

**BLOMBERGER HOLZINDUSTRIE
B. HAUSMANN GMBH & CO. KG**

Delignit®
NATURALLY SUPERIOR

**Delignit® Railfloor –
System floor solutions
for rail vehicles**



Our Raw Material is Beech

Delignit[®]
NATURALLY SUPERIOR

Delignit[®] originates from beech laminated plywood and is built up in layers.

Delignit[®] is the ecological design construction material for standard and customer-specific system solutions.

We offer **Delignit**[®] - enhanced, surface treated ready-made, assembled and just-in-time.

We develop and manufacture **Delignit**[®].

The traditional wood construction industry, the aircraft industry, even the Formula 1 – they all rely on **Delignit**[®]. And for a good reason: we process native beech trees. Beech provides an excellent combination of hardness, strength and durability. With regard to these characteristics, beech surpasses birch by one third. As well, the favourable ratio between weight and tensile strength is not exceeded by any other wood material. Our quality management system is certified according to the current DIN EN ISO 9001:2008 and ISO TS 16949:2009 standards (thus meeting the highest quality demands in the German automotive industry).

Special properties of beech

- Harvest age: 120–140 years
- Raw Density: approx. 0,69 g/cm³
- Beech is one of the toughest and strongest types of wood and weighs only 1/10th that of structural steel of the same dimension and is 1/3rd as strong.

Delignit® Railfloors

In public passenger transport, especially in rail transport, very specific requirements are placed on construction. With increasing population densities and raised environmental awareness, the ratio of rail sections running in tunnels and tubes is rising. To guarantee a time window large enough to rescue the injured in the case of a fire, the use of low-emission materials in construction of rail vehicles is of the greatest importance.

The **Delignit®** Railfloor system solutions combine fire and emission protection in an ideal way and provide supplementing properties such as sound insulation, thermal insulation and vibration reduction.

The **Delignit®** Railfloor Professional Line fulfils the highest fire protection requirements according to international standards such as F1 according to NFF 16101 (France), S4 according to DIN 5510 (Germany), 1a according to UNI 8457 and UNI 9174 (Italy) and EN TS 45545-2.2013 (Europe).



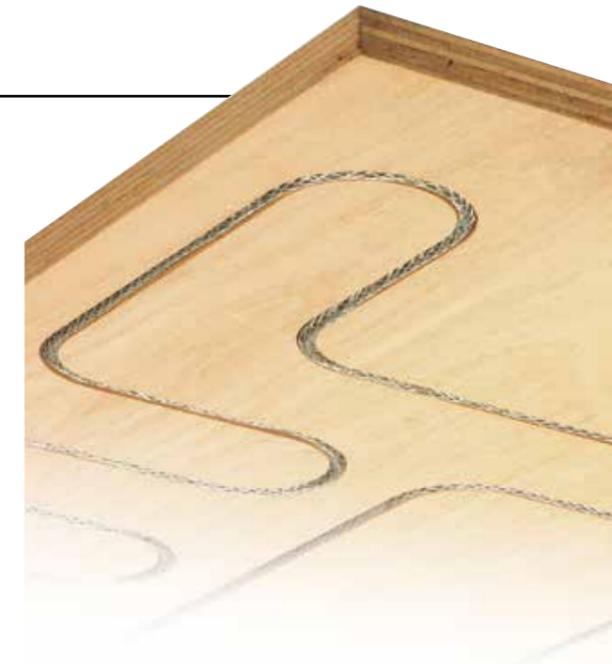
The **Delignit®** Railfloor Professional Line combines the highest fire protection requirements with weight optimised layers. In addition to the standard versions, increased vibration protection and low heat transfer coefficient are the characteristics of this version. We are happy to tailor an optimal specification and processing during the design stage. We try to find the optimum version in close communication with our customers and to offer cost efficient, optimised solutions. We have the support of the full manufacturing chain control, from the beech log all the way to the end-processed wooden panel for this purpose.

Programm Rail

Model Name	Delignit® Railfloor Eco Light	Delignit® Railfloor Eco	Delignit® Railfloor Basic	Delignit® Railfloor Basic-Granulate S3/S4	Delignit® Railfloor Basic-Foil S3/S4	Delignit® Railfloor Professional S3/S4
Fire protection						
<i>Europe</i> CENTS 45545-2:2013	yes*)	yes	yes	yes*)	yes*)	yes*)
<i>Germany</i> DIN 5510, Teil 2	S3	S3	S4	S4*)	S4	S4*)
<i>France</i> NF F 16101	F1	F1	F1	F1*)	F1*)	F1*)
<i>Italy</i> UNI 8457-8457/A1 UNI 9174-9174/A1	1b*)	1b	1a	1a*)	1a*)	1a*)
Sound protection DIN EN 140-1 DIN EN 140-3 DIN EN 717-1	12 mm = 24dB 18 mm = 26dB 20 mm = 27dB	12 mm = 27dB 18 mm = 30dB 20 mm = 32dB	12 mm = 29dB 18 mm = 31dB	12 mm = 32dB 18 mm = 33dB	12 mm = 35dB 18 mm = 35dB	22 mm = 33dB
Thickness	12–30 mm	12–30 mm	12–30 mm	12–30 mm	12–30 mm	22 mm
Formaldehyde Emission-classe (EN 636-2)	E1	E1	E1	E1	E1	E1
Gross density	approx. 600 kg/m ³	approx. 770 kg/m ³	approx. 840 kg/m ³	approx. 600–850 kg/m ³ **)	approx. 980–1180 kg/ m ³	approx. 540 kg/m ³
Surface	uncoated lacquered*) film coated*)	uncoated lacquered*) film coated*)	uncoated lacquered*) film coated*)	uncoated lacquered*) film coated*)	uncoated lacquered*) film coated*)	uncoated lacquered*) film coated*)
Standard dimensions	l. 2500 mm b. 1500 mm	l. 2500 mm b. 1500 mm	l. 2500 mm b. 1500 mm	l. 2500 mm b. 1500 mm	l. 2500 mm b. 1500 mm	l. 2500 mm b. 1500 mm
Max. dimensions	l. 3100 mm b. 1850 mm	l. 3100 mm b. 1850 mm	l. 3100 mm b. 1850 mm	l. 3100 mm b. 1850 mm	l. 3100 mm b. 1850 mm	l. 3100 mm b. 1850 mm

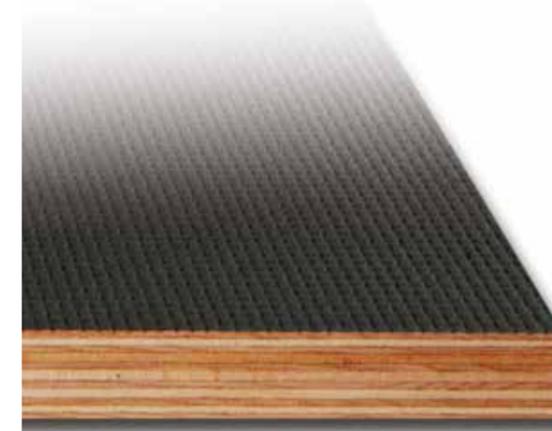
*) Upon enquiry

**) intermediate cork-granulate: 600–650 kg/m³
cork-rubber-granulate: 780–850 kg/m³



The **Delignit®** Railfloor Basic Line distinguishes itself through high efficiency in combination with great flexibility. We fine-tune optimum fire protection according to the specifications of our customers and project-oriented objectives. This means that no resources are lost unused. The same applies to the degree of sound insulation and vibration protection, as well as heat transfer. With our modular system, our customers achieve optimum efficiency in their desired specification. We are happy to equip all versions with special technical solutions such as heating elements. Please don't hesitate to contact us.

The **Delignit®** Railfloor Eco Line is the ideal solution for standard applications without special technical demands. It goes without saying that the current international standards are met. This version also meets fire protection classification according to S3 in accordance with DIN 5510, F1 according to NF F 16101 or 1B according to UNI 8457 – 8457/A1.



System solutions for rail vehicles



For special safety demands in passenger transport:

The special properties of beech wood (*Fagus Silvatica*) are decisive for the technologically exacting requirements placed on the **Delignit®** material. The enormous hardness of beech wood in combination with its disposition to absorb chemical components via watery solutions allow refining of the natural material wood. This means that **Delignit®** is ideally suitable for applications where static load-bearing capacity in combination with fire protection play a decisive role. Used since the 1930s as underbodies for omnibus construction, **Delignit®** has since proven its technical capacity and outstanding technical fire protection properties over and over again. When used in combination with other materials these performance characteristics make **Delignit®** materials an ideal, flexible and efficient solution for rail vehicle and bus construction.

Groundbreaking Materials

When in 1893 the very first beech plywood panel the world had ever seen was created in our Blomberg plant, it was beginning of a new era.

A material of such high-grade stability and flexibility, while still light weight, was at the time one-of-a-kind. The product quickly found use purposes in various applications and in so doing also changed the design approaches in automotive construction. Among other things, this led to the creation of lightweight bus construction design.

Just as innovative was the development of the **Delignit®** long-lasting flooring panels for heavy duty truck super-structures. Today **Delignit®** is more than ever a modern, extraordinary construction material with advantages that convince. Due to the special material properties such as high stability and hardness with high abrasion and wear resistance, the **Delignit®** vehicle products continue to hold multiple uses from transport all the way to motor racing.



The All-Inclusive Delignit Package



As a manufacturer and supplier of wood products for rugged and long-life standard equipment for every aspect of vehicle manufacture, we will continue to work together with our customers to develop innovative application solutions in the future.

Our work begins with the purchase of raw materials, includes the manufacture of mutually defined base material quality and ends when the final machining has been matched with the just-in-time supply of the customized equipment.



Our quality management system is certified per DIN EN ISO 9001:2008 as well as ISO TS 16949:2009 (highest standard in the automotive industry). As a part of our quality management, we strive to monitor the excellence and quality of our products and to consistently improve them.

While applying our manufacturing know-how, all individual parameters can be combined freely and can be directly influenced. This means that our customers have the opportunity to receive solutions from one source.



Delignit[®]
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developed by

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Ein Unternehmen der Delignit AG.

