



ACOUSTIC ELEMENT – LINDNER PLUS ACOUSTIC METAL

ENVIRONMENTAL PRODUCT DECLARATION ACC. TO ISO 14021

Holder of the declaration: Lindner Group | 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 loops while developing our products. In this context we act as one of the specialists within the range of sustainable building for many years. Supported by our internal technical department „Green Building“, we ensure the sustainability target of your building projects.

Product description

Plus Acoustic Metal

The acoustic element Lindner Plus Acoustic Metal Absorber is a metal absorber, which is manufactured object-related, is delivered as individual components and can be mounted easily on site.

The reverberation times can be customized depending on requirement

Application area

For the application inside of buildings, e.g. offices, conference rooms, industrial workspaces as well as rooms for training and research.

Base materials

Base materials per 3,75 m ²		
System components	Material	Weight proportions (%)
Wall shell 44 mm	Metal	~ 83,0
System stud	Galvanised steel	~ 6,0
Sound insulation inlay	Mineral wool	~ 6,0
Floor and ceiling profile	Powder coated steel	~ 3,0
Height adjustment bracket	Galvanised steel	< 0,5
Hook-In claws	Galvanised steel	< 0,5
Rivets	Galvanised steel	< 0,5
Stud gasket	EPDM	< 0,5
Gasket strip	PE-Foam	< 0,5
Glue	PU-Hotmelt	< 0,5

Material explanation

Plasterboard

Plasterboard panels acc. to DIN 18180 made of REA-Plaster

Recycling content of 100% (Pre-Consumer)

(www.gips.de)

Steel

All metal alloys whose main component is iron and whose content of carbon dioxide is between 0.02 % and 2.06 % are named steel.

Mineral wool

According to 97/69/EG and the German Hazardous Substances Law, mineral wool consists of synthetic mineral fibres, which are made of silicate fibres with a share above 18% of sodium-, potassium-, calcium-, magnesium- and barium-oxides. The recycling content is ca 15% (Post-Consumer).

CERTIFICATION SYSTEM DGNB

Not listed characteristics do not apply to this product.



Die Lindner Group ist
Mitglied der
DGNB¹
Deutsche Gesellschaft für Nachhaltiges Bauen
German Sustainable Building Council

 **Environmental Quality**

ENV 1.1 Life Cycle Assessment of the Building

An ecological balance sheet is available for the production facilities and it can be provided on demand. A project-specific

ENV 1.2 Local Environment Impact

Components	VOC (%)	GISCODE / Emicode	Other
Plasterboard inlay			
Wall shell 44 mm		Giscode BS 10 not applicable for powder coating	without lead, mercury, cadmium and chrome (VI) compounds
System stud			
Sound insulation inlay			
Floor and ceiling profile		Giscode BS 10 not applicable for powder coating	without lead, mercury, cadmium and chrome (VI) compounds
Glue			
Height adjustment bracket			
Hook-In claws			
Rivets			
Stud gasket			
Gasket strip			
Glue			
Height adjustment bracket			
Total			

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

The product Plus Acoustic Metal does not contain any timber, timber-based products or timber-based components.

 **Economical Quality**

ECO 1.1 Life Cycle Costs

Interior wall covering can be expected to remain durable for up to 50 years (acc. to BBSR table, code no. 342 411, state 11/2011, published by the Federal Institute for Research on Building, Urban Affairs and Spatial Development).

ECO 2.1 Flexibility and Adaptability

The product is an interior wall covering which is easy to disassemble. Each wall shell element can be dismantled, moved or replaced individually. The reutilization of the acoustic elements is possible at any time.

Sociocultural & Functional Quality

SOC 1.2 Indoor Air Quality

Due to the low TVOC value, the Lindner Plus Acoustic Metal positively contributes to the indoor air quality.

It is many times lower than the limit value of 500 µg/m³.

TVOC (AgBB/DIBT) C6-C16: after 28 days 36 µg/m³

Volatile aldehydes: 2,1 µg/m³ (test report no. G01831A)

SOC 1.3 Acoustic Comfort

Depending on the design, sound absorption values up to 1.0 are possible. The values have been tested in the reverberation room acc. to ISO 354 and have been scored acc. to DIN EN ISO 11654.

SOC 1.4 Visual Comfort

The surface of the Lindner Plus Acoustic Metal can be printed with individual graphics.

Technical Quality

TEC 1.2 Sound Insulation

The Lindner Plus Acoustic Metal Absorber can be designed with a sound insulation up to $R_w = 30$ dB acc. to ISO 140-3.

Depending on the design, sound absorption values up to 1.0 are possible. The values have been tested in the reverberation room acc. to ISO 354 and have been scored acc. to DIN EN ISO 11654.

TEC 1.6 Deconstruction and Disassembly

The Plus Acoustic Metal can be dismantled and replaced by using usual tools. Furthermore, you can clearly separate the components in order to recycle them.

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.

LEED v4.1 Building + Construction © 2020 U.S. Green Building Council (USGBC) LEED is a registered trademark owned by U.S. Green Building Council (USGBC).

 **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 that cannot be avoided on site will be preferentially returned to recycling processes via waste management companies. A complete CWM plan can be issued and implemented by the specialists on request.

Building Life Cycle Impact Reduction

Due to the long-life cycle of Plus Acoustic Metal Lindner guarantees a reuse of products over the whole useful life (Circular Economy). A specific life-cycle assessment may be provided if required.

Building Product Disclosure and Optimization – Sourcing of Raw Materials

Components	Weight proportion (%)	Recycling content (%)		Regionality Production location
		Pre-Consumer	Post-Consumer	
Plasterboard inlay	~ 45,0	100	0	Arnstorf
Wall shell 44 mm	~ 33,0	0	25	Arnstorf
System stud	~ 6,0	0	25	Ostrov
Sound insulation inlay	~ 6,0	100	0	Arnstorf
Floor and ceiling profile	~ 5,0	0	15	Arnstorf
Glue	~ 3,0	0	25	Arnstorf
Height adjustment bracket	< 0,5	0	0	Arnstorf
Hook-In claws	< 0,5	0	0	Arnstorf
Rivets	< 0,5	0	0	Arnstorf
Stud gasket	< 0,5	0	0	Arnstorf
Gasket strip	< 0,5	0	0	Arnstorf
Glue	< 0,5	0	0	Arnstorf
Height adjustment bracket	< 0,5	0	0	Arnstorf
Total	100		14,3	

Building Product Disclosure and Optimization – Material Ingredients

As manufacturer of products Lindner fulfils the obligations towards the EU chemical directive „REACH“ and created its own REACH declaration.

The aim of the REACH regulation (Registration, Evaluation and Authorization of Chemicals) is to capture 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

Minimum Acoustic Performance

The Lindner Plus Acoustic Metal can be designed with a sound insulation up to $R_w = 30$ dB acc. to ISO 140-3. Depending on the design, sound absorption values up to 1.0 are possible. The values have been tested in the reverberation room acc. to ISO 354 and have been scored acc. to DIN EN ISO 11654.

Low Emitting Materials

Due to the low TVOC value, the Lindner Plus Acoustic Metal positively contributes to the indoor air quality.

Coating on site is not necessary.

TVOC (AgBB/DIBT) C6-C16: after 28 days 36 $\mu\text{g}/\text{m}^3$

Volatile aldehydes: after 28 days 2,1 $\mu\text{g}/\text{m}^3$ (test report no G01831A)

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

Due to the low TVOC value, the Lindner Plus Acoustic Metal positively contributes to the indoor air quality.

Coating on site is not necessary.

TVOC (AgBB/DIBT) C6-C16: after 28 days 36 $\mu\text{g}/\text{m}^3$

Volatile aldehydes: after 28 days 2,1 $\mu\text{g}/\text{m}^3$ (test report no G01831A)

Acoustic Performance

The Lindner Plus Acoustic Metal can be designed with a sound insulation up to $R_w = 59$ dB acc. to ISO 140-3.

Depending on the design, sound absorption values up to 1.0 are possible. The values have been tested in the reverberation room acc. to ISO 354 and have been scored acc. to DIN EN ISO 11654.

CERTIFICATION SYSTEM BREEAM

Not listed characteristics do not apply for this product.



Management

Man 03 Responsible construction practices

All companies of the Lindner Group meet the requirements of an environmental managementsystem. 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 managementreview. The implementation of environmental protection and the relevant legal regulations are defined in the Lindner internal guideline "Environmental Protection".



Health and Wellbeing

Hea 02 Indoor air quality

Products made by Lindner consist of low-emitting materials e. g. with respect to VOC or formaldehyde.

Hea 05 Acoustic performance

The Lindner Plus Acoustic Metal can be designed with a sound insulation up to $R_w = 30$ dB acc. to ISO 140-3. Depending on the design, sound absorption values up to 1.0 are possible. The values have been tested in the reverberation room acc. to ISO 354 and have been scored acc. to DIN EN ISO 11654.

Hea 18 Volatile organic compounds (In-Use only)

Due to the low TVOC value, the Lindner Plus Acoustic Metal positively contributes to the indoor air quality.

Coating on site is not necessary.

TVOC (AgBB/DIBT) C6-C16: after 28 days $36 \mu\text{g}/\text{m}^3$ (test report no G01831A)



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

Lindner acoustic elements are made from materials with a high recycling content. Local suppliers are preferred. The company Lindner is certified according to the environmental managementsystem according to DIN EN ISO 14001.

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.

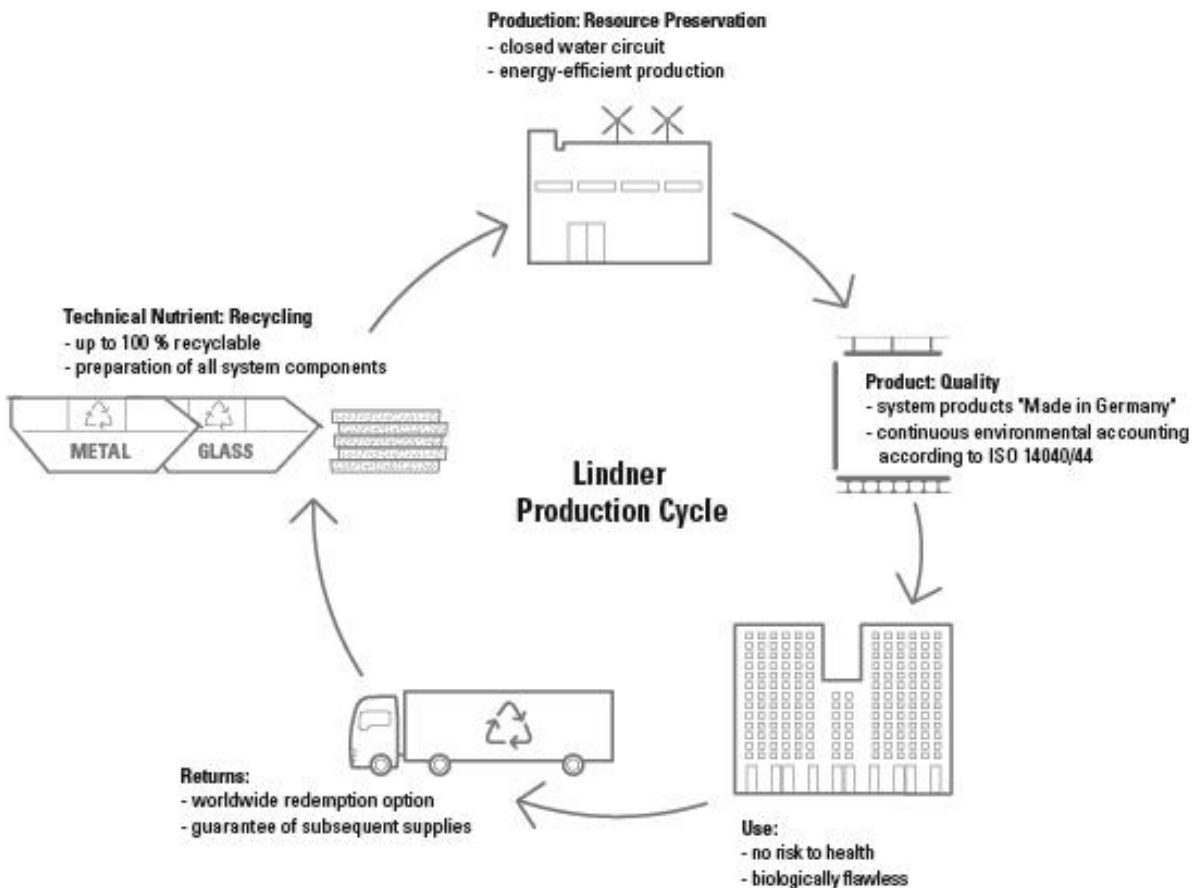
CIRCULAR ECONOMY



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
- + Safe environment for all building occupants



Material Health



The parts of the Lindner Plus Acoustic Metal 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 Plus Acoustic Metal 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.