contact with the soil, but strong resistance if air can circulate freely around the wood. The basic material, however, must be carefully dried timber. Technically speaking, aspen resembles spruce in its areas of use. It tends, though, to conduct heat and cold very poorly. This quality, along with the fact that aspen does not release resin, makes the wood an excellent choice for sauna cladding and sauna benches.

There are no known health risks associated with aspen.
Appearance

The wood is light coloured to light yellow, while the heartwood tends to be slightly darker. Aspen retains its light colouring better than most species. Untreated outdoor cladding acquires an elegant grey colour as time passes, giving it a ‘silver-grey’ shade.

Areas of use

Aspen is very well suited to a wide range of uses, such as matches, building-timber, shingle, saunas, and both indoor and outdoor cladding. It can also be used for wood carving, toys, crates, loading pallets, furniture and flooring that is not exposed to excessive wear.

Tips

When using the wood outdoors, make sure that it is not in contact with the soil and that air circulates freely around it. Aspen retains its shape as long as it can dry out.

Miscellaneous

Half a cubic metre of aspen yields a million matches. The tree’s leaves are said to shiver and tremble because Christ’s cross was made of aspen.

In the Baltic region and Russia, aspen shingles are commonplace.
BIRCH

Birch is medium hard and very tough

The birch family comprises some 60 different species, of which silver birch (*Betula pendula*) and white birch (*Betula pubescens*) are the most common in Europe. Birch is found in most parts of Europe, except for the southernmost regions. The quality of the timber tends to be better in northern and eastern European habitats. Birch is sufficiently hard for durable floors and for door- and window-frames exposed to wear. Birch is one of the toughest wood species. Its bending strength means you can use small dimensions yet still get a durable material.

Technical properties

White birch dries quite easily but has a tendency to become deformed. The wood is fairly elastic and is easy to turn and profile. The hardness and toughness of birch means that users can plane complicated moulding profiles, raised skirting and the like without the risk of cracking or breaking.

Easy to glue, finish, polish and impregnate. Varnish can be dried rapidly at high temperatures without the risk of blistering. Very poor resistance to decay in moist environments.

Appearance, smell and taste

A light-coloured wood with a wide range of finishing choices. Birch turns yellow in time, but the light colouring can be preserved by applying white oil. In older specimens, a ‘brown heart’ pattern develops that gives visible wooden structures a lively, interesting appearance.
BIRCH

Photo from Kährs.
The wood gives off neither taste nor smell, and does not induce allergies.

**Areas of use**

Birch is a classic choice for furniture making. Nowadays, it is often used for glue-laminated seating furniture and for furniture and interiors in public settings. For construction and interior design purposes, birch is very suitable for floors, stairs, cladding, kitchen fixtures and for doors, etc, indoors. Constitutes the outer surface in plywood.

**Tips**

Hardwood can be very difficult to nail or screw, so pre-drilling is advisable.

The reddish wood is as durable as the white wood.

Do not use birch outdoors without special treatment.

Birch is high in fuel value and burns slowly. Birch-bark, which contains tar, is inflammable.

**Miscellaneous**

The word birch comes from the Indo-European word *bhereg*, meaning to shine or glitter. In northern Europe, it symbolises light, spring and a new start.

The cradles of new-born babies are often made from birch.

There is a Russian saying that birch has four benefits: Provides light – torches of twisted birch-bark. Reduces loud noise – birch-tar for the greasing of wagon wheels. Cures the sick – birch sap and tea made from birch leaves. Cleanses – birch twigs in the sauna.
BEECH

Beech is one of our hardest and toughest wood species

If you are looking for wood that can stand wear and tear, and strong impact, beech (*Fagus sylvatica*) is a sound choice. Beech is found principally in Central Europe but also in northern and western Europe. It is excellent for parquet flooring, furniture and joinery exposed to heavy wear.

Technical properties

Beech is heavy, hard and strong. It is easy to split, work with and turn, and dries easily and quickly, although there is a risk of surface- and end-cracking and severe deformation. Beech is easy to glue and finish. Poor resistance to decay. Due to its benefits, along with the possibility of steaming it and making curved solid-wood profiles, beech is one of the most widely-used wood species in furniture design. It is especially good for making curved or moulded chair parts.

Appearance, smell and taste

When fresh, beech is whitish-yellow in colour, but later, especially after steaming, acquires a more reddish hue. Reddish-brown heartwood sometimes occurs but does not affect the timber’s durability. The species is totally free from smell or taste, which means it is often used in connection with food. No known specific health risks.
Areas of use

Traditional uses: herring barrels, butter-making vats, clogs and tools.

Contemporary uses: furniture, flooring and interiors, often in public settings, household articles, ice and lollipop sticks, plywood, inner doors and toys.

Tips

A finish with a UV filter should be used to prevent colour fading.

Use only impregnated beech in moist environments.

Drilling is often required prior to nailing/screwing.

Very high fuel value, and excellent for charcoal-making.

Miscellaneous

Beech is a species of wood that can grow in the shade. The first printing types were made from beech, due to its smooth structure and hardness.

Large tracts of beech forest were laid waste in northern Europe in the 18th and 19th centuries, to provide for the manufacture of potash, charcoal and herring barrels. This, together with the forest grazing practices of the day, has left an indelible mark on the structure of present-day forest land, especially in southern Sweden.
BEECH

Photo from Tarkett.
Oak is heavy, strong, hard and highly durable

The oak (Quercus robur) is one of a very large family, encompassing some 600 species. In qualitative terms, its foremost habitat is Central Europe, and this species is not found in northern and southwestern regions. Oak trees can grow to a ripe old age, up to 1,000 years.

Technical properties

Speed of growth determines how easy the wood is to work with. Straight-grained wood is relatively easy both to machine and to work with manually. Fast-growing, knotty wood requires sharp tools made from high-quality steel. Highly suitable for bending.

Oak dries very slowly and there is a pronounced risk of hidden cracks, especially when the drying process is too fast. Steam evaporating from oak is highly corrosive. Usually, gluing causes no problems, but considerable care is required. No special finishing problems, but some risk of blistering in connection with heat drying. The sapwood deteriorates easily, but the heartwood has a high resistance rating (CEN norm 2), under water as well.

Appearance

The sapwood is light yellowish-grey in colour and comprises only a small part of the timber. The heartwood is initially greyish-yellow but then becomes light to dark brown. Oakwood exposed to moisture for long periods turns black. In contact with metal, particularly iron, the wood can become discoloured, which means noncorrosive nails, bolts and screws should be used.
Photo from Snickarlaget.

Photo from Kährs.
Areas of use

Over the centuries, oak has been used for shipbuilding and underwater construction. It has also been widely used as a furnishing and interior material for making floors, stairs, windows, kitchens, furniture and joinery. Solid oak inner doors and furniture were long preferred by banks and similar institutions to give them added status. Oak is widely used for outdoor construction purposes, ranging from fence poles to boats. Suitable for load-bearing structures, and for surfaces exposed to wear both in interiors and in furniture. Because of the presence of tannic acid, oak is not used by the pulp industry.

Tips

Drilling is advisable prior to nailing/screwing.

The rich contrasts in the colour and patterns of the wood make oak wood aesthetically appealing. The surface grain and colour shades tend to vary. The surface structure of the wood varies, for instance, depending on how the plank is sawn out of the log.

When used for firewood, oak should be mixed with other kinds of wood so as to reduce the corroding effect of the fumes.

Miscellaneous

Black oak is oak that has lain under water or in peat bogs for a very long time.

In the old days a great deal of oak was used for shipbuilding, up to two thousand high quality trees were sometimes required to build a single vessel.

In Nordic mythology, the oak is the tree of Thor and is said to provoke thunder and lightning.

The Celtic druids drew their secret power from the crown of the oak.
CHERRY

Medium hard and tough
The wood of the bird cherry (Prunus avium) has good physical properties. In hardness, it is similar to birch, while its bending strength is slightly greater than that of oak. Cherry is to be found in most parts of Europe except northern Scandinavia, the Baltic region, parts of Poland and in the Iberian peninsula.

Technical properties
Straight-grained cherry is easily split but wood with an irregular grain structure is hard to split. The timber is easy to saw and dries quickly. Slow drying can reduce warping and improve colouring. Cherry wood is unstable in varying moisture. Easy to work with, medium wear on tools. The wood is suitable for steaming and bending, on a par with beech. The heartwood is comparatively resistant to decay. Good glueing properties and good results when finished.

Appearance
The wood tends to vary considerably in appearance. Sometimes, the boundary between sapwood and heartwood is difficult to detect. The sapwood is narrow and yellowish-white to light red in colour. The heartwood is yellowish-red to light reddish-brown. Greenish streaks sometimes appear in the wood. Exposed to the light it acquires a warmer and darker reddish hue reminiscent of mahogany. Planed surfaces acquire a certain lustre.
**Areas of use**

A popular choice for kitchen interiors and woodwork, and for furniture in the form of veneer or solid wood. Also used for handicrafts, turned articles, musical instruments, parquet flooring and banisters, etc.

**Tips**

The tree grows fast when young but seldom lives to be 100.

A well-shaped tree is both elegant, valuable and of benefit to birds.

Discolouring occurs when cherry is in contact with iron, copper or brass, and the wood darkens when in contact with basic substances.

Cherry can be used as woodchips when grilling or smoking food, and gives off a slightly sweet smell.

**Miscellaneous**

The legendary Chippendale furniture of the 18th century was made from cherry.

Bird cherry is grown for its timber properties and belongs to the same species (*Prunus avium*) as sweet cherry. Whiteheart cherry is an improved form of sweet cherry. A closely related species is sour cherry (*Prunus cerasus*), which is also called amarelle or morello. Improved versions include brown cherry. The species can interbreed and the resultant hybrids are called may cherry or glass cherry.
Photo from Tarkett.
LIME

Lime is soft and fairly tough

Lime or linden (*Tilia cordata*) is perfect for joinery, but also for purposes where a light, quiet and neutral surface quality is required. In all, there are 45 different species of lime. For lime trees found in northern Europe the timber properties are similar.

Technical properties

Lime is easy to work with. As in the case of other soft wood species, sharp tools are needed to ensure a smooth surface. Easy to dry and does not crack, but shrinks fairly substantially. Unstable when moisture varies. Poor resistance to decay and insects. Easy to glue, finish, polish and impregnate. Lime is also easy to nail, screw and bend.

Appearance

The wood is very light – sometimes almost white to yellowish-white. Ageing lime becomes darker, with a tinge of brown. The wood is straight-grained, homogeneous and coreless. Some people find the smell of lime stale or bitter, especially in the case of newly sawn timber.
Areas of use

Suitable for joinery and sculptures. Not suitable when exposed to mechanical damage or moisture. Traditional and contemporary uses: wooden sculptures, gliders, cabinet-making and turning. Also useful for: cladding, household articles, toys, Venetian blinds, musical instruments, plugs in blank ammunition, and artificial limbs.

Tips

The layer of bast inside the bark can be used for making rope, carpets, sacks and gardening equipment. Charcoal from lime makes a good sketching implement and has also been used in pharmacology. Tea made from lime flower is said to be sudorific and diuretic, antispasmodic and expectorant.

Washing in a lime flower concoction is supposed to make the skin smooth and supple.

The wood is poor in fuel value.

Miscellaneous

In the pre-Christian era, the lime was regarded as a holy tree, and women made sacrifices to it to enhance their fertility. People gathered beneath the lime tree to play games and dance, but it was also a place where important meetings were held in olden times.

Lime is one of the few species of wood that is pollinated with the aid of insects.

When the botanist Linnaeus was raised to the nobility, he took the name Carl von Linné. The origin of the name was a three-stemmed lime tree growing at Stegaryd in the southern Swedish province of Småland.
MAPLE

Maple is a hard, tough species of wood

The wood of the Norway maple (Acer Platanoides) is dense, homogeneous, highly durable and also very hard in relation to its density. The maple family contains some 100 different species, of which Norway maple and Sycamore are two of interest to the forest sector in Europe.

Technical properties

Dries easily, but there is a risk of discolouring, cracking and warping. The wood shrinks to a moderate extent or very little (Sycamore), very limited reaction to moisture. Easy to work with, medium wear on tools and good turning properties. Knot-free wood is easy to bend, little resistance to decay. Good gluing properties and easy to finish and polish.

Appearance

The wood is white to yellowish-white, and the growth rings are thin and sharp. Maple does not develop heartwood, but a ‘false’ core is sometimes found in the form of a light brown or dark brown vein. The wood is often straight-grained and uniform in structure. Wood with a wavy pattern (rippled maple) or small rounded figures (bird’s-eye maple) is much in demand for making musical instruments and veneer.
Areas of use

Useful in many different areas, stable in shape and resistant to wear and impact. Traditional and contemporary uses: handles, rake teeth, harrows, ploughs, musical instruments, parquet floors, stairs, cladding, skirting, doors, furniture and joinery, toys and sports articles.

Tips

Maple is used for both string and wind instruments. Besides all its excellent qualities in the construction process, it has a beautiful resonance.

Saponins in maple have been identified as a source of contact dermatitis.

Maple has a high fuel value.

Miscellaneous

In ancient times, maple was called hlynr among the Nordic tribes. Today it is also referred to as the may-leaf tree or priest’s nose.

Axe and rake handles made from maple are said to have “caused less blistering of the hands than other species of wood”.

Maple has also been used for medicinal purposes. Children suffering from rickets, for instance, were hauled naked through a natural opening in the tree trunk.

The sap of the North American sugar maple has a higher sugar content and is used to make maple syrup.
ROWAN
Mountain ash

Rowan is medium hard, strong and tough.

Rowan or mountain ash (*Sorbus aucuparia*) is strong, hard and tough. Its multiple qualities mean that it can be used for a wide range of purposes. Rowan is only absent from the southernmost parts of Europe. The fact that it is not used more widely may be due to the poor availability of raw sawable logs.

Technical properties

The properties of rowan vary considerably depending on how fast the tree grew. Easy to work with but hard to split. Rowan requires care when drying as there is otherwise a risk of numerous small cracks appearing in the wood. Easy to glue, finish, polish and impregnate. Poor resistance to decay.

Appearance

The wood varies dramatically in colour, from the yellowish-white of the sapwood to the grey and brown hues of the heartwood. A stained and polished surface has a very beautiful lustre.

Areas of use

Traditionally, the wood has been used for tool handles, rake teeth and wheel spokes, and for industrial products such as rollers and textile tubes. Many of us recall the sound of spring whistles made from rowan. Nowadays, rowan is principally used
in woodwork. In Finland, it has been used for making traditional furniture and interiors. If better managed in future, this species has considerable potential in a range of areas.

**Tips**

To forest owners: Many forests are rich in rowan, even if there is extreme pressure from grazing by wild animals. Establish a rowan stand by fencing in the land after the final felling. The rotation period for timber production is very short, and the aim should therefore be an extremely rapid growth of young trees.

Rowan is hard to split but has very high fuel value.

Rowanberries are an important source of food for birds in late autumn – and also a delight to the eye.

Rowanberries picked when ripe and then frozen can be used to make a very tasty jelly mixed with apple. Excellent with game dishes.

**Miscellaneous**

In old Nordic, the Swedish word for rowan, rönn, meant red. This species of tree has also been called the ‘acacia of the north’.

In ancient Nordic mythology, the tree is sometimes referred to as ‘Thor’s salvation’.

In many northern European countries, numerous magical properties – both good and evil – are attributed to the tree. In Iceland, a fire made from rowan was thought to spread enmity among those sitting round it.

In the Swedish Farmer’s Almanac, rowan is a signal species. Plenty of rowanberries = plenty of snow.
SALLOW

Sallow is brittle, light and soft

The sallow tree (*Salix caprea*) belongs to the large salicaceae family, embracing some 300 species. It is related to the willow, and is in fact commonly referred to as goat willow. The tree is found throughout Europe except in the southernmost part of the Iberian peninsula.

Technical properties

Easy to split and dry, but sharp tools are required or worked surfaces easily become fluffy. Also easy to glue, paint and stain, but harder to polish.

There are differing reports on how prone sallow is to decay, but the level of resistance is probably low. The wood cannot withstand heavy wear, but can be steamed and bent. Accordingly, sallow is often used to make the moulding in wrapped-wood ‘Tina’ boxes and other handicraft articles.

Appearance

The most striking feature of the sallow is the beautiful colouring of its heartwood. This often varies from yellowish-orange to red or reddish-brown, and tends to resemble bird cherry. The sapwood is often yellowish-white. Worked surfaces darken considerably with time. The tree is widely represented in northern Europe, but almost no industrial uses have been found for the sawn timber.
Areas of use

Traditionally, the wood has been used to make household articles, often ones containing liquids, as sallow is both dense and stable.

Contemporary uses tend to be limited: handicrafts, woodwork, toys and firewood. Prospective areas of use include furniture, skirting/moulding, cladding, kitchen cupboard doors and other interior features.

Tips

To forest owners: Stands of sallow in forests can be highly rewarding – both in terms of biodiversity and in the form of good prices for sawable logs.

Do not use sallow timber in moist environments or where it may be exposed to heavy wear or impact.

Miscellaneous

The sallow is dioecious, i.e. the male and female flowers grow on different trees.

The sallow blossoms early in the spring. This, together with the fact that it is rich in nectar, means it is vital to bumble-bees.

Sallow contains salicylic acid, which is antipyretic (reduces fever).
Hardness, bending strength and weight

Here you can find the wood species dealt with in the brochure, plus spruce and pine, ranked according to hardness, bending strength and weight.

**HARD**
Ash  Beech  Maple  Elm  Oak  Rowan  Cherry  Birch  Aspen  Alder  Pine  Lime  Sallow  Spruce

**SOFT**

**TOUGH**
Birch  Beech  Rowan  Ash  Maple  Lime  Cherry  Oak  Elm  Alder  Pine  Aspen  Spruce  Sallow

**BRITTLE**

**HEAVY**
Oak  Beech  Ash  Elm  Rowan  Birch  Maple  Cherry  Sallow  Alder  Lime  Pine  Aspen  Spruce

**LIGHT**

As wood is a living and decidedly inhomogeneous material, the data in the table should be seen as a rough guideline only. The disposition varies, depending on which studies are used as reference. Also, the test values are usually only approximate ones.

We have sought to weigh together different kinds of information, check sources and then ‘spice’ the data with our own store of knowledge.

Factors such as latitude, habitat, soil and tree age probably have an impact in one way or another.

Ring-porous species like ash, elm and oak, for instance, are considerably harder and heavier the more coarse-grained (fast-growing) the trees were. The opposite applies in the case of spruce and pine.

Furthermore, the toughness of wood tends to vary, depending on its distance from the core. This means, indirectly, that the age of the tree is also a factor.
Resistance to decay

A particular species’ ability to resist decay can be rated according to a EU standard, the CEN norm (Comité Européen de Normalisation), on a scale of 1 to 5, where 1 = extremely resistant and 5 = non-resistant.

All sapwood for the species described in this brochure has a CEN rating of 5. Of all the various species, only the heartwood of the oak could be properly described as highly resistant to decay and has a rating of 2.

This type of classification, however, applies to wood in contact with the soil where it has access to both moisture and oxygen. Many wood species are more resistant when underground, where there is a lack of oxygen.

In certain cases, the level of resistance is different under special conditions. The common alder, for instance, which has a CEN rating of 5, is highly resistant to decay under water. Another example is aspen, which also has a CEN rating of 5. This species is highly resistant in outdoor air if the air has free access to the whole surface and contact with the soil is avoided.

Some deciduous tree species can be impregnated, whereupon they naturally acquire a level of resistance in accordance with the relevant norm.

Finishing

Hardwood contains only very limited amounts of resin or resinous substance, or none at all, which means that knots and other surface variations do not affect the shades of glazing on paint.
| Handle | Chiffonier | Chair | Flooring | Flooring Boiler | Flooring Open Fire | Other Uses | Garden Furniture | Deck | Roofing | Cladding | Outdoor | Doors Outside | Long Beams | Concrete Beaming | Wall Beams | Roof Beams | Building | Other Joinery | Shelves | Kitchen | Fixings | Ceiling | Floor | Cladding | Doors | Interior | Furniture | Furniture |
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