ENVIRONMENTAL PRODUCT DECLARATION

as per *ISO 14025* and *EN 15804+A2*

Owner of the Declaration	Fritz EGGER GmbH & Co. OG Holzwerkstoffe
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EGG-20210049-IBC1-EN
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Valid to	14.04.2026

EGGER Laminate

Fritz EGGER GmbH & Co. OG Holzwerkstoffe

Institut Bauen und Umwelt e.V.

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ECO PLATFORM EPD EN 15804 VERIFIED

1. General Information

Fritz EGGER GmbH & Co. OG	EGGER Laminate
Programme holder IBU – Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the declaration** Fritz EGGER GmbH & Co. OG Holzwerkstoffe Weiberndorf 20 6380 St. Johann in Tirol Austria
Declaration number EPD-EGG-20210049-IBC1-EN	**Declared product / declared unit** One square meter of EGGER Laminate with an average grammage of 961 g/m².
This declaration is based on the product category rules: Laminates, 12.2018 (PCR checked and approved by the SVR)	**Scope:** This document applies to the laminate manufactured by EGGER Kunststoffe GmbH & Co. KG in its Gifhorn (Germany) plant. It is an average standard EGGER laminate.
Issue date 21.05.2021	The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences. The EPD was created according to the specifications of *EN 15804+A2*. In the following, the standard will be simplified as *EN 15804*.
Valid to 14.04.2026	**Verification** The standard *EN 15804* serves as the core PCR Independent verification of the declaration and data according to *ISO 14025:2010* ☐ internally ☒ externally
Dipl. Ing. Hans Peters (chairman of Institut Bauen und Umwelt e.V.)	
Dr. Alexander Röder (Managing Director Institut Bauen und Umwelt e.V.))	Juliane Franze (Independent verifier)

2. Product

2.1 Product description/Product definition

EGGER Laminate is a versatile material which is processed in combination with classic wood-based materials such as MDF (medium density fibreboard), HDF (high density fibreboard) and chipboard or other core materials to form so-called laminate composite elements. Traditional applications and areas in which they can be used include the kitchen and door industries, the office furniture sector, exhibition stand construction, shopfitting, interior design and the shipbuilding and automotive industries.

Laminates consist of paper webs, impregnated with heat-setting resins. They have a multilayer structure and consist of melamine resin impregnated decorative paper and one or more layers of soda kraft paper impregnated with phenolic resins, which are laminated under high pressure and heat. The laminate structure, the resin and paper quality, the surface texture, the use of special overlays and the press parameters during production determine the laminate quality and therefore the subsequent use or area of application.

The declared product is an area-weighted average of the various EGGER products in this product family.

The respective national regulations at the place of use apply to the use of the product, in Germany for example the building regulations of the federal states, and the technical directives based on these regulations.

2.2 Application

Laminates are non load-bearing and only serve as lamination materials. EGGER laminates are only suitable for indoor applications. The laminate is used for coating wood-based materials or other core materials as a so-called composite element in the interior for furniture or interior fittings.

2.3 Technical Data

EGGER laminate is tested according to the testing procedure described in *EN 438-2* and complies with the requirements stipulated in *EN 438-3*. The technical sheet "EGGER Laminate" contains detailed information concerning quality features and product characteristics at www.egger.com/laminate.

Laminate HGP

Name	Value	Unit
Density	≥ 1350	kg/m³
Resistance to abrasion* according to EN 438	≥ 150	U
Impact resistance (small sphere) according to EN 438	≥ 20	Newton
Resistance to scratches (textured surfaces) according to EN 438	3	Degree
Resistance to scratches (smooth surfaces) according to EN 438	2	Degree
Lightfastness according to EN 438	4 - 5	Grey scale
Formaldehyde emissions according to EN 717-1	Below the detection limit	µg/m³
Dimensional deviation Thickness tolerance Nominal thickness 0.4 mm ≤ t ≤ 1.0 mm according to EN 438	± 0.10	mm
Dimensional deviation Thickness tolerance Nominal thickness 1.0 mm < t < 1.2 mm according to EN 438	± 0.15	mm
Dimensional deviation Length and width tolerance according to EN 438	+10/-0	mm

* Initial abrasion point IP

Performance values of the product in relation to its characteristics according to the applicable technical provision (no CE marking).

2.4 Delivery status

EGGER laminates are delivered as format or roll goods.
Form of delivery “Format”:
· Min. length: 800 mm
· Maximum length: 5,600 mm
· Maximum width: 1,310 mm
· Range of nominal thicknesses: 0.40 to 1.20 mm
Form of delivery “Roll”:
· Max. roll length: 400 m
· Max. roll width: 1,310 mm
· Range of nominal thicknesses: 0.40 to 0.60 mm
This Environmental Product Declaration is valid for the nominal thicknesses 0.60 and 0.80 mm.

2.5 Base materials/Ancillary materials

Name	Value	Unit
Paper percentage	57	%
Resin percentage	42	%
Additive	1	%

EGGER laminates consist of:
- decor paper (50 - 25 g/m²)
- soda kraft paper (60 – 150 g/m²)
- backing paper (50 – 100 g/m²)
- overlay paper (20 – 25 g/m²)
- melamine-formaldehyde resin
- phenol-formaldehyde resin

The product EGGER Laminate contains substances on the *ECHA List* of substances of very high concern (date 30.10.2020) above 0.1% by weight: no.

The product EGGER laminate contains other CMR substances of category 1A or 1B that are not on the candidate list, above 0.1 by weight % in at least one sub-product: no.

Biocidal products have been added to this building product EGGER Laminate or it has been treated with biocidal products (this refers to treated goods within the meaning of the Biocidal Products Regulation (EU) No. 528/2012): no.

2.6 Manufacture

EGGER laminates are only produced using a continuous process. Dual-belt presses allow the continuous production of various laminate thicknesses and grades. This grade or type of laminate production is generally known as CPL (Continuous Pressed Laminate). Depending on the pressure during production, EGGER laminates are produced in accordance with or based on *EN 438-3*.

The laminates consist of layers of cellulose fibre webs (usually paper) that are impregnated with curable resins. The one-sided outer layer(s) with decorative colours or patterns is (are) impregnated with melamine-based resins. The core layers are impregnated with phenolic resins. Applying heat and pressure causes the resins to flow and subsequently cure. Cross-linking of the resins, reinforced by the cellulose fibres of the papers, results in a very dense material with a sealed surface.

2.7 Environment and health during manufacturing

EGGER Gifhorn is certified according to *ISO 45001* "Management systems for safety and health at work". The standard *ISO 45001* imposes requirements on the company in order to align the processes for sustainable improvement in occupational health and safety.
The manufacturing plant is also certified in line with the international environmental standard *ISO 14001*. The management system includes the continuous improvement of the environmental performance assessment, the continuous reduction of environmental risks, as well as the implementation of environmental protection measures.
Due to the manufacturing conditions no measures for health protection are necessary over and above the legislative and other regulations. Values in all areas of the plant are significantly below the maximum allowable concentration according to *GefStoffV*.

Air: Exhaust air from the production process is cleaned in accordance with the applicable legal regulations. Emissions are significantly below the *TG Air* (Technical Guideline for Keeping Air Clean).

Water/ground: There is no contamination of water or the ground. Waste water from the production process is fed into the sewer system.

Noise protection measurements showed that all the values determined within and outside of the production plant were far below the minimum requirements applicable for Germany. Sections of the plant where high noise levels are produced have been shielded by suitable construction measures.

2.8 Product processing/Installation

The product is used for the lamination of classical wood-based materials, such as MDF (medium density fibreboard), HDF (high density fibreboard) and chipboard. It may be processed with conventional urea-formaldehyde resin glue and dispersion glue in presses (flat, short cycle and dual-belt presses) using the hot or cold process. Conventional wood processing machines such as a panel saw, table saw, circular saw or jigsaw may be used to cut laminates to size. Laminates are usually cut to size using a panel saw or table saw.

Health risk due to dust generation

Dust may be generated during processing. There is a risk sensitising the skin and respiratory tract. Depending on the processing and the particle size, especially in the case of inhalation of dust, there may be further health hazards. The generation of dust must be taken into account when assessing the risks at the workplace. Particularly in the case of machining processes (e.g. sawing, planning, milling), effective extraction must be used in accordance with the applicable occupational health and safety regulations. Suitable breathing protection has to be worn if no adequate extraction system is in place.

Fire and explosion hazard

Dust generated during processing can lead to fire and explosion hazards. Applicable safety and fire protection regulations must be observed.

Extensive information and processing recommendations are available under www.egger.com/laminate.

2.9 Packaging

The laminates are packaged and delivered on nonreturnable or returnable wood pallets (waste code number according to EWC: 15 01. 03). Other packaging materials include:

- cardboard (15 01 01)
- wood-based materials (15 01 03)
- PE film and PET strapping (15 01 02)

The packaging must be separated according to type after use and handed over to an authorised disposal company.
Cardboard, wood and plastic components can be recycled materially or energetically.

2.10 Condition of use

No changes in the basic composition are to be expected during the period of use.

2.11 Environment and health during use

Environmental protection: When the described products are used properly in accordance with the area of application, there is no risk of water, air or ground contamination according to the current state of knowledge.

Health protection: No impairment of or damage to health is to be expected when laminates are used normally and in accordance with the intended purpose. With the exception of minor amounts of formaldehyde in quantities that are harmless to health, no emissions of hazardous substances can be detected.

2.12 Reference service life

The service life of laminates depends on the area of application in the specific project, taking into account the use class according to *EN 1995-1-1*, *DIN 68800-2* and appropriate maintenance.
EGGER laminates are used as composite elements in interior design (see 2.3). For general fixtures/furnishing systems, the *BBSR Table* "Useful lives of components for life cycle analyses according to the BNB" gives a range of 10 to 40 years (KG 371-378). These useful lives are based on empirical values and are used to develop forecast scenarios for further LCAs.
No binding statements (warranties, construction contracts, expert opinions, etc.) can be derived from the data.

2.13 Extraordinary effects

Fire

EGGER laminate complies with interior finishing requirements in the case of fire: low smoke formation, no melting, and no burning droplets. The laminate is a coating material used for manufacturing composite elements. Classification in a building material class depends on the support material used.

Classification according to EN 13501-1*

Name	Value
Building material class	D
Burning droplets	s2
Smoke gas development	d0

***Construction material class according to EN 438-7 for decorative laminates classified without further testing (CWFT)**

Multi-layer composite boards consisting of laminate according to *EN 438-3* without flame retardant, bonded on both sides of a non-flame retardant wood-based core layer with a minimum thickness of 12 mm (minimum density 600 kg/m3) according to EN 13986 by means of PVAC or thermosetting adhesive and an adhesive application of 60 g/m2 to 120 g/m2.

Water

No substances of content that could be hazardous to water are washed out. All leachable substances are significantly below legal thresholds. Laminates are not resistant against continuous exposure to water (standing water).

Mechanical destruction

No hazardous substances are released during mechanical destruction. The fracture pattern of laminates indicates brittle characteristics. The fracture edges are sharp so that wearing protective gloves is essential.

2.14 Re-use phase

Since laminates are usually used as composite materials, reuse is not possible as a rule.

Reclamation for energy generation (in approved facilities):
Due to the high heating value of approximately 15-16 MJ/kg, reclamation for the generation of process

energy and electricity (combined heat and power plants) is possible.

2.15 Disposal

Energetic recovery or disposal (waste code according to *EAK*: 17 02 01/03).
Packaging: Transport packaging can be collected separately and recycled appropriately. In some cases, external disposal can be arranged with the manufacturer.

2.16 Further information

Extensive information and processing recommendations are available under www.egger.com/laminate.

3. LCA: Calculation rules

3.1 Declared Unit

This environmental product declaration refers to a declared unit of one square meter of EGGER laminate produced with an average grammage of 961 g/m².

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Grammage	0.961	kg/m^2

EGGER Laminate is made at the Gifhorn (DE) plant. The calculation of the declared density of the laminate was carried out on an surface-weighted basis.

3.2 System boundary

The LCA of the average EGGER laminate includes a cradle-to-gate consideration of the occurring environmental impact with the modules C1-C4 and module D (A1-A3, +C, +D). The following life cycle phases are taken into account in the analysis:

Module A1-A3 | Production stage
The production stage includes the expenses for the supply of raw materials (cellulose pulp webs - usually paper such as kraft, decorative and parchment paper, production of the basic chemicals used as well as components for phenolic and melamine resin impregnation, auxiliary materials, etc.) as well as the associated transports related to the production site in Gifhorn. Within the plant boundaries, the impregnation of the papers with melamine and phenolic resins, the pressing process in the double belt presses, formatting and reverse side sanding including packaging are taken into account. The electrical energy used is obtained from the German power grid. Thermal energy is provided by natural gas as an energy source.

Module C1 | Dismantling / Demolition
Manual dismantling was assumed for the laminates. The associated efforts are negligible, which means that no environmental impact from the dismantling of the products is declared.

Module C2 | Transport to waste treatment
Module C2 includes transport to waste treatment. For this purpose, transport by lorry over a distance of 50 km is used as a representative scenario.

Module C3 | Waste processing
The scenario used declares the energy recovery of the laminates. Corresponding environmental impacts are considered in Module C4.

Module C4 | Disposal
Module C4 declares the emissions from the energy recovery of the laminates after removal in a waste incineration plant as a fictitious scenario. In reality, the product is always removed together with other wood-based materials, for example, and recycled accordingly.

Module D | Credits and charges beyond the limits of the product system
In Module D, the substitution potentials for heat and electricity from energy recovery of the product in Module C4 are described in the form of a European average scenario.

3.3 Estimates and assumptions

Assumptions and estimates are used in the absence of a representative background data set to represent the environmental impact of certain raw materials. All assumptions are supported with detailed documentation and correspond to the best possible representation of reality given the available data. A generic data set from the *GaBi* Database for spruce roundwood was used as background data set for roundwood. A large part of the wood processed by EGGER represents coniferous fibrewood. For other wood types used, the data set for spruce roundwood should be considered as an approximation. The present simplification thus corresponds to the best possible approach given the existing data basis. The regional applicability of the background data sets used refers to average data for Germany and Europe.

3.4 Cut-off criteria

All inputs and outputs for which data are available and from which a significant contribution can be expected are included in the LCA model. Missing data are populated when a data basis is available using conservative assumptions for average data or generic data and are documented accordingly. Only data with a contribution of less than 1% were removed. Neglecting these data can be justified by the limited effect to be expected. Thus, no processes, materials or emissions were neglected that are expected to make a significant contribution to the environmental impact of the products under consideration. It can be assumed that the data were recorded in full and that the total sum of the neglected input flows does not exceed 5 % of the energy and mass input. Expenses for machinery and infrastructure were not taken into account.

3.5 Background data

Secondary data are included to represent the background system in the LCA model. These are taken from the *GaBi* Database 2020, SP40, developed by thinkstep AG.

3.6 Data quality

The quality of the foreground data is assessed as very good due to the comprehensive product-specific evaluation options from the controlling systems of EGGER.

The data was collected via spreadsheets specifically created by EGGER. Questions were answered through an iterative process in writing via e-mail, phone, or in person. Given the intense discussion concerning a representation of material and energy flows in the company that is as close as possible to reality, led by EGGER and Daxner & Merl, the high quality of collected foreground data can be assumed. A consistent and uniform calculating procedure was applied in line with *ISO 14044*. When selecting the background data, the technological, geographical, and time-related representativeness of the data basis was taken into consideration. When specific data was missing, generic data sets or a representative average were used. The *GaBi* background data sets are not older than ten years.

3.7 Period under review

As part of the collection of the foreground data, the life cycle was recorded for the production year 2018. The data are based on the annual volumes used and produced.

3.8 Allocation

The mapping of upstream processes in the supply chain is largely done by using *GaBi* background data sets.
In addition to the laminates under consideration, other products are also manufactured at the Gifhorn site. The delimitation of the material flows between the different laminates is based on the evaluations from EGGER's controlling system. The associated expenses can be easily distinguished from the production of the other products. The energy input, laminate waste, packaging and waste water are recorded under a common item. The allocation to the individual products is based on the square metres produced.
Low-quality residual materials are recycled for energy recovery. The resulting electrical and thermal energy is charged within module A1-A3. The energy released during waste incineration can be considered equivalent to the required thermal and electrical process energy. This also applies to the electrical and thermal energy from the energy recovery of the products at the end of their life (module C4 and D, respectively).

3.9 Comparability

Basically, a comparison or an evaluation of EPD data is only possible if all the data sets to be compared were created according to *EN 15804* and the building context, respectively the product-specific characteristics of performance, are taken into account.

The GaBi background database was used to calculate the LCA.

4. LCA: Scenarios and additional technical information

Characteristic product properties
Information on biogenic Carbon

Information describing the biogenic carbon content at the plant gate

Name	Value	Unit
Biogenic carbon content (in the product)	0.206	kg C
Stored carbon dioxide (in the product)	0.79	kg C

Since the end-of-life of the product packaging is not declared in module A5, its carbon uptake is not included in modules A1-A3.

The following technical information represents the basis for the declared module or can be used for the development of specific scenarios in the context of a building evaluation if modules are not declared (MND).

Biogenic carbon in the product
The biogenic carbon content quantifies the amount of biogenic carbon in the declared building product.

Name	Value	Unit
Biogenic carbon content (in the product)	0.206	kg/m²
Stored carbon dioxide (in the product)	0.79	kg/m²

Since the end-of-life of the product packaging is not declared in module A5, its carbon uptake is not included in modules A1-A3.

Integration into building (A5)
The end-of-life of product packaging is not declared in module A5.

Name	Value	Unit
Packaging (PE)	0.00219	kg/m²
Packaging (pallet)	0.0669	kg/m²

Maintenance (B2)

Name	Value	Unit
Information on maintenance	-	-
Maintenance cycle	-	Number/RSL
Water consumption	-	m^3
Auxiliary	-	kg
Other resources	-	kg
Electricity consumption	-	kWh
Other energy carriers	-	MJ
Material loss	-	kg

Repair (B3)

Name	Value	Unit
Information on the repair process	-	-
Information on the inspection process	-	-
Repair cycle	-	Number/RSL
Water consumption	-	m^3
Auxiliary	-	kg
Other resources	-	kg
Electricity consumption	-	kWh
Other energy carriers	-	MJ
Material loss	-	kg

Replacement (B4)/Conversion/Renovation (B5)

Name	Value	Unit
Replacement cycle	-	Number/RSL
Electricity consumption	-	kWh
Litres of fuel	-	l/100km
Replacement of worn parts	-	kg

Reference utilisation duration

The product is tested according to the normative product requirements. When used according to the rules and the state of the art, the reference service life corresponds to 10-40 years. These periods are to be used for further calculations and do not constitute manufacturer's guarantees.

Name	Value	Unit
Reference service life	10 - 40	a
Life Span (nach BBSR)	10 - 40	a
Life Span (nach BBSR)	10 - 40	a
Declared product properties (at the gate) and finishes	Properties according to EN 438	-

Detailed data sheets on chemical resistance, cleaning and use recommendations are available for download at www.egger.com/laminate.

Operational energy (B6) and water consumption (B7)

Name	Value	Unit
Water consumption	-	m^3
Electricity consumption	-	kWh
Other energy carriers	-	MJ
Equipment output	-	kW

End of life cycle (C1-C4)

Name	Value	Unit
Energy recovery Energy recovery in an MVA	0.961	kg

5. LCA: Results

The following table contains the life cycle assessment results for a declared unit of 1 m² EGGER laminate with an average grammage of 961 g/m².

Disclaimer:
EP-freshwater: This indicator has been calculated as “kg P eq” as required in the characterization model (EUTREND model, Struijs et al., 2009b, as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml).

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; ND = MODULE OR INDICATOR NOT DECLARED; MNR = MODULE NOT RELEVANT)

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	ND	ND	ND	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² laminate (961 g/m²)

Core Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Global warming potential - total	[kg CO_2-Eq.]	2.03E+0	0.00E+0	5.79E-3	0.00E+0	1.39E+0	-6.13E-1
Global warming potential - fossil fuels	[kg CO_2-Eq.]	2.69E+0	0.00E+0	5.75E-3	0.00E+0	7.10E-1	-6.11E-1
Global warming potential - biogenic	[kg CO_2-Eq.]	-6.62E-1	0.00E+0	-9.61E-6	0.00E+0	6.77E-1	-1.43E-3
GWP from land use and land use change	[kg CO_2-Eq.]	1.58E-3	0.00E+0	4.63E-5	0.00E+0	3.58E-5	-4.28E-4
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	4.26E-12	0.00E+0	1.05E-18	0.00E+0	3.27E-16	-6.37E-15
Acidification potential, accumulated exceedance	[mol H^+-Eq.]	7.45E-3	0.00E+0	1.94E-5	0.00E+0	2.87E-4	-8.55E-4
Eutrophication, fraction of nutrients reaching freshwater end compartment	[kg P-Eq.]	1.14E-5	0.00E+0	1.74E-8	0.00E+0	5.85E-8	-7.87E-7
Eutrophication, fraction of nutrients reaching marine end compartment	[kg N-Eq.]	3.38E-3	0.00E+0	8.77E-6	0.00E+0	9.52E-5	-2.21E-4
Eutrophication, accumulated exceedance	[mol N-Eq.]	2.15E-2	0.00E+0	9.80E-5	0.00E+0	1.29E-3	-2.37E-3
Formation potential of tropospheric ozone photochemical oxidants	[kg NMVOC-Eq.]	7.04E-3	0.00E+0	1.72E-5	0.00E+0	2.58E-4	-6.35E-4
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	6.27E-6	0.00E+0	4.63E-10	0.00E+0	4.95E-9	-1.00E-7
Abiotic depletion potential for fossil resources	[MJ]	4.72E+1	0.00E+0	7.63E-2	0.00E+0	4.89E-1	-1.04E+1
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	[m^3 world-Eq deprived]	4.28E-2	0.00E+0	5.58E-5	0.00E+0	1.58E-1	-6.33E-2

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² laminate (961 g/m²)

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier	[MJ]	8.60E+0	0.00E+0	4.41E-3	0.00E+0	9.46E-2	-2.26E+0
Renewable primary energy resources as material utilization	[MJ]	7.38E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of renewable primary energy resources	[MJ]	1.60E+1	0.00E+0	4.41E-3	0.00E+0	9.46E-2	-2.26E+0
Non-renewable primary energy as energy carrier	[MJ]	3.72E+1	0.00E+0	7.66E-2	0.00E+0	4.89E-1	-1.04E+1
Non-renewable primary energy as material utilization	[MJ]	1.01E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	4.73E+1	0.00E+0	7.66E-2	0.00E+0	4.89E-1	-1.04E+1
Use of secondary material	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of renewable secondary fuels	[MJ]	4.07E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of non-renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of net fresh water	[m^3]	1.10E-2	0.00E+0	5.14E-6	0.00E+0	3.74E-3	-2.62E-3

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² laminate (961 g/m²)

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	[kg]	4.67E-7	0.00E+0	3.54E-9	0.00E+0	1.24E-9	-4.13E-9
Non-hazardous waste disposed	[kg]	5.83E-1	0.00E+0	1.21E-5	0.00E+0	8.86E-2	-4.79E-3
Radioactive waste disposed	[kg]	6.10E-4	0.00E+0	1.41E-7	0.00E+0	2.26E-5	-7.72E-4
Components for re-use	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for recycling	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Materials for energy recovery	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Exported electrical energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.58E+0	0.00E+0
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.67E+0	0.00E+0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² laminate (961 g/m²)

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Potential incidence of disease due to PM emissions	[Disease Incidence]	7.18E-8	0.00E+0	1.10E-10	0.00E+0	2.36E-9	-7.26E-9
Potential Human exposure efficiency relative to U235	[kBq U235-Eq.]	7.27E-2	0.00E+0	2.08E-5	0.00E+0	3.21E-3	-1.27E-1
Potential comparative toxic unit for ecosystems	[CTUe]	2.18E+1	0.00E+0	5.71E-2	0.00E+0	2.99E-1	-2.23E+0
Potential comparative toxic unit for humans - cancerogenic	[CTUh]	5.04E-10	0.00E+0	1.18E-12	0.00E+0	1.60E-11	-9.68E-11
Potential comparative toxic unit for humans - not cancerogenic	[CTUh]	3.04E-8	0.00E+0	6.80E-11	0.00E+0	1.36E-9	-3.60E-9
Potential soil quality index	[-]	1.12E+2	0.00E+0	2.68E-2	0.00E+0	1.25E-1	-1.63E+0

Limitation note 1 - applies to the IRP indicator:
This impact category mainly addresses the possible effect of low dose ionising radiation on human health in the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents and occupational exposure, nor does it consider the disposal of radioactive waste in underground facilities. Potential ionising radiation from soil, radon and some building materials is also not measured by this indicator.

Limitation note 2 - applies to indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP:
The results of this environmental impact indicator need to be used with caution as the uncertainties in these results are high or as there is limited experience with the indicator.

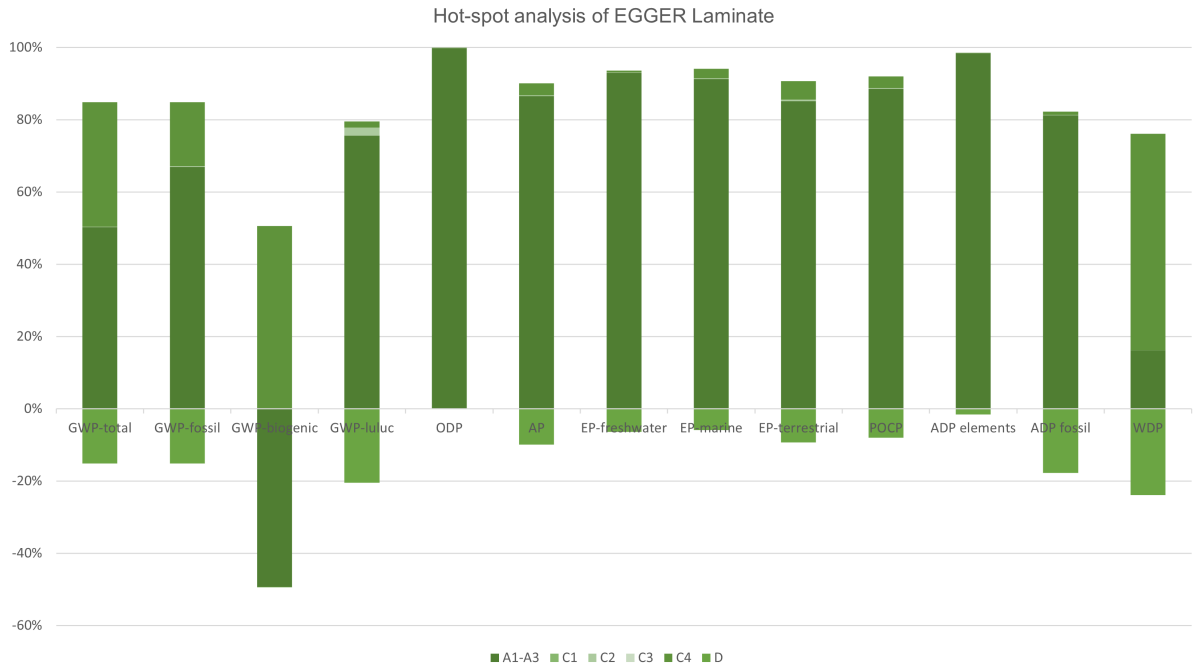
6. LCA: Interpretation

The following interpretation includes a summary of the LCA results relative to a declared unit of 1m³ laminate.

The production phase (modules A1-A3) is the dominant factor in the environmental profile of laminates. An exception here is the potential water consumption, in which especially the water demand (WDP) in combustion (module C4) makes a significant contribution.

In addition to the dominance of the production phase, the analysis of the potential contribution to climate change (GWP) also shows a recognisable contribution of greenhouse gas emissions (mainly carbon dioxide) from energy recovery at the end of life of the product in a waste incineration plant. During energy recovery, the stored biogenic and fossil carbon is released into the atmosphere in the form of carbon dioxide emissions and contributes to potential climate warming. In the case of biogenic emissions from paper recycling, this is the carbon stored from the atmosphere during tree growth. Over the entire life cycle, this results in a balanced CO_2 balance for the biogenic carbon stored in the product.

The negative values in Module D can be explained through the fact that the energy generated by the energy utilisation of the product is able to replace the combustion of fossil fuels. Thus, Module D declares the substitution potential for heat from natural gas and electricity from the European electricity mix.



The dominance analysis of the production phase of the laminates identifies the upstream chain of the resins used and the paper production as significant drivers in the environmental profile of the products. In particular, potential stratospheric ozone depletion (ODP), potential acidification (AP), potential eutrophication of freshwater (EP-freshwater) and land (EP-terrestrial), potential formation of ground-level ozone (POCP) and elemental resource use (ADPE) are dominated by environmental impacts from paper production.

The global warming potential (GWP-total) from the production phase (modules A1-A3) of the laminates can be largely attributed to the emissions from the production of the resin used. The negative contribution of the papers in the biogenic emissions (GWP-biogenic) is due to the carbon sequestration effect in the upstream chain during tree growth. Potential GHG emissions from land use change are predominantly dominated by electricity supply.
Looking at the potential removal of water, the combustion of 3rd grade products is the driving factor.

The use of renewable primary energy (PERT) is mainly due to the material use of renewable raw materials in the paper components of the product.

If the contribution of non-renewable primary energy (PENRT) is considered, it is mainly used for the fossil fuels utilised in the production of adhesive components and resins.

The specific composition of the products considered depends on various factors such as the thickness of the substructure, the decor and the respective application. By calculating the area-weighted grammages of the respective product families on the basis of the quantities actually sold and the specific consideration of the various subgroups, a good representativeness of the LCA results can be assumed.

For the conversion to specific products, it can be assumed that the environmental impact is roughly proportional to the grammage of these.

The results of the previous EPD for EGGER laminate (EPD-EGG-2010264-IBA1-DE) are not directly comparable with the present, updated version due to the update of the underlying methodology according to *EN 15804+A2.*

7. Requisite evidence

7.1 Specific formaldehyde migration

Measurement authority: WESSLING GmbH**,** Altenberge, D
Test report: No. CAL20-187464-2b/tec of 13.01.2021
Test basis: Measurement of specific migration according to *DIN CEN/TS 13130-23:2005*, *Materials and articles in contact with foodstuffs - Plastics substances subject to limitation.* Limits according to the German Consumer Goods Ordinance *(BedGgstV) (2005)* and *EU Directive 10/2011/EC.*

Results: The measured values were 7.8 mg/kg in the first extract and 4.6 mg/kg in the third extract with 3% acetic acid. The limit value of 15 mg/kg is complied with.

7.2 Melamine

Measurement authority: WESSLING GmbH**,** Altenberge, D
Test report: No. CAL20-187464-2b/tec of 13.01.2021
Test basis: Measurement of specific migration according to *DIN CEN/TS 13130-27:2005*, *Materials and articles in contact with foodstuffs - Plastics substances subject to limitation.* Limits according to the German Consumer Goods Ordinance (*BedGgstV*) (2005) and article 2 *EU Directive 10/2011/EC*.
Results: The measured values were 2.5 mg/kg in the first extract and 2.5 mg/kg in the third extract with 3% acetic acid. The limit value of 2.5 mg/kg is complied with.

7.3 Total migration

Measurement authority: WESSLING GmbH**,** Altenberge, D
Test report: No. CAL20-187464 -2a/tec of 13.01.2021
Test basis: Measurement according to EN 1186 series of standards, limits according to the German Consumer Goods Ordinance *(BedGgstV) (2005)* and *EU Directive 10/2011/EC.*
Results: According to Article 12 of Regulation (EU) No 10/2011, substances may only be transferred from a plastic food contact material to food up to a maximum amount of 10 mg/dm² of the food contact material. This limit is complied with by the tested sample.

7.4 Eluate Analysis

Measurement authority: WESSLING GmbH**,** Altenberge, D
Test report: No. CAL20-187464 -2a/tec of 13.01.2021
Testing method: Measurement according to *EN 71-3 , Safety of toys - Part 3: Migration of specific elements.*
Results: The limit values of all elements determined according to the standard are far undercut.

7.5 Phenol

Testing institute: Fraunhofer Institut für Holzforschung WKI, Braunschweig, D
Test report: No. MAIC-2021-0093 of 12.01.2021
Testing method: Measurement according to *EN 16516*.
Results: The phenol concentration in the test chamber was below 1 µg/m³ after 3 days, 1 µg/m³ after 7 days and 2 µg/m³ after 28 days. Overall, the values are below the limits of all evaluation parameters of the *AgBB* scheme.

7.6 Formaldehyde emissions

Measurement authority: EPH Dresden, D
Test report: No. 2520582 of 16.12.2020
Testing method: Measurement according to *EN 717-1*, Emission chamber test of wood-based materials/products.
Results: The formaldehyde emission of the test specimen is below the detection limit. The values are far below the limits of the *ChemVerbotsV*.

8. References

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CEN/TS 13130-27
DIN CEN/TS 13130-27:2005-05, Materials and articles in contact with foodstuffs – Plastics substances subject to limitation – Part 27: Determination of 2,4,6-triamino-1,3,5-triazine in test foodstuffs.

EN 16516
DIN EN 16516:2017+A1:2020-10, Building products: Hazardous substance release assessment - Determination of emissions to indoor air.

EN 71-3
DIN EN 71-3:2019-08, Safety of toys - Part 3: Migration of specific elements.

EN 438-2
DIN EN 438-2:2019-02-01, High-Pressure Decorative Laminates (HPL) – Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties.

EN 438-3
DIN EN 438-3:2016-08-15, High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 3: Classification and specifications for laminates less than 2 mm thick intended for bonding to supporting substrates.

EN 438-7
DIN EN 438-7:01/05/2005, High-Pressure Decorative Laminates (HPL) – Sheets based on thermosetting resins (usually called laminates) - Part 7: Compact laminate and HPL composite panels for internal and external wall and ceiling finishes.

EN 717-1
DIN EN 717-1:2005-02-01, Wood-based panels - Determination of formaldehyde release - Part 1: Formaldehyde emission by the chamber method.

EN 1186
DIN EN 1186:2002-07, Materials and articles in contact with foodstuffs - Plastics.

EN 13501-1
DIN EN 13501-1:2020-01-15, Fire classification of construction products and building elements - Part 1: Classification using data from reaction to fire tests.

EN 13986
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ISO 14044
DIN EN ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines.

ISO 15686
ISO 15686:2011-05, Buildings and constructed assets - Service life planning.

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AGW
Occupational exposure limit according to the German Ordinance on Hazardous Substances

BBSR Table
Useful lives of building components for life cycle analyses according to the Sustainable Building Assessment System (BNB). Version: 24.02.2017.

BedGgstV
German Commodities Ordinance, last amendment of 24 February 2016, reference Federal Official Journal I p. 198, 201

Biocidal Products Ordinance
Regulation (EU) No 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the making available on the market and use of biocidal products.

ChemVerbotsV
Chemicals Prohibition Ordinance, Ordinance on Prohibitions and Restrictions on the Placing on the Market and on the Supply of Certain Substances, Mixtures and Products under the Chemicals Act of 20 January 2017, last amendment of 19 June 2020 Federal Official Journal I p. 1328, 1363.

EWC
European Waste Catalogue, Ordinance on the European Waste Catalogue (Waste Catalogue

Ordinance - AVV), reference Federal Official Journal I 2001, 3379.

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List of values for the Maximum Workplace Concentration, published by the "Senate Commission for the Testing of Harmful Working Substances" in the German Research Foundation.

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Product category rules for building-related products and services. PART B: Requirements of EPD laminates. Version 1.1. Berlin: Institut Bauen und Umwelt e.V., 10.12.2018.

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