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

<table>
<thead>
<tr>
<th>System components</th>
<th>Material</th>
<th>Weight proportions (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wall shell 44 mm</td>
<td>Metal</td>
<td>~ 83,0</td>
</tr>
<tr>
<td>System stud</td>
<td>Galvanised steel</td>
<td>~ 6,0</td>
</tr>
<tr>
<td>Sound insulation inlay</td>
<td>Mineral wool</td>
<td>~ 6,0</td>
</tr>
<tr>
<td>Floor and ceiling profile</td>
<td>Powder coated steel</td>
<td>~ 3,0</td>
</tr>
<tr>
<td>Height adjustment bracket</td>
<td>Galvanised steel</td>
<td>&lt; 0,5</td>
</tr>
<tr>
<td>Hook-in claws</td>
<td>Galvanised steel</td>
<td>&lt; 0,5</td>
</tr>
<tr>
<td>Rivets</td>
<td>Galvanised steel</td>
<td>&lt; 0,5</td>
</tr>
<tr>
<td>Stud gasket</td>
<td>EPDM</td>
<td>&lt; 0,5</td>
</tr>
<tr>
<td>Gasket strip</td>
<td>PE-Foam</td>
<td>&lt; 0,5</td>
</tr>
<tr>
<td>Glue</td>
<td>PU-Hotmelt</td>
<td>&lt; 0,5</td>
</tr>
</tbody>
</table>

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 natrium-, potassium-, calcium-, magnesium- and barium-oxides. The recycling content is ca 15% (Post-Consumer).
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

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

As a manufacturer, Lindner fulfills 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.

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. 342411, 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.
SELF-DECLARATION
PLUS ACOUSTIC METAL

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 Rw= 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.
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

<table>
<thead>
<tr>
<th>Components</th>
<th>Weight proportion (%)</th>
<th>Recycling content (%)</th>
<th>Regionality Production location</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Pre-Consumer</td>
<td>Post-Consumer</td>
</tr>
<tr>
<td>Plasterboard inlay</td>
<td>~ 45,0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Wall shell 44 mm</td>
<td>~ 33,0</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>System stud</td>
<td>~ 6,0</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Sound insulation inlay</td>
<td>~ 6,0</td>
<td>100</td>
<td>0</td>
</tr>
<tr>
<td>Floor and ceiling profile</td>
<td>~ 5,0</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Glue</td>
<td>~ 3,0</td>
<td>0</td>
<td>25</td>
</tr>
<tr>
<td>Height adjustment bracket</td>
<td>&lt; 0,5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Hook-in claws</td>
<td>&lt; 0,5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Rivets</td>
<td>&lt; 0,5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Stud gasket</td>
<td>&lt; 0,5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gasket strip</td>
<td>&lt; 0,5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Glue</td>
<td>&lt; 0,5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Height adjustment bracket</td>
<td>&lt; 0,5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
<td>14,3</td>
<td></td>
</tr>
</tbody>
</table>

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 µg/m
- Volatile aldehydes: after 28 days 2.1 µg/m³ (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 µg/m
  - Volatile aldehydes: after 28 days 2.1 µg/m³ (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.
SELF-DECLARATION PLUS ACOUSTIC METAL

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 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 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 µg/m (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 management system 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.