

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Parador GmbH
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-PAR-20230153-IBC1-EN
Issue date	21.09.2023
Valid to	20.09.2028

Vinyl design flooring with SPC core board, vinyl for gluing, vinyl made of solid material
Parador GmbH

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1. General Information

Parador GmbH

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Hegelplatz 1
10117 Berlin
Germany

Declaration number

EPD-PAR-20230153-IBC1-EN

This declaration is based on the product category rules:

Floor coverings, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

21.09.2023

Valid to

20.09.2028



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Vinyl design flooring with SPC core board, vinyl for gluing, vinyl made of solid material

Owner of the declaration

Parador GmbH
Millenkamp 7-8
48653 Coesfeld
Germany

Declared product / declared unit

The declared unit is one square metre (m²) of vinyl design flooring.

Scope:

This product declaration refers to an average square metre of vinyl design flooring. The average was calculated according to the area produced in one year.

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*.

Verification

The standard EN 15804 serves as the core PCR

Independent verification of the declaration and data according to ISO 14025:2011

internally

externally



Prof. Dr. Birgit Grahl,
(Independent verifier)

2. Product

2.1 Product description/Product definition

Design floorings (vinyl) are an entire product family of flooring solutions that are available in different formats, versions and designs. Depending on their design, they are suitable for a wide range of residential and commercial applications.

The average value for the declared unit in this EPD was derived from the following three products: vinyl flooring with stone polymer composite (SPC) core board, vinyl flooring made of solid material and vinyl flooring for gluing.

Vinyl design floorings consist of a wear layer and other compact layers - Parador distinguishes between the following structures: vinyl floorings with dimensionally stable SPC core board and click system for easy installation.

Vinyl flooring made of solid material with vinyl core layer and click system for easy installation.

Vinyl flooring for gluing with extra-thin vinyl core layer for whole-area gluing.

Depending on the version, the vinyl floorings can be easily installed thanks to the click system and/or glued over the whole area.

For the placing on the market of the product in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) *Regulation (EU) No. 305/2011 (CPR)* applies. The product needs a declaration of performance taking into consideration *EN 14041* and the CE-marking.

For the application and use the respective national provisions apply.

2.2 Application

Vinyl floorings with an SPC core board or made of solid material are suitable for residential and commercial indoor use. They are either installed floating on screed or other existing subfloors in conjunction with a suitable underlay or glued over the whole area.

According to the designation, vinyl flooring for gluing is only suitable for whole-area gluing or in combination with special, adhesive underlays.

The principles of proper installation can be found in the installation instructions enclosed with the packages or in the 'Vinyl and Modular ONE design flooring guide' (see: <https://parador.de/services/downloads/designboden>).

2.3 Technical Data

Structural data

Name	Value	Unit
Product thickness	2 – 6	mm
Density	1900 ± 10 %	kg/m ³
Wear layer thickness	≤ 0.55	mm
Product Form	Planks	-
Type of manufacture	Lamination / Profiling	-
Length of the surface layer	598 – 1,522	mm
Width of the surface layer	219 – 457	mm
Grammage	3,500 – 10,200	g/m ²

Further technical data can be found on the company website: <https://parador.de/services/downloads/designboden>

Certificates can be found on: <https://parador.de/services/downloads/designboden> under the heading "Certificates".

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 14041*.

The Declarations of Performance can be found on: <https://parador.de/services/downloads/designboden> under the heading "Declarations of Performance".

2.4 Delivery status

The vinyl floorings are delivered in the following condition.

Vinyl design flooring with SPC core board

Format		
Length	914 – 1,522	mm
Width	225 – 457	mm
Plank thickness	5.3 – 6.0	mm

Vinyl design flooring made of solid material

Format		
Length	598 – 1,209	mm
Width	219 – 396	mm
Plank thickness	4.3 – 5.0	mm

Vinyl design flooring for gluing

Format		
Length	610 – 1,219	mm
Width	229 – 305	mm
Plank thickness	2.0	mm

2.5 Base materials/Ancillary materials

The averaged percentage of component materials per m² in mass per cent for the EPD is as follows:

Average product

- Vinyl carrier/decor/wear layer: 98 % (with 65.6 % calcium carbonate (CaCO₃) and 28.6 % polyvinyl chloride (PVC))
- Acoustic backing (polyolefin): 1 %
- PUR (polyurethane) adhesive: < 1 %
- Bevel lacquer (water-based varnish): < 1 %

Vinyl design flooring with SPC core board

- Vinyl carrier/decor/wear layer: 97 %.
- Acoustic backing: 2 %
- PUR adhesive: < 1 %
- Bevel lacquer: < 1 %

Vinyl design flooring made of solid material / for gluing

- Vinyl carrier/decor/wear layer: > 99 %.
- Bevel lacquer: < 1 %

This product/article/at least one partial article contains substances listed in the candidate list (date: 18.08.2022) exceeding 0.1 percentage by mass: no.

This product/article/at least one partial article contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass: no.

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Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012): no.

2.6 Manufacture

The following applies to all vinyl design floorings:
In the first production step, the individual layers of the floor covering (wear layer, decor layer and core layer (and in some cases an acoustic backing) are joined together in a press and made into a large-area format. These so-called semi-finished parts are then formatted in the production facilities.

This is where the production of the whole-area gluing version ends.

The vinyl design flooring with SPC core board and vinyl flooring made of solid material versions are now additionally provided with a click profile and in parts with a bevel varnishing in the further course of production.

After the following quality control of the individual flooring elements, they are packed into half-shell cardboard boxes and shrink-wrapped in polyethylene (PE) film.

These individual packaging units are stacked on pallets according to the different formats and made available in the warehouse for subsequent delivery.

All processes are continually inspected and documented as part of the in-house Factory Production Control (FPC) system.

Parador's quality management system is certified according to *ISO 9001* and ensures that all processes are documented and, where necessary, amended.

2.7 Environment and health during manufacturing

At the Coesfeld site, vinyl chips are disposed of in a targeted manner by specialist disposal companies.

Parador is certified according to the European Eco-Management and Audit System *EMAS* which audits both the environmental and the energy-related aspects of the site and requires the site to undergo continual improvement.

2.8 Product processing/Installation

For the installation of these design floorings, Parador recommends the use of the following tools and aids: measuring tape or folding ruler, cutter knife, pencil, handsaw, Parador plastic spacer wedges, Parador MultiTool, Parador vinyl flooring installation aid, hammer, drill and jigsaw, cross-cut saw or circular saw.

Depending on the application, further tools may be required: vinyl flooring for gluing: spatula for glue application (trowel notch size A1–A2); pressure roller (approx. 50 kg); 'gun' for assembly adhesive; metal saw for aluminium profiles.

The usual safety precautions (e.g. safety goggles and dust mask when sawing) must be observed. The resulting shavings and sawdust should be extracted. If the products are used for commercial purposes, the provisions of the employers' liability insurance association shall apply.

The residual material and packaging must be disposed of separately according to waste category.

Further information can be found in the installation instructions enclosed with the product or in the 'Vinyl and Modular ONE

design flooring guide' (see <https://parador.de/services/downloads/designboden>).

2.9 Packaging

The planks are packed in half-shell cardboard boxes which are shrink-wrapped in polyethylene (PE) film for better protection against moisture and dirt. Exchangeable Euro-pallets and polyethylene terephthalate (PET) strapping are also used for transport.

All packaging components can be recycled pursuant to their category.

2.10 Condition of use

Like all plastics, vinyl flooring made of solid material has a physical property that it expands with changes in temperature, which must be taken into particular consideration when exposed to high heating levels, e.g. due to solar radiation, also in connection with floor-to-ceiling windows / doors (in such installation situations, the use of vinyl flooring with an SPC core board or vinyl flooring for gluing is recommended).

The room climate should be at a temperature of approx. 20 °C and a relative humidity of between 35 and 60 % all year round.

Cleaning and care of these Parador products must be carried out in accordance with the 'Vinyl and Modular ONE design flooring guide' (see <https://parador.de/services/downloads/designboden>).

2.11 Environment and health during use

There are no known negative effects between product, environment, and health. Risks to water, air, and soil cannot occur when used as intended. Emissions of pollutants are below the legal limits.

In terms of emission behaviour, the vinyl design floorings meet the requirements of the *AgBB* (Committee for Health-related Evaluation of Building Products) scheme, as well as class A+ according to the French *VOC regulation* (Décret no 2011321).

2.12 Reference service life

The Sustainable Building Assessment System (*BNB*) takes a useful life of 20 years as a basis under code no. 352.711.

2.13 Extraordinary effects

Fire

In the area of fire protection, the following building material class is complied with according to *EN 13501-1*:

Fire protection

Name	Value
Building material class	Bfl - Cfl
Smoke gas development	s1

See the information on the technical data sheets of the products - these can be found on: <https://parador.de/services/downloads/designboden> (under the heading "Technical Data Sheets").

Water

These vinyl floorings are waterproof products. These floorings can be installed in wet rooms without any time restrictions (although standing water between the flooring product and the substrate must be avoided (risk of mould growth). However, a dangerous impact on the environment is not to be expected when exposed to water.

Mechanical destruction

Mechanical destruction is not expected to have any negative consequences for the environment.

2.14 Re-use phase

Vinyl flooring made of solid material and with an SPC core board can be reused or continued to be used without problems in the case of floating installation in the event of selective dismantling, even after the end of the usage phase (this is not possible with vinyl flooring glued over the whole area). Residues and waste from vinyl flooring must always be recycled in accordance with AVV 17 02 03.

2.15 Disposal

Disposal is to be organised under the following AVV code: AVV code 17 02 03.

If repeated use as a floor covering is no longer possible, the

product can be sent for thermal recycling to generate heat and electricity.

Open burning or burning in a chimney is not possible, as the combustion of plastics leads to harmful emissions. Incineration should therefore take place in a plant with a connected flue gas cleaning system, such as a waste incineration plant.

2.16 Further information

Additional information about the company and other products as well as information brochures – including the EMAS Environmental Statement – are available to download on the company website: www.parador.de

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is an average square metre (1m²) of vinyl design flooring. The average value was calculated from the data collected from the input quantities of the components based on the quantities during the period 12.2020 - 11.2021.

Declared unit

Name	Value	Unit
Declared unit	1	m ²
Grammage	7.733	kg/m ²
Layer thickness	0.0041	m
Gross density	1900	kg/m ³

3.2 System boundary

Type of EPD: Cradle to factory gate with options.

Modules A1 to A3 and A5

The product stage (A1–A3) begins with considering the production of the necessary raw materials and energies, including all corresponding upstream chains and the procurement transports. Furthermore, the entire manufacturing phase was mapped, including treatment of production waste until end-of-waste status (EoW) was reached. Module A5 considers the disposal of packaging materials. Product losses as well as power-consuming tools, auxiliary materials and installation materials, on the other hand, were not taken into account in A5, as the amount of waste depends on the type of room (more waste is to be expected in rooms with corners than in rectangular rooms).

Modules C1–C4

The modules include the environmental impacts for the treatment of the waste categories until end-of-waste status (EoW) is reached, including the associated transports at the end of the product life cycle. No expenses are considered for dismantling (module C1), as manual dismantling is used as a basis. In Module C3, thermal recovery is modelled. No materials are sent to landfill so no negative or positive effects are accounted for in Module C4.

Module D

Identification of the benefits and costs of the product outside the system boundary. These consist of the declared benefits and negative effects from the net flows for the thermal recovery (C3) in the form of the average European electricity mix or thermal energy from natural gas.

3.3 Estimates and assumptions

It was assumed that thermal waste processing at end of life uses systems, whose R1 factor (efficiency of energy conversion or energy efficiency of waste incineration plants according to the European Waste Framework Directive) is > 0.6.

3.4 Cut-off criteria

Components in the decor/wear layer for which no matching data sets are available and whose mass fraction is significantly less than 0.1 % in each case, were partially truncated.

The sum of the neglected substances falls below 5 % of the material use and the influence on impact categories.

3.5 Background data

The software system for holistic balancing *GaBi* and the *GaBi* database were used to model the life cycle. The entire manufacturing process as well as the energy consumption were modelled on the basis of manufacturer-specific data. However, generic background datasets were used for the upstream and downstream processes. Where possible, country-specific datasets were used for modules A1–A3, and the corresponding European datasets for the disposal scenarios (C modules).

3.6 Data quality

The foreground data was provided by Parador and has been tested for plausibility. The quality of the foreground data and the extent to which the data is representative can therefore be considered to be high.

The data quality of the background data has been rated as good in regard to the extent to which it is representative in temporal, technical and geographical terms.

With regard to the robustness of the life cycle assessment values, it can be stated that the potential impacts on the environment that have been taken into account result for the most part from the background data. Thus, the impact of background data and primary products is high compared to the environmental impacts caused by the actual production.

3.7 Period under review

Foreground data was collected for the period 12/2020 to 11/2021.

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product's lifespan: Europe

3.9 Allocation

All required energies, raw materials, and supplies could be clearly assigned to the declared product. No by-products are produced and no allocation is required.

The input energy was divided among the products studied. The total energy consumed in the production of floor coverings was broken down by area of the different production processes (i.e. lamination and profiling) and then by weight of the materials processed.

In modules A1–A3, the declared benefits and negative effects from the net flows for the thermal recovery of production waste are offset. Packaging materials and the product are incinerated at the end of life in a waste incineration plant. Any emissions that occur are taken into account in the model. The declared

benefits and negative effects from the net flows resulting from the thermal recovery of the packaging waste - PE film (module A5) and from the recovery processes related to the product in the end of life (module C3) are assigned to module D.

Cardboard boxes in A5 were modelled as cardboard in sink. As secondary material has entered the system unencumbered, no declared benefits and negative effects from net flows are given in the end of life for corrugated cardboard.

3.10 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 background database used is GaBi version 10.6.2.9, content version 2022.2.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

The product contains less than 5 % biogenic carbon. For this reason, the biogenic carbon content of the product is not stated.

Note: 1 kg of biogenic carbon is equivalent to 44/12 kg of CO₂

Information describing the biogenic carbon content at the factory gate

Name	Value	Unit
Biogenic carbon content in product	< 5 %	kg C
Biogenic carbon content in accompanying packaging	0.034	kg C

Reference useful life

Name	Value	Unit
Life Span (according to BBSR)	20	a

End of life (C1–C4)

Name	Value	Unit
Energy recovery waste type	7.73	kg
Landfilling waste type	-	kg
Transport distance truck to waste incineration plant	75	km
Truck capacity (including empty runs)	50	%

Potential for reuse, recovery and recycling (D), relevant scenario data

Name	Value	Unit
Combustible material	7.73	kg
R1 factor waste incineration plant	> 60	%
Lower heating value	7.77	MJ/kg

5. LCA: Results

The environmental impacts for 1 m² of vinyl flooring are shown below. The following tables show the results of the impact assessment, the use of resources, waste and other output streams in relation to the declared unit.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = 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	MND	X	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² Vinylboden

Parameter	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-total	kg CO ₂ eq	1.07E+01	1.52E-01	0	5.63E-02	7.48E+00	0	-1.84E+00
GWP-fossil	kg CO ₂ eq	1.09E+01	2.87E-02	0	5.59E-02	7.48E+00	0	-1.84E+00
GWP-biogenic	kg CO ₂ eq	-1.23E-01	1.23E-01	0	0	0	0	0
GWP-luluc	kg CO ₂ eq	7.23E-03	4.19E-06	0	3.77E-04	7.74E-04	0	-1.98E-04
ODP	kg CFC11 eq	3.82E-10	1.26E-15	0	5.5E-15	9.21E-12	0	-1.21E-11
AP	mol H ⁺ eq	7.17E-02	5.02E-06	0	2.01E-04	3.12E-03	0	-2.38E-03
EP-freshwater	kg P eq	5.74E-05	2.49E-09	0	2E-07	3.48E-06	0	-2.47E-06
EP-marine	kg N eq	1.91E-02	1.61E-06	0	9.27E-05	1.07E-03	0	-6.51E-04
EP-terrestrial	mol N eq	2.12E-01	2.46E-05	0	1.04E-03	1.27E-02	0	-6.98E-03
POCP	kg NMVOC eq	5.82E-02	3.74E-06	0	1.81E-04	2.97E-03	0	-1.83E-03
ADPE	kg Sb eq	3.55E-05	9.13E-11	0	5.64E-09	2.27E-07	0	-2.73E-07
ADPF	MJ	2.04E+02	1.14E-02	0	7.35E-01	1.92E+01	0	-3.13E+01
WDP	m ³ world eq deprived	1.21E+00	2.6E-03	0	6.25E-04	1.19E+00	0	-1.89E-01

GWP = Global warming potential; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential of land and water; EP = Eutrophication potential; POCP = Formation potential of tropospheric ozone photochemical oxidants; ADPE = Abiotic depletion potential for non-fossil resources; ADPF = Abiotic depletion potential for fossil resources; WDP = Water (user) deprivation potential

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² Vinylboden

Parameter	Unit	A1-A3	A5	C1	C2	C3	C4	D
PERE	MJ	3.18E+01	3.6E+00	0	5.09E-02	5.27E+00	0	-8.37E+00
PERM	MJ	3.6E+00	-3.6E+00	0	0	0	0	0
PERT	MJ	3.54E+01	1.33E-03	0	5.09E-02	5.27E+00	0	-8.37E+00
PENRE	MJ	1.49E+02	1.61E-01	0	7.38E-01	7.55E+01	0	-3.13E+01
PENRM	MJ	5.65E+01	-1.5E-01	0	0	-5.63E+01	0	0
PENRT	MJ	2.06E+02	1.14E-02	0	7.38E-01	1.92E+01	0	-3.13E+01
SM	kg	7.27E-02	0	0	0	0	0	9.3E-03
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
FW	m ³	5.07E-02	6.13E-05	0	5.88E-05	3E-02	0	-8E-03

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

RESULTS OF THE LCA - WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² Vinylboden

Parameter	Unit	A1-A3	A5	C1	C2	C3	C4	D
HWD	kg	2.57E-06	3.51E-13	0	3.9E-12	1.77E-09	0	-4.27E-09
NHWD	kg	4.17E-01	1.13E-04	0	1.2E-04	5.96E+00	0	-1.56E-02
RWD	kg	3.34E-03	2.13E-07	0	1.37E-06	9.65E-04	0	-2.4E-03
CRU	kg	0	0	0	0	0	0	0
MFR	kg	0	3.74E-07	0	0	0	0	0
MER	kg	4.91E-01	8.96E-03	0	0	7.73E+00	0	0
EEE	MJ	0	5.99E-02	0	0	7.99E+00	0	8.05E+00
EET	MJ	0	1.06E-01	0	0	1.51E+01	0	1.52E+01

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HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² Vinylboden

Parameter	Unit	A1-A3	A5	C1	C2	C3	C4	D
PM	Disease incidence	ND	ND	ND	ND	ND	ND	ND
IR	kBq U235 eq	ND	ND	ND	ND	ND	ND	ND
ETP-fw	CTUe	ND	ND	ND	ND	ND	ND	ND
HTP-c	CTUh	ND	ND	ND	ND	ND	ND	ND
HTP-nc	CTUh	ND	ND	ND	ND	ND	ND	ND
SQP	SQP	ND	ND	ND	ND	ND	ND	ND

PM = Potential incidence of disease due to PM emissions; IR = Potential Human exposure efficiency relative to U235; ETP-fw = Potential comparative Toxic Unit for ecosystems; HTP-c = Potential comparative Toxic Unit for humans (cancerogenic); HTP-nc = Potential comparative Toxic Unit for humans (not cancerogenic); SQP = Potential soil quality index

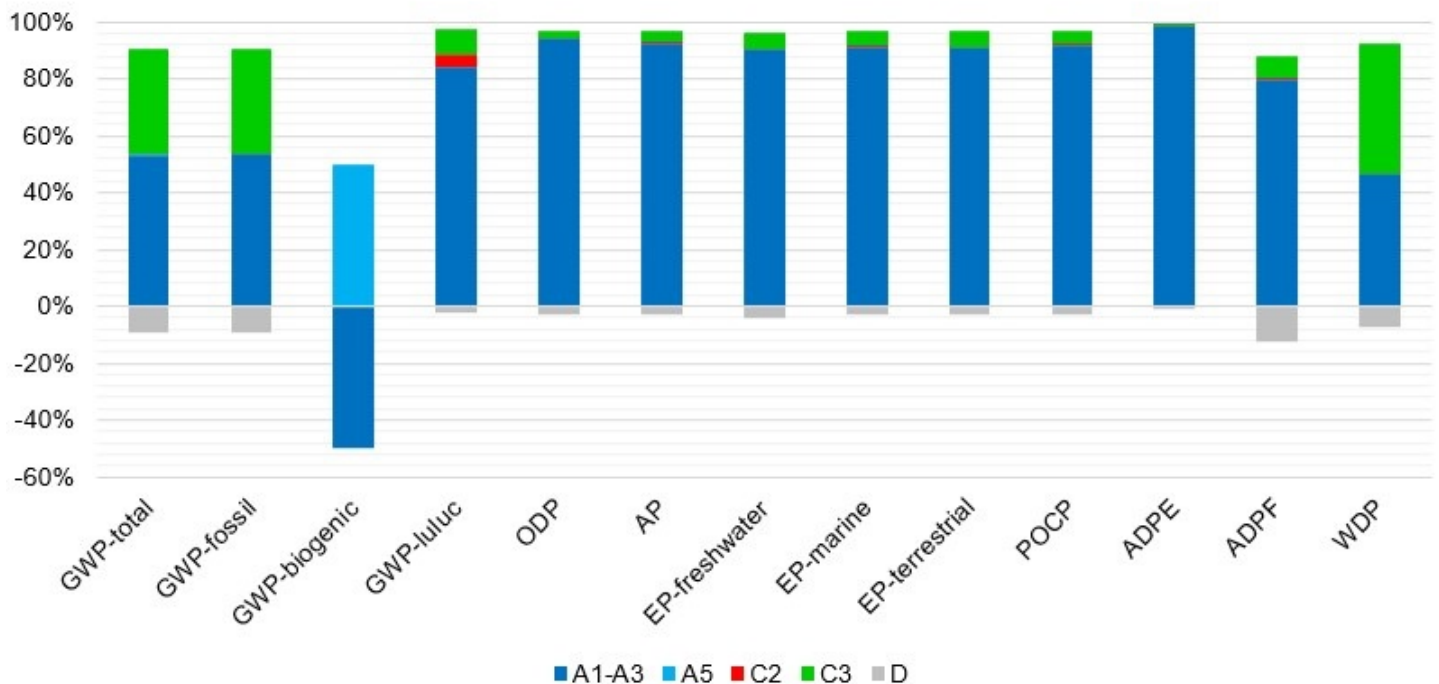
The designation of the additional indicators according to EN 15804+A2 is optional. The indicators are not shown in the EPD ("ND").

Disclaimer 1 – for the indicator 'Potential Human exposure efficiency relative to U235'. This impact category deals mainly with the eventual impact of low-dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure or radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators 'abiotic depletion potential for non-fossil resources', 'abiotic depletion potential for fossil resources', 'water (user) deprivation potential, deprivation-weighted water consumption', 'potential comparative toxic unit for ecosystems', 'potential comparative toxic unit for humans – cancerogenic', 'Potential comparative toxic unit for humans - not cancerogenic', 'potential soil quality index'. The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high as there is limited experience with the indicator.

6. LCA: Interpretation

Dominance analysis



Environmental impacts

The dominance analysis shows that the manufacturing phase (modules A1–A3) is dominant in most impact categories over the life cycle of the floor covering.

One exception is the indicator Global Warming Potential biogenic (GWP-biogenic). GWP-biogenic in modules A1–A3 is negative due to the proportion of biogenic carbon in the cardboard for the packaging. When the packaging is recycled in module A5, the biogenic carbon leaves the product system

under consideration and is thus offset.

In the following, the modelled influences in the manufacturing phase (modules A1–A3) of the environmental impact indicators considered are discussed.

The share of PVC of the vinyl layers dominates the assessed environmental impacts of the indicators Global Warming Potential - fossil (GWP fossil), Global Warming Potential - Land Use and Land Use Change (GWP luluc), Depletion Potential of the Stratospheric Ozone Layer (ODP) and Abiotic Resource

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Depletion Potential - fossil fuels (ADPF).

The indicators Soil and Water Acidification Potential (AP), Eutrophication Potential - salt water (EP marine), Eutrophication Potential - land (EP terrestrial) and Photochemical Ozone Creation Potential (POCP) are dominated by container ship transports.

Freshwater eutrophication potential (EP-freshwater) and abiotic depletion potential of non-fossil resources (ADPE) are dominated by the additives for the vinyl layers, the water used (WDP) by energy to produce the vinyl layers.

Primary energy

For both renewable and non-renewable primary energy (PERT and PENRT respectively), the influences are mainly in the manufacturing phase and there in the upstream chains of the PVC.

Range of the results

The variability of the results comes from the range of the product weight as well as the energy data from the upstream chains. For the GWP-fossil indicator in module A1–A3, a range of results from -56 % to +50 % compared to the declared average was calculated.

7. Requisite evidence

The following are the valid verifications / certificates for the product and the manufacturer.

VOC emissions AgBB

Testing laboratory:
eco-INSTITUT Germany GmbH
Schanzenstrasse 6-20
Carlswerk 1.19
D-51063 Cologne

Test report 57544-A005 dated 06.09.2022
Testing method: Emission analysis according to *EN 16516*

Results overview (28 days)

Name	Value	Unit
TVOC	88	µg/m ³
TSVOC	5	µg/m ³
KMR1	< 1	µg/m ³

Fulfilment of the requirements of the *AgBB* scheme.

VOC emissions French VOC Regulation

(Décret no 2011-321)
Testing laboratory:
eco-INSTITUT Germany GmbH
Schanzenstrasse 6-20
Carlswerk 1.19
D-51063 Cologne

Test report: 57544-A005-FVO-L dated 06.09.2022
Testing method: Emission analysis according to *EN 16516*

Fulfilment of the emission requirements of **class A+**

Fire behaviour

Testing laboratory:
TFI Aachen GmbH
Charlottenburger Allee 41
D-52068 Aachen

Test reports: 20-000667-02 dated 20.08.2020 490310-05 dated 03.04.2019

Testing method: Fire behaviour classification according to *EN 13501-1*

Plasticiser screening (regular monitoring)

Testing laboratory:
eco-INSTITUT Germany GmbH
Schanzenstrasse 6-20
Carlswerk 1.19
D-51063 Cologne

Test report: 57362-005 dated 17.05.2022

Testing method: Gas chromatographic determination of plasticisers in consumer articles by GC/MSD

Result: No deviations from the internal specification.

8. References

Standards

ISO 9001

DIN EN ISO 9001:2015-11, Quality management systems - Requirements.

EN 13501-1

DIN EN 13501-1:2019-05, Classification of construction products and types of construction according to their reaction to fire - Part 1: Classification using the results of tests on the reaction to fire of construction products.

ISO 14025

DIN EN ISO 14025:2011-10, Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

EN 14041

DIN EN 14041:2018-05, Resilient, textile, laminate and modular multilayer floor coverings - Essential characteristics.

EN 16516

DIN EN 16516:2020-10, Construction products: Assessment of release of hazardous substances - Determination of emissions to indoor air.

Further literature

AgBB

Requirements for indoor air quality in buildings: health assessment of emissions of volatile organic compounds (VOC, VOC, and SVOC) from building products.

AVV

Waste Catalogue Regulation (AVV) of 10 December 2001 (Federal Law Gazette I p. 3379), which was last amended by Article 2 of the Regulation, dated 30 June 2020 (Federal Law Gazette I p. 1533).

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BNB

BNB Code No. 352.711 Useful lives of building components for life cycle analyses according to the evaluation system for sustainable building, 2017: Linoleum, laminate, PVC, plastic engineered wood flooring, cork, rubber, sports hall coverings. Berlin: Federal Ministry of the Interior, for Building and Home Affairs.

ECHA

List of Candidate Substances of Very High Concern (ECHA Candidate List), dated 19 January 2021, published in accordance with Article 59 (10) of the REACH Regulation. Helsinki: European Chemicals Agency.

EMAS

Regulation (EC) No 1221/2009 of the European Parliament and of the Council on the voluntary participation by organisations in a community system for environmental management and environmental auditing and repealing Regulation (EC) No. 761/2001, as well as the decisions of the Commission 2001/681/EC and 2006/193/EC. <https://www.emas.de/home/>

GaBi

GaBi 10.6.2.9 : Software System and Database for Life Cycle Engineering, Sphera Solutions GmbH, Leinfelden-Echterdingen, 2022.

IBU 2021

Institut Bauen und Umwelt e.V.: General guide for the EPD programme of the Institut Bauen und Umwelt e.V. (IBU). Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021. www.ibu-epd.com

PCR Part A

Product category rules for building-related products and services. Part A: Calculation rules for the life cycle assessment and requirements for the project report according to EN 15804+A2:2019, Version 1.3. Berlin: Institut Bauen und Umwelt e.V. (publ.), 31.08.2022.

PCR: Floor coverings

PCR instruction texts for building-related products and services. Part B: Requirements of the EPD for floor coverings, version v4. Berlin: Institut Bauen und Umwelt e.V. (publ.), 13.06.2023
Test report 57544-A005 Emission analysis of vinyl flooring according to EN 16516. Cologne: ecoINSTITUT Germany GmbH.06.09.2022.

Regulation (EU) No. 305/2011

Regulation (EU) No. 305/2011 of the European Parliament and of the Council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC. <https://eur-lex.europa.eu/legalcontent/DE/TXT/PDF/?uri=CELEX:02011R0305-20210716&from=ENV0C-Verordnung>

Regulation (EU) No. 528/2012

Regulation (EU) No. 528/2012 of the European Parliament and of the Council of 22 May 2012 concerning the availability on the market and use of biocide products.

Test report: 57544-A005-FVO-L

Emission analysis of vinyl flooring according to EN 16516. Cologne: ecoINSTITUT Germany GmbH. 06.09.2022. Test report: 20-000667-02 Classification of vinyl flooring for reaction to fire according to EN 13501-1:2010. Aachen: TFI Aachen GmbH. 20.08.2020.

Test report: 490310-05

Classification of vinyl flooring for reaction to fire according to EN 13501-1:2010. Aachen: TFI Aachen GmbH. 20.08.2020.

Test report: 57362-005

Gas chromatographic determination of plasticisers in consumer articles by GC/MSD Cologne: eco-INSTITUT Germany GmbH. 17.05.2022.

VOC Regulation FR

A+ émissions dans l'air intérieur according to French VOC regulation, France, 2011.

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