

# USER INFORMATION



## SEAT CUSHIONS

FOR BENCHES, PLANT ISLANDS WITH  
SEATING BENCHES, STORAGE BOXES  
AND WAVE-SHAPED SUN LOUNGERS

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**gartenmetall®**  
GARTENOBJEKTE & STADTMÖBEL AUS METALL

# SEAT CUSHIONS

## USER INFORMATION

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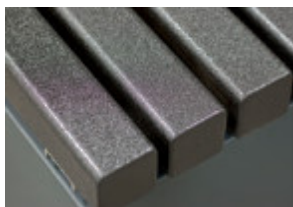
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# 100% HARDWOOD

## FROM CONTROLLED CULTIVATION

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### OVERVIEW

100% hardwood is ideally suited for seat surfaces due to its stability, workability, availability, natural appearance and, above all, its insulating properties. All the 100% hardwoods we use come from sustainably managed forests.

Hardwoods, most of which are of tropical origin, have almost entirely replaced native woods such as larch and pine in high-quality construction projects. This is primarily due to the lower maintenance requirements and the much longer lifespan of tropical hardwoods – which, depending on the species, can exceed 30 years! Hardwoods, for example, are significantly more resistant to environmental factors such as UV radiation and moisture. When installed correctly, these woods are resistant to pest infestation and impervious to mould.

### 100% HARDWOOD

By '100% hardwood', we mean all particularly high-quality, hard and weather-resistant woods, mostly of tropical origin. All the hardwoods we process and supply are characterised by:

- high resistance to weathering
- high wood density, resulting in high strength and resistance to wear and tear
- low risk of cracking (we only use kiln-dried timber)
- particularly few knots

Formally, hardwoods are defined as types of wood with a bulk density of 0.55 g/cm<sup>3</sup> when dry. Well-known examples of 100 per cent hardwood of European origin include beech, oak and ash. The actual tree species from which the processed and supplied timber is sourced varies from time to time, depending on the availability of the raw material. At present, we use Meranti timber particularly frequently, as it is characterised by its high dimensional stability and weather resistance. (Other names: Seraya or Balau).

### OILING

Without oiling, any hardwood will turn grey within a few months and take on its characteristic silvery appearance. The greying of the wood's surface is a natural process. When exposed to the elements, photochemical, physical and biological processes take place in combination with natural light. During this process, lignin – which acts as a binding agent for the wood's cellular structure – is leached out of the wood. To preserve the wood's colour for longer, it is advisable to oil the wood once or twice a year, as required. The oil seals the pores of the wood, preventing dirt from settling immediately and making cleaning easier.

We recommend linseed oil or linseed oil varnish, which have been used for centuries as natural wood preservatives. The seat surface must be clean and dry before oiling. To ensure the oil penetrates as deeply as possible into the wood, we recommend diluting the varnish with turpentine and applying it several times if necessary. Linseed oil varnish cures significantly faster than pure, cold-pressed linseed oil, but may still take a few days.



Note: Surfaces treated with linseed oil will darken over time as they are exposed to the elements, more so than surfaces without linseed oil.

Warning: For seat cushions that have been oiled at the factory, please check before first use that the protective oil has dried completely!

## WOOD IS A NATURAL PRODUCT

Wood is and always will be a natural product. It is the irregularities in its grain, colour and structure that make wood what it is: a natural and appealing building material. 100 per cent tropical hardwood comprises the very best types of wood available and those best suited for bench seats. Nevertheless, even this material is not perfect. For example, there are:

- Wood inclusions
- Resin extrusions
- Colour differences
- Delay
- Cracks
- Wormholes

As modern street furniture is not usually designed to have a 'weathered wood' look, wormholes are not desirable in this case, but they must nevertheless be expected from time to time:



*Example:  
Wormholes in 100 per cent  
hardwood of tropical origin.*

As a general rule, even with 100% hardwood, you should expect knots, variations in colour, cracks, resin pockets, warping and wormholes. If these occur in the seat cushions, this does not constitute grounds for a complaint.

Please note: If you would prefer the seat panels to have a perfect, uniform appearance, we would be happy to provide you with a quote for replacing the seat panels with an industrially manufactured alternative product such as RESYSTA® or plastic-coated metal.

# RESYSTA®

## ECOLOGICAL AND SUSTAINABLE

### OVERVIEW

RESYSTA® is a naturally derived natural fibre composite with a wood-like appearance, consisting mainly of rice husks. Through a special process, these are homogeneously bonded within a polymer matrix, thereby achieving high material durability as well as a wood-like look and feel. This results in a number of favourable properties, making the material ideally suited for use as seat padding on benches.

RESYSTA® is a fibre-reinforced hybrid material, comprising approximately 60 per cent rice husks, approximately 22 per cent rock salts and approximately 18 per cent mineral oil. This composition makes it both environmentally friendly and extremely resistant to external influences such as sun, rain, snow or salt water.



*approx. 60% rice husks + approx. 22% rock salt + approx. 18% mineral oil = RESYSTA®*

*Components of RESYSTA®  
(Image source: RESYSTA®)*

### COMPARISON: RESYSTA® – WPC

WPC (Wood Plastic Composite) usually consists of a mixture of wood flour and polypropylene or polyethylene. Over time, WPC fades and the material turns grey. Unlike RESYSTA®, WPC can absorb water and swell.

### COMPARISON: RESYSTA® – 100% HARDWOOD

RESYSTA® is an extruded natural fibre composite with a wood-like appearance. Specific details regarding weather resistance, resistance to fungi and insects, as well as swelling, cracking and splintering behaviour, should be provided in accordance with the manufacturer's current technical data sheet and the test conditions specified therein.

RESYSTA® is virtually indistinguishable from 100% hardwood, both visually and to the touch. RESYSTA® products are worked and installed using the same tools as those used for working with wood.

RESYSTA® is particularly suitable as seating material where a wood-like appearance, low maintenance requirements and a uniform material surface are required.



Under normal weathering conditions, natural timber turns grey within 12 months and develops its characteristic silvery patina. The surface of RESYSTA®, on the other hand, retains its original colour for a very long time, even without any maintenance.



*Example: Comparison of the greying of RESYSTA® and hardwood after approximately 24 months*

## LIMITATIONS OF RESYSTA®

As well as all the advantages offered by the wood-effect natural fibre composite, there are also some limitations to its use:

- The manufacturing process is complex and costly – RESYSTA® is not a cheap product.
- Self-supporting structures are often required for bench tops. RESYSTA® is not suitable for this purpose. A sturdy supporting structure is therefore fitted to the benches.
- RESYSTA® is extruded, i.e. forced out of a nozzle or die under pressure as a solid to viscous mass. This significantly limits the choice of cross-sections. However, it can be shaped when heat is applied, meaning that even special projects can be realised, albeit with additional effort.



## CARE

The surface can be cleaned using standard, neutral, water-based all-purpose cleaners and a soft sponge. To be on the safe side, always test on a small area first.

The surface can be cleaned mechanically using a gentle jet of water vapour.

For particularly stubborn stains, there are highly concentrated, phosphate-free specialist cleaners that are specifically formulated for this product. Please ask your specialist installer for advice. With RESYSTA®, mechanical cleaning using brushes and scrubbing pads is also possible.

# THERMOASH

## FROM TEMPERATE FOREST REGIONS

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### OVERVIEW

Thermo-ash is a native timber species which, through a special thermal treatment, is enhanced to possess properties comparable to those of tropical timber in terms of lifespan, swelling and shrinkage behaviour. Nevertheless, wood is a natural product. In practice, this means that warping, colour variations, cracks, resin exudations, knots and other irregularities are to be expected.

### HEAT TREATMENT

During thermal treatment, the ash is first dried to 0 per cent moisture content to prevent the formation of severe drying cracks during the high-temperature phase. The timber is then heated to over 160°C for 24 to 48 hours in an oxygen-reduced atmosphere. This thermal treatment increases resistance to rot and reduces water absorption. The breakdown of organic substances deprives wood-destroying organisms of their food source. In the final phase, the timber is re-moistened to 5 per cent moisture content to minimise swelling after installation and to make the timber more pliable. Thermally treated ash falls within durability class 1–2 (service life of up to 20 years) and is suitable for outdoor use without the need for chemical wood preservation.

### CRACKS

Surface cracks are also normal in heat-treated timber, and minor stress cracks may occur. Stress cracks occur mainly at the ends, as water absorption and release are higher there. Stress cracks are a natural characteristic of timber and do not constitute grounds for a complaint.

The change in water absorption capacity increases the tendency for the timber to swell, shrink and warp. However, susceptibility to longitudinal cracks – for example, when drilling or driving in screws – increases. It is therefore essential to pre-drill holes.

### WARPING

As a result of the heat treatment, thermal timber is less prone to warping or 'shrinkage' than conventional types of timber; however, this cannot be entirely ruled out and therefore does not constitute grounds for a complaint.



## COLOUR DIFFERENCES

Colour variations are a natural characteristic of wood as a natural product and do not constitute grounds for a complaint. Like all types of wood, thermo-ash turns grey as a result of natural weathering. However, this does not affect its durability. To preserve the wood's colour for longer, it is recommended that you oil the wood with thermo-wood oil once or twice a year, as required. The wood oil seals the pores of the wood. This prevents dirt from settling immediately and makes cleaning easier.

## OILING

Without oiling, any wood will turn grey within a few months and take on its characteristic silvery appearance. Under moderate conditions, thermo-ash typically has a lifespan of up to 20 years. Oiling does not significantly extend this lifespan. The sole purpose of oiling is to delay the greying of the wood. We recommend linseed oil or linseed oil varnish, which have been used as natural wood preservatives for centuries. The seat surface must be clean and dry before oiling. To ensure the oil penetrates as deeply as possible into the wood, we recommend diluting the varnish with turpentine and, if necessary, applying it several times. Linseed oil varnish cures significantly faster than pure, cold-pressed linseed oil, but may still take a few days.

Please note: For seat surfaces that have been oiled at the factory, check before first use that the protective oil has dried completely!

Note: Under no circumstances should you clean the wooden seat surfaces with a high-pressure water jet. Otherwise, the water pressure will damage and open up the wood fibres on the surface. As a result, the wood will weather much more quickly.

### OVERVIEW

KEBONY® is a certified pine timber (*Pinus sylvestris*) which, thanks to a patented treatment with furfuryl alcohol, achieves properties similar to those of tropical hardwoods. The timber is first impregnated with the bio-alcohol and then heat-dried. During this process, the original softwood hardens and the cell walls become 50 per cent thicker. For the seat panels, we use exclusively the particularly high-quality KEBONY® CLEAR grade, which is free from knots.

### CHEMICAL-THERMAL TREATMENT

The chemical and thermal treatment ensures that the wood achieves a degree of hardness on a par with the finest tropical woods. The impregnation process also makes this natural material highly dimensionally stable and more resistant to rot, fungal attack and other wood-destroying micro-organisms, and it is virtually splinter-free.

### FEATURES

KEBONY® seat surfaces are dark brown in colour and develop a silver-grey patina as they are exposed to the elements. According to the manufacturer, KEBONY® has a service life of over 30 years when used outdoors.

### CARE

KEBONY® timber is very easy to look after and requires no further treatment apart from normal cleaning with a broom or brush and water.

Stubborn stains can be removed using a brush, water and standard household cleaning products.

### ENVIRONMENTAL ASSESSMENT

KEBONY® is environmentally friendly to manufacture, contains no toxic substances or chemicals that are harmful to health, and can therefore be used indoors and outdoors without any concerns.

### LIMITATIONS

KEBONY® should not be planed, as this would expose the untreated heartwood. Consequently, the choice of cross-sections is limited.



## EXAMPLES OF USE



*GARDA bench with a Corten steel frame and a seat made from KEBONY® pine*



*MERAN log bench with a Corten steel frame and a KEBONY® seat*



*ALVARO storage box with a Corten steel body and a KEBONY® seat*

# LARCH WOOD

## NATURAL WOOD

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### OVERVIEW

Among European coniferous timber species, larch has the heaviest and hardest wood. Nevertheless, its lifespan is significantly shorter than that of 100 per cent hardwood. Nor can its strength properties and the uniform texture that is often sought after be compared with the excellent properties of tropical hardwood. Larch timber is used in particular when tropical hardwood is to be avoided and the user is prepared to accept its significantly less favourable physical properties.

### OILING

Without being oiled, larch wood turns grey within a few months and takes on its characteristic silvery appearance. The greying of the wood's surface is a natural phenomenon. When exposed to natural light, photochemical, physical and biological processes take place. During this process, lignin – which acts as a binding agent for the wood's cellular structure – is leached out of the wood. To preserve the wood's colour for longer, it is advisable to oil the wood 1–2 times a year, as required. The oil seals the pores of the wood. This prevents dirt from settling immediately and makes cleaning easier.

We recommend linseed oil or linseed oil varnish, which have been used for centuries as natural wood preservatives. The wood must be clean and dry before oiling. To ensure the oil penetrates as deeply as possible into the wood, we recommend diluting the varnish with turpentine and, if necessary, applying several coats. Linseed oil varnish cures significantly faster than pure, cold-pressed linseed oil, but may still take a few days.

Please note: For seat surfaces that have been oiled at the factory, check before first use that the protective oil has dried completely!

Note: Under no circumstances should you clean the wooden seat surfaces with a high-pressure water jet. Otherwise, the water pressure will damage and open up the wood fibres on the surface. As a result, the wood will weather much more quickly.

### WOOD IS A NATURAL PRODUCT

Wood is a natural product. It is the irregularities in its grain, colour and structure that make wood what it is: a natural and appealing building material.

For example, there are:

- Colour variations
- Knot inclusions
- Resin pockets
- Cracks
- Warping
- Wormholes



## MARKED COLOUR DIFFERENCES IN LARCH

The following applies to all timber products: timber is a natural product and variations in colour are to be expected. These are an inherent part of the product and do not constitute grounds for a complaint.

The larch trunk exhibits a particularly pronounced contrast between dark heartwood and light sapwood. The annual rings are particularly easy to distinguish in larch, as the relatively light earlywood stands out sharply against the significantly darker latewood. Larch forms numerous dark knots in the heartwood, each about the thickness of a pencil; these develop early on and then grow into the wood as dry, nail-like knots. Larch timber will therefore always exhibit a relatively high degree of colour variation compared to other types of wood. This variation diminishes as the wood weathers and turns grey.

## RESINS AND KNOTS

Resin seepage occurs time and again, particularly around knots, during the first few years, for example as a result of exposure to sunlight. Knots and resin seepage are a natural part of the product and do not constitute grounds for a complaint.

## CRACKS IN THE WOOD

If the wood dries out, for example due to strong, direct sunlight, cracks will form along the grain. These can be over 1 cm wide; they are a natural feature of the product and do not constitute grounds for a complaint. Once the wood has reabsorbed sufficient moisture, the cracks will largely disappear again.

## WORMHOLES

As modern street furniture is not usually designed to have a 'weathered wood' look, wormholes are not desirable in this case; nevertheless, they are to be expected with larch timber.

Please note: If you would like the seat surfaces to have a perfect, uniform appearance, we would be happy to provide you with a quote for replacing the seat surfaces with an industrially manufactured, sustainable and eco-friendly product such as RESYSTA® or plastic-coated metal.

# METALLIC BLACK

## TIMELESS AND DURABLE

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### OVERVIEW

Black seat covers are elegant, timeless, go well with practically any style and are particularly sturdy thanks to their metal core. In the exceptionally robust seat covers from Gartenmetall®, the base metal is coated with a special plastic to such a thickness that it ensures a comfortable seating experience.

The special, innovative plastic coating for seat covers originates from the automotive sector. It is elastic, UV-stable, particularly tear-resistant and suitable for the high demands of public spaces. The material is heat-insulating and temperature-resistant from -50 °C to 150 °C.

Note: Due to the heat-insulating effect combined with the black surface, the seat surface may become too hot for the skin in strong sunlight. In such cases, please only sit down whilst wearing long clothing and avoid direct skin contact with the seat surface.

### SURFACE REPAIR

In the case of vandalism in particular, the surface may be damaged by sharp objects (e.g. knives). This can be repaired relatively easily using a special repair compound.

### CARE AND CLEANING

If necessary, the surface can be cleaned using any standard commercial cleaner. To prevent damage to the material, test the cleaner on a small area first to be on the safe side. Should the seat surfaces fade after a few months, they can be treated with a suitable, self-drying protective oil. Please consult the specialist firm that installed the product for advice on this. Cleaning with a high-pressure water jet works very well, as the surface is durable and flexible.



## EXAMPLES OF USE



*FÜSSEN bench with a Corten steel frame and a metal seat with a black plastic coating*



*HALLE bench with a Corten steel frame and a metal seat with a black plastic coating*



*FÜSSEN bench with a stainless steel frame and a metal seat with a black plastic coating*



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