



# LightBeton<sup>®</sup>

Technical processing information



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This product data sheet describes the composition of LightBeton® and provides information about handling, processing, usage and disposal of this material.

LightBeton® has no hazardous materials according to the Law on Chemical Substances and does not require any hazard markings, nor does it need any safety data sheet.

Our application of technical recommendations in written and spoken that we use to support the buyer / processor based on our experience, according to the current state of knowledge in science and practice, are not binding and shall not establish a legally valid contractual relationship, and no addition to obligations under the purchase contract. You do not absolve the buyer from our products for their suitability for the intended purpose to examine themselves.

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## 1 Material description

The raw materials for the production of LightBeton® are comparable to those used for the production of concrete. In the production of LightBeton® there are no variations of the w/c-ratio<sup>1</sup> (water-cement-ratio), and no atmospheric influences either. This produces a uniform color of the surface.

All LightBeton® surfaces are already coated with a water-based polyurethane resin impregnation at the factory. This standard coating is suitable for vertical surfaces with low dirt loads. The impregnation protects the concrete layer from dirt penetration by sealing the pores. Light soiling can be removed with a damp cloth and a neutral and mild detergent.

LightBeton® surfaces for horizontal applications on tables, floorings etc. are exposed to heavier soiling, so the finished work piece should receive two applications of polyurethane resin impregnation. LightBeton® surfaces that are exposed to heavier soiling or mechanical strain need to be tested first for their suitability by the end user.

The LightBeton® surface "classic anthracite" is lacquered and impregnated with a polyurethane-based two-component lacquer (DD lacquer) at the factory due to coloration reasons. Additional coatings have to be carried out by intermediate sanding and application of DD lacquer.

## 2 Tolerances in the LightBeton surfaces

Due to the manufacturing process and the use of natural raw materials, different surface characteristics will be visible. We have no control over this. These natural variances can only be examined after the forms are removed and dismantled. We will correct these variances if necessary.

In the following, the limit values based on the DIN 18217 "Concrete surfaces and formwork sheeting" will be described and recorded. The color tone might show slight differences within the same panel, even if the coating and the composition remain constant. The w/c-value always remains unchanged. Also, the color tone of the panels among one another might slightly differ.

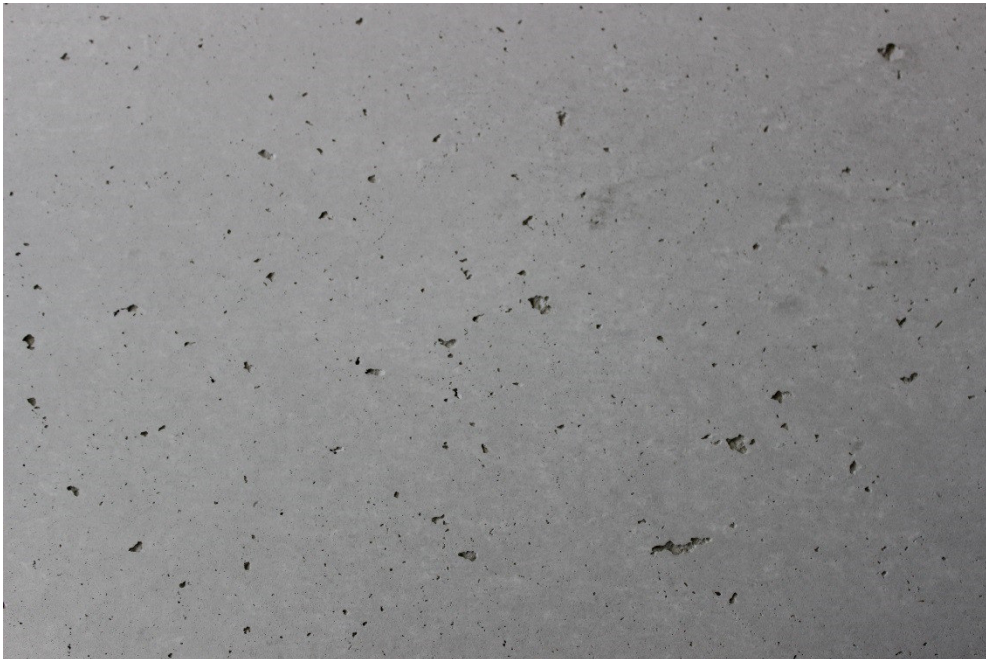
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<sup>1</sup> The w/c-value describes the ratio between the amount of water and the amount of cement resulting in a compact mixture.

- a) Surface areas with no air pockets might partially occur.



- b) An even air pocket size or distribution pattern is not possible.



- c) Slight scratches on the sheeting will be present on the surface due to the formwork characteristics and are typical of all concrete materials.



- d) Lump information or honeycombing possible as with all concrete mixtures.
- e) Use caution with the application of all adhesive tapes. Adhesive tapes could leave their residue on the pores of the surface. Using any parcel tape is not recommended.

### 3 Application fields

LightBeton is suited for:

- Wall paneling and surfaces for interior décor.
- Furniture making
- Tabletops
- Counters
- Trade-show floorings
- Retail fixtures and displays
- Columns/pillars

## 4 Transport and storage

### 4.1 Transport

Transportation of LightBeton® panels should only be on a pallet which is larger than the panels so they will not be damaged. When stacking LightBeton® panels their layers should be safely secured to prevent slippage during transportation by forklift or truck. It is recommend to use straps in combination with protective edges or protective panels. While handling single LightBeton® panels it is strongly recommended to wear gloves. When lifting the panels do not allow excessive bending of the product because they may break. We further recommend gripping the LightBeton® panels at the sides or top edges with your whole hand (see Illustration 1).



*Illustration 1 Handling of the LightBeton-Layer*

## 4.2 Storage

LightBeton® must be stored in a closed and dry room with temperatures of about 10°C to 20°C (50°F to 68°F). After removal of the packaging LightBeton® must be stored completely flat and the edges flush. For the protection of the top panel of the LightBeton® stack it should be covered by a foam layer and a protective panel of at least the same size. The concrete surfaces cannot be moved against each other or pulled out from between other panels as this will cause chips or scratches on the surface.

## 5 Processing guidelines

### 5.1 Carrier materials/balancer

The carrier material has to comply with the corresponding application purpose. Suitable are all wooden materials as well as lightweight construction materials. When mounting LightBeton® onto a carrier panel the panel must be balanced. A material equal in thickness and density must be placed on the opposite side of the panel surface from the LightBeton®. This will prevent the panel from warping or cupping. Any attached balancing material needs to be at least 160 g/m<sup>2</sup> (0.033 lbs. / sq. ft).

When using LightBeton® as a floor or wall paneling the climate has to be taken into account. Among others, HPL, chipboards, HDF and MDF have proven to be the best carrier materials. For using LightBeton® in wet rooms use a suitable moisture resistant carrier material.

### 5.2 Bonding

The LightBeton® layer can easily be bonded with standard dispersion adhesives and reactive resins. Follow the adhesive manufacturer's guidelines.

When bonding LightBeton® to different carrier materials take note of the different expansion and contraction behaviors of the two materials especially with dispersion adhesives as these introduce moisture into the mix. The bonding of the LightBeton® to the carrier plate and then to the balancing material is done with PUR hot-melt adhesive at the factory. For a waterproof bond use the appropriate adhesive following PUR adhesive manufacturer's guidelines. For all applications on vertical or horizontal surfaces the surfaces must be dry, dust and oil free.

A waterproof adhesive does not ensure the protection of the carrier material. For this reason all carrier materials in wet areas should be waterproof or at least moisture resistant. After applying the material that will receive the LightBeton make sure all joints and edges are sealed with the appropriate joint materials. Avoid any edges and transition areas where water can collect.

### 5.3 Bonding on different carrier materials

#### Glass fiber matrix (raw material LightBeton-Layer)

Bonding only with Poly Urethane-Adhesives (PUR) or special Adhesives (Contact adhesives / 2-component-adhesive) for wall, ceiling, etc.



Bonding of LightBeton on carrier materials with adhesives that contain a high part of water is not recommended. The moisture can affect the LightBeton structure and cracks can occur.

Urea based adhesives are not suitable for bonding of LightBeton because the adhesive releases with moisture!

#### LightBeton on wood based carrier (LightBeton on MDF)

Carrier materials such like MDF, HDF, Plywood or particleboard - for furniture or other interior fittings - are able to be adhered with nearly every common adhesives for wood based materials.

### 5.4 Compression

We successfully press LightBeton according to the adhesive type, a compression temperature of approx. 80°C (176°F) and a compression time of approx. 3 minutes. The pressure will vary according to the panel press machine's configuration and manufacturer.

As with standard laminates an adhesive with a moisture content left too long in contact with the LightBeton® panel may warp or cup due to the adhesives. For this reason, a quick layering and compression has to be utilized.

### 5.5 Tools required

LightBeton® contains both a natural mineral and cementitious ingredients and can easily be cut with standard carbide-tipped saws. The lifetime of the tools is comparable to those for processing laminate panels. Upon cutting a panel faced two sides with LightBeton® an underside scoring blade should be used to avoid material chipping. Cutting of panels layered with LightBeton® can basically be done with all standard saw tooth types. We recommend alternate bevel, triple chip carbide tipped saw blades with a thickness of 4.5 mm (1.18"). For cutting thinner LightBeton® panels we recommend using a thinner saw blade.

In order to achieve a better cutting quality, we recommend covering the LightBeton® with a thin HDF panel or hardboard when cutting.

When milling larger lots of LightBeton we recommend using diamond-tipped tooling.



Regarding all milling and sawing operations standard cutting speeds used in the woodworking industry should be taken into account. Blunt tools, too high rotation speeds and too low feed rates cause frictional heat and increased tool wear. AS when operating any machinery always use safety glasses and the proper personal protection equipment.

When fastening metal fittings or other objects onto the surface of LightBeton® pre-drill at least in the size of the screw shank diameter (less flutes) in order to avoid possible material stress. Regarding wet areas, all openings and drilled holes have to be sealed with the proper sealants in order to prevent water from entering.

## 5.6 Edge processing

### 5.6.1 Edgebanding

The 2 mm thick LightBeton® panel is suitable for surfaces and edges. Due to the different feeding angles on automatic edgebanding machines, the edges are exposed to different wear conditions. Because of the fiber glass matrix on the backing, the LightBeton® edge is only bendable to a certain extend. The edge's flexibility can be improved through warming it up with a heating rail or through an electrical heat press. A relative humidity of approx. 60-70% also has a positive effect on the processing properties. The LightBeton® edges can be adhered with any standard hot-melt adhesives.

Regarding LightBeton® "classic anthracite", we recommend covering the surface with paper as it has a matt surface so traces of the edge-bander's feed belt may become visible.

### 5.6.2 Beveling/rounding

After the edgebanding process, the fiber glass matrix of the edge material might be visible. In order to fix this, the edge should be re-cut with a sharp carbide router bit. Moreover trimming, beveling and rounding of the LightBeton® edge is similar to processing solid wood slats. The milling of the bevel or rounding should be protected from soiling by protecting the surface. We recommend re-coating with the sealer by using a foam roller. Excess sealer on the surface or the edge can be removed with a cloth.

## 6 Cleaning and maintenance

Although the surface of LightBeton® is sealed at the factory, soiling or stains should immediately be removed by using a soft cloth with warm water. Do not use household detergents with any abrasive and highly acidic or alkaline agents for they may create scratches or changes regarding the gloss level. Afterwards wipe/dab the surface with a clean and dry cloth.

Horizontal LightBeton® surfaces should only be cleaned with a damp cloth. Not a wet cloth! In the case of a fluid spill the liquid should be removed the fastest way possible and only be wiped with a damp cloth. Swelling of some carriers can occur due to moisture intrusion at the joints.

#### Tips for the daily use

LightBeton® does consist of real concrete and a strong sealer applied to the surface but contact with extensive heat may cause changes or damages of the surface. For this reason, please always use heat protection (trivets, pot stands). Furthermore do not use the surface for cutting as this can cause damage to the surface and the cutter.

## **7 Disposal**

LightBeton® can be disposed of at any sites that comply with national and/or regional regulations.

## 8 Technical Data

### General Properties (raw material)

front:		Cement with sheathing characteristic surfaces
carrier:		fire retardant MDF
back:		HPL white
size (max.):		3,020 x 1,250 mm
thickness:		approx. 19 mm
density:	LightBeton	1,950 kg/m <sup>3</sup>
	MDF, fire retardant	820 kg/m <sup>3</sup>
	HPL	1,400 kg/m <sup>3</sup>
Mass per unit area:		16.4 kg/m <sup>2</sup>

### Technical Properties (raw 2 mm surface material)

Abrasion resistance:	[DIN 68861-2 and DIN 68930]	Stress group: 2A (High abrasion resistance)
Scratch resistance:	[DIN 68861-4 and DIN 68930]	Stress group: 4E (Fits worktop-requirements)
Chemical exposure:	[DIN 68861-1 and DIN 68930]	Stress group: < 1D
Behavior at dry heat:	[DIN 68861-7 and DIN 68930]	Stress group: 7C
Behavior at moist heat:	[DIN 68861-8 and DIN 68930]	Stress group: < 8C
Resistance to fading:	[DIN EN 15187]	Blue-Scale: <6 Grey-Scale: 3/4
Deformation resistance:	[DIN 68930]	no visual or dimensional changes
Fire behavior:		individual assessment, certified boards on request

All test values refer to raw, uncoated/not impregnated surface.

The given dimensions of 3,020 x 1,250 mm (118.9" x 49.21") are stock sheets and still have to be finish-trimmed.