



# COMPWOOD

## SELF-DECLARATION ACC. TO DIN EN ISO 14021

**Holder of the declaration:** Lindner AG | Bahnhofstraße 29 | 94424 Arnstorf | Germany

**Content of the declaration:** Product information  
Certification system DGNB  
Certification system LEED  
Certification system BREEAM  
Circular Economy

## PRODUCT INFORMATION

### Green Building Statement

We already think in closed cycles while developing our products. In this connection we act as one of the specialists within the range of sustainable building since many years. Supported by our internal technical department „Green Building“ we ensure the sustainability target of your building project.

### Product description

#### COMPwood – aluminium lightweight panel

COMPwood – real wood veneered aluminium lightweight panels with fire classification E (normally inflammable). The product version COMPwood acoustic with a micro perforated surface also contributes to effective room acoustic regulation. Thanks to their low weight, high rigidity and minimal deflection, these elements are perfect for large-format and curved applications.

### Application area

COMPwood panels are perfect for large-format and curved applications. They are designed as system-independent, decorative ceiling and wall claddings. The panels are manufactured individually for each project and pre-assembled in the factory.

### Base materials

Basic materials per 1 sqm with an edge length of 1 m = approx. 5,5 kg		
System Components	Material	Weight proportions (%)
Aluminium panels	EN AW 3005	~ 65.5
Aluminium honeycomb	Aluminium alloy 3003	~ 16
Surface adhesive	Polyurethane product	~ 4.5
Veneer	Type of wood according to customers choice	~ 11.5
Lacquer	UV-curing lacquer, matt	~ 1.5
Edge material	Veneer edge 1 mm, type of wood according to customers choice	~ 0.3
Acoustic fleece	Textile fibre (cellulose + glass)	< 1.0

### Material explanation

#### Aluminium

The recycled content of the aluminium blanks is approx. 75 % (declared by the manufacturer: October 18, 2018). It is possible to specify the pre- and/or post-consumer proportion of the processed material, but this figure is batch dependent and must be requested separately if required.

The recycled content of the aluminium honeycombs is approx. 60 % (declared by the manufacturer: November 14, 2018). A specification between pre- and/or post-consumer proportion does not take place for this material.

#### Veneer and edge material

Type of wood according to customers choice. Subtropical and boreal type of woods will only be used, if there is an existing FSC-certificate, provided by the supplier.

#### Lacquer

The used water based, UV-curing lacquer possesses a VOC content of < 1 %.

## CERTIFICATION SYSTEM DGNB

Not listed characteristics do not apply to this product.

### Environmental Quality

#### ENV 1.1 Life Cycle Assessment of the Building

A life cycle assessment is available for the production site and can be made available if required.

For the product, a project specific EPD can be created in compliance with the applicable standards. This may require additional time and cost.

#### ENV 1.2 Local Environment Impact

Components	Weight proportion (%)	VOC (%)	GISCODE/Emicode	Others
UV-curing lacquer, matt	~ 1.5	0.66	-	-

"-" not relevant acc. to DGNB 2018

As a manufacturer, Lindner fulfils the obligations towards the EU chemical directive "REACH" and has created its own REACH declaration.

The aim of the **REACH** regulation (**R**egistration, **E**valuation and **A**uthorization of **C**hemicals) is to register materials produced and used in the EU and to determine and record their impact on health and environment.

#### ENV 1.3 Responsible Procurement

Our products can be supplied FSC-certified (Chain of custody) and meet all necessary requirements. The values of quality level 3 will always be attained in the standard.

Certificate no.: TUEV-COC-000515

License no.: FSC-C119815

### Economical Quality

#### ECO 1.1 Life Cycle Costs

The useful life of COMPwood is about  $\geq 50$  years (acc. to BBSR-table, aluminium cladding: Code no. 345.311, published by the Federal Institute for Research on Building, Urban Affairs and Spatial Development).

### Sociocultural & Functional Quality

#### SOC 1.2 Indoor Air Quality

Products made by Lindner consist of low-emitting materials e. g. with respect to VOC or formaldehyde. The used, water-based, UV-curing lacquer possesses a VOC content of  $< 1$  %.

#### SOC 1.3 Acoustic Comfort

The COMPwood acoustic execution has been measured to its sound absorption according to ISO 354 and rated according to ISO 11654 with a determined value, sound absorption class C (high absorbent),  $a_w = 0.75$ . In addition, it has been rated acc. to ASTM C 423 with a determined value:  $NRC = 0.75$  (The values depend on the type of perforation and the acoustic inlays).

#### SOC 1.4 Visual Comfort

Type of wood according to customers choice. Subtropical and boreal type of woods will only be used, if there is an existing FSC-certificate, provided by the supplier.

## <sup>1</sup> Technical Quality

### **TEC 1.2 Sound Insulation**

The COMPwood acoustic execution has been measured to its sound absorption according to ISO 354 and rated according to ISO 11654 with a determined value, sound absorption class C (high absorbent),  $a_w = 0.75$ . In addition, it has been rated acc. to ASTM C 423 with a determined value: NRC = 0.75 (The values depend on the type of perforation and the acoustic inlays).

### **TEC 1.5 Cleanability**

All COMPlacq surfaces should be cleaned in general, only with a dry duster. In case of a heavy contamination, it is valid to use a damp cloth (not wet!). If required, it is possible to add a purifier to the cleaning water.

### **TEC 1.6 Deconstruction and Disassembly**

COMPwood panels can be dismantled and replaced by using usual tools. Furthermore, you can clearly separate the components in order to recycle them. Waste that cannot be avoided on site is preferentially put into recycling processes by means of waste management facilities.

## <sup>1</sup> Process quality

### **PRO 1.1 Comprehensive Project Brief**

The system was developed by experienced in-house engineers and experts. It was continuously improved with the experience of several completed projects. Both guarantee a strong basis.

### **PRO 1.5 Documentation for Facility Management**

Customary user, maintenance and care instructions are available.

### **PRO 2.1 Environmental Impact of Construction**

The compliance with project-related requirements regarding a low-waste, low-noise and low-dust construction site as well as all measures regarding soil and ground water protection are ensured by specialised in-house departments. An appropriate verification can be produced and implemented on request by specialized personnel.

### **PRO 2.2 Construction Quality Assurance**

All documents relevant for project documentation can be provided.

**CERTIFICATION SYSTEM LEED**

Not listed credits do not apply for this product.



 **Sustainable Site**

**Construction Activity Pollution Prevention**

The compliance with project-related requirements of an ESC plan is ensured by specialised in-house departments. A complete ESC plan can be produced and implemented on request by specialised personnel.

 **Materials and Resources**

**Construction and Demolition Waste Management Planning**

Waste which cannot be avoided on site is preferentially put into recycling processes by means of waste management facilities. A complete CWM plan can be produced and implemented on request by specialised personnel.

**Building Life Cycle Impact Reduction**

The useful life of COMPwood is about  $\geq 50$  years (acc. to BBSR-table, aluminium cladding: Code no. 345.311, published by the Federal Institute for Research on Building, Urban Affairs and Spatial Development).

Lindner products have a long useful life span. Moreover, certain products can be carefully dismantled and reused after a minor work-up (Circular economy).

A project- specific EPD can be produced in accordance with the valid standards. Additional time and costs have to be considered.

**Building Product Disclosure and Optimization – Sourcing of Raw Materials**

Components	Weight proportion (%)	Recycling content (%)		Production site
		Pre-Consumer	Post-Consumer	
Aluminium board	~ 65.5	~ 75 (from the manufacturers side no distinction is made here)		Göttingen
Aluminium honeycomb	~ 16	~ 60 (from the manufacturers side no distinction is made here)		Bologna
<b>Total</b>	<b>~ 81.5</b>	<b>~ 58.7</b>		<b>Arnstorf</b>

**Building Product Disclosure and Optimization – Material Ingredients**

As a manufacturer, Lindner fulfils the obligations towards the EU chemical directive “REACH” and has created its own REACH declaration.

The aim of the REACH regulation (Registration, Evaluation and Authorization of Chemicals) is to register materials produced and used in the EU and to determine and record their impact on health and environment.

**Construction and Demolition Waste Management**

The scope of delivery only contain panels which are ready for installation and do not have to be processed on site.

Therefore, the product contributes to a noise- and dust-free construction site.

Lindner system products have been designed to minimize processing waste during their installation. Waste that cannot be avoided on site is preferentially put into recycling processes by means of waste management facilities.

## Indoor Environmental Quality



### **Low Emitting Materials**

Products made by Lindner consist of low-emitting materials e. g. with respect to VOC or formaldehyde. The used, water-based, UV-curing lacquer possesses a VOC content of < 1 %.

### **Construction Indoor Air Quality Management Plan**

The compliance with project-related requirements of an IAQ plan is ensured by specialised in-house departments. A complete IAQ plan can be produced and implemented on request by specialised personnel.

### **Indoor Air Quality Assessment**

Products made by Lindner consist of low-emitting materials e. g. with respect to VOC or formaldehyde. The used, water-based, UV-curing lacquer possesses a VOC content of < 1 %.

### **Acoustic Performance**

The COMPwood acoustic execution has been measured to its sound absorption according to ISO 354 and rated according to ISO 11654 with a determined value, sound absorption class C (high absorbent),  $a_w = 0.75$ . In addition, it has been rated acc. to ASTM C 423 with a determined value:  $NRC = 0.75$  (The values depend on the type of perforation and the acoustic inlays).

**CERTIFICATION SYSTEM BREEAM**

Not listed characteristics do not apply for this product.

**Management****Man 02 Life cycle cost and service life planning**

Lindner products have a long service life (due to their resources, manufacturing processes and their high production quality). The useful life of COMPwood is about  $\geq 50$  years (acc. to BBSR-table, aluminium cladding: Code no. 345.311, published by the Federal Institute for Research on Building, Urban Affairs and Spatial Development).

Lindner products have a long useful life span. Moreover, certain products can be carefully dismantled and reused after a minor work-up (Circular economy).

**Man 03 Responsible construction practices**

All companies of the Lindner Group meet the requirements of an environmental management system.

For ISO 14001, ISO 50001, SCC \*\* and OHSAS certified companies within the Lindner Group, additional specific environmental and safety objectives are defined in conjunction with the annual management review.

The implementation of environmental protection and the relevant legal regulations are defined in the Lindner internal guideline "Environmental Protection".

**Health and Wellbeing****Hea 01 Visual comfort**

For all COMPwood all common veneer types can be used. Subtropical and boreal wood species are only used if the supplier has an FSC certificate.

**Hea 02 Indoor air quality**

Products made by Lindner consist of low-emitting materials e. g. with respect to VOC or formaldehyde. The used, water-based, UV-curing lacquer possesses a VOC content of  $< 1\%$ .

**Hea 05 Acoustic performance**

The COMPwood acoustic execution has been measured to its sound absorption according to ISO 354 and rated according to ISO 11654 with a determined value, sound absorption class C (high absorbent),  $a_w = 0.75$ . In addition, it has been rated acc. to ASTM C 423 with a determined value:  $NRC = 0.75$  (The values depend on the type of perforation and the acoustic inlays).

**Hea 18 Volatile organic compounds (In-Use only)**

Products made by Lindner consist of low-emitting materials e. g. with respect to VOC or formaldehyde. The used, water-based, UV-curing lacquer possesses a VOC content of  $< 1\%$ .

**Materials****Mat 01 Life cycle impacts**

Material evidences and reports may be provided. A project-specific EPD can be produced in accordance with the valid standards. Additional time and costs have to be considered.

**Mat 03 Responsible sourcing of construction products**

The recycled content of the aluminium blanks is approx. 75% (declared by the manufacturer: October 18, 2018). It is possible to specify the pre- and/or post-consumer proportion of the processed material, but this figure is batch dependent and must be requested separately if required.

The recycled content of the aluminium honeycombs is approx. 60% (declared by the manufacturer: November 14, 2018). A specification between pre- and/or post-consumer proportion does not take place for this material.

**Mat 06 Material efficiency**

Lindner system products have been designed to minimize processing waste during their installation. Waste that cannot be avoided on site is preferentially put into recycling processes by means of waste management facilities.

**Wst 01 Construction waste management**

COMPwood panels can be dismantled and replaced by using usual tools. Furthermore, you can clearly separate the components in order to recycle them. Waste that cannot be avoided on site is preferentially put into recycling processes by means of waste management facilities.

**Wst 06 Functional adaptability (non-residential only)**

Lindner products have a long service life (due to their resources, manufacturing processes and their high production quality). The useful life of COMPwood is about  $\geq 50$  years (acc. to BBSR-table, aluminium cladding: Code no. 345.311, published by the Federal Institute for Research on Building, Urban Affairs and Spatial Development).

Lindner products have a long useful life span. Moreover, certain products can be carefully dismantled and reused after a minor work-up (Circular economy). Our pursued target of a 100 % technical cycle, allows a clean separation and a complete recycling of all components.

**Pol 08 Reduction of noise pollution**

The COMPwood acoustic execution has been measured to its sound absorption according to ISO 354 and rated according to ISO 11654 with a determined value, sound absorption class C (high absorbent),  $a_w = 0.75$ . In addition, it has been rated acc. to ASTM C 423 with a determined value:  $NRC = 0.75$  (The values depend on the type of perforation and the acoustic inlays).



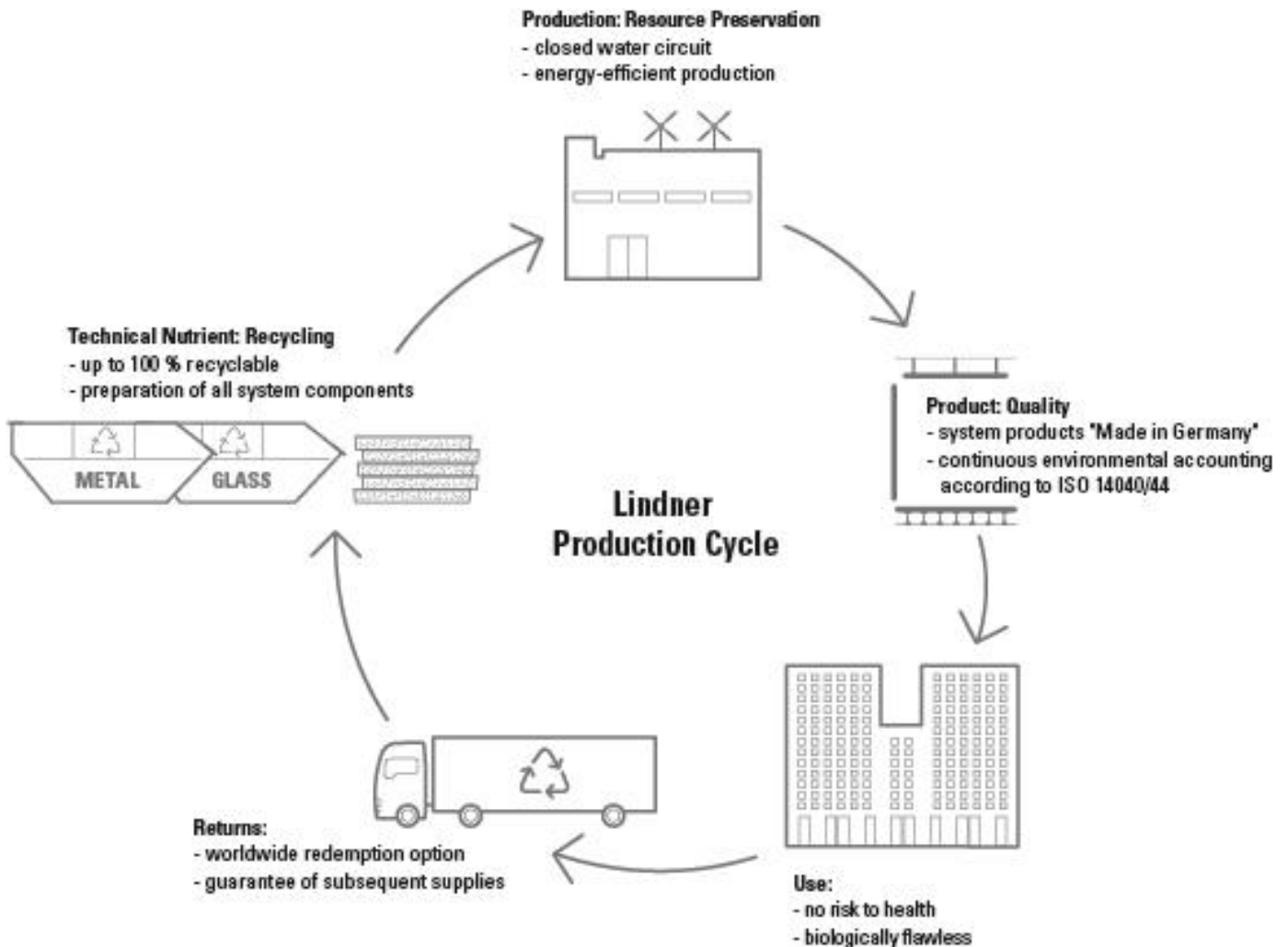


## CIRCULAR ECONOMY

### General information

Due to the transfer of the Circular Economy thoughts we avoid waste, toxic substances and pollution. The 100 % technical cycle we are striving for, allows a separation of types and nearly a whole reuse of all materials. Environmental aspects already play a primary role when choosing our suppliers. Responsibility towards people and environment is as important for Lindner as the quality of the products. Due to this reason an environmental management system according to DIN EN ISO 14001 is established and mostly certified through the whole Lindner Group.

- + Protection of prospective generations and eco systems through care of natural resources
- + Security by choosing high-quality and contaminant-free materials
- + Health as supreme asset of humans





## Material Health



The parts of the Lindner COMPwood panel have to be secure and highly compatible for health and environment. Lindner develops systems which are environmentally friendly and also healthy for humans, from the production up to the usage and reuse.

We do know the chemical substances of all materials and run an ongoing process to develop safer products. To meet all criteria according to sustainability and human health, system components were modified and also replaced.



## Material Reutilization

The Lindner COMPwood panel is a product which can be recycled or further recovered. Therefore, complete components can be reused or new created, after transferring to recycling processes.



## Renewable Energy

Through eco-management certification and our in-house environmental accounting, the whole Lindner Group campaigns for a reduction of the ecological footprint of their own production processes by using less energy.

The share of renewable energy is currently around 37 %.

Increasing the share of renewable energy in our production sites is an ongoing process. The reduction of energy within the production sites is our main goal.



## Water Stewardship

The concept of water circulation reduces our water consumption systematically.

Due to sedimentation and cleaning of the solid matter, the process water can be pursued in a closed loop, so the fresh water consumption is reduced to a minimum.



## Social Fairness

The most important corporate principle is the focus on the individual employee. For this reason the compliance rules "Our Values" for employees were defined. The Lindner Group supports a number of social projects, which are distributed in regional and nationwide areas. Therefore, the charitable "Hans Lindner Stiftung" was founded in 1991.

As a responsible manufacturer, Lindner is certified in accordance to the international environmental management standard ISO 14001. This standard supports our further development of managing scarce resources and the environment in general.