ENVIRONMENTAL PRODUCT DECLARATION

as per /ISO 14025/ and /EN 15804/

Owner of the Declaration	Parador GmbH
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-PAR-20180193-IBC1-EN
Issue date	23.04.2019
Valid to	22.04.2024

Laminate Flooring

Parador GmbH

Institut Bauen und Umwelt e.V.

www.ibu-epd.com / https://epd-online.com

PARADOR

1. General Information

Parador GmbH	Laminate Flooring
Programme holder IBU - Institut Bauen und Umwelt e.V. Panoramastr. 1 10178 Berlin Germany	**Owner of the declaration** Parador GmbH Millenkamp 7-8 D-48653 Coesfeld, Germany
Declaration number EPD-PAR-20180193-IBC1-EN	**Declared product / declared unit** The declared unit is 1 m² of the laminate flooring including packaging materials of the weighted average according to the production quantity.
This declaration is based on the product category rules: Floor coverings, 02/2018 (PCR checked and approved by the SVR)	**Scope:** This EPD applies to the production of laminate flooring in the German production plant of Parador GmbH in Coesfeld. All product types manufactured in the period 01 January - 31 December 2017 were taken into account. 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.
Issue date 23.04.2019	
Valid to 22.04.2024	**Verification** The standard /EN 15804/ serves as the core PCR Independent verification of the declaration and data according to /ISO 14025:2010/ ☐ internally ☒ externally
Prof. Dr.-Ing. Horst J. Bossenmayer (President of Institut Bauen und Umwelt e.V.)	
Dr. Alexander Röder (Managing Director IBU)	Patricia Wolf (Independent verifier appointed by SVR)

2. Product

2.1 Product description / Product definition

Parador laminate flooring is part of the group of hard flooring elements characterised by a highly abrasion-resistant top layer suitable for floating installation, i.e. without gluing, using a patented click connection. An individual look is achieved by the printed and impregnated decor paper. A special manufacturing process provides the surface with an appropriate texture. The laminate flooring is available in various plank formats, which are contoured on the long and the end edges with a highly precise click connection. The finished planks are packaged in cartons and foil at the factory to protect them from damage. The respective production shares of all laminate flooring produced at the Coesfeld plant is included in the calculation of averages.

Regulation (EU) No. /305/2011/ (CPR) applies to the marketing of the product in the EU/EFTA (with the exception of Switzerland). The product requires a declaration of performance taking into account the harmonised standard /DIN EN 14041:2018-05/ Resilient, textile, and laminate flooring - Essential characteristics; German version /EN 14041:2018-05/and the CE marking.
The respective national regulations apply for the use.

2.2 Application

Laminate flooring is suitable for floating installation indoors in new buildings as well as for renovations. They can be installed on screed as well as other mineral subfloors, wood or PVC. The principles of proper installation can be found in the installation instructions supplied or in the brochure "/Laminate Flooring Indoor advice section/".

2.3 Technical Data

Structural data

The performance values of the product according to the declaration of performance shall apply with regard to its essential characteristics according to /EN 13329:2017-12/

Constructional data

Name	Value	Unit
Surface weight	6400-9000	g/m²
Abrasion Class	AC3-AC5	-
Type of manufacture	DPL	-
Thickness of the element	66 - 9	mm
Length of the surface layer	638 - 2000	mm
Width of the surface layer	95 - 400	mm
Density	850 - 900	kg/m³

- The declaration of performance can be found under the following link: https://www.parador.de/service/katalogedownloads/leistungserklaerungen-dop
- Technical information can be found under the following link: https://www.parador.de/service/katalogedownloads/datenblaetter
- Certificates can be found under the following link: https://www.parador.de/service/katalogedownloads/zertifikate

2.4 Delivery status

Laminate flooring is delivered in the following condition:

Laminate flooring of "wear class 33"	
Product features	
Format / Packaging	according to current type list
Wear layer	Class AC 5 melamine resin overlay
Decor layer	Various versions, resin impregnated
Core board	HDF / thickness: 8.8mm
Backing	resin-impregnated
Overall thickness	9.0mm
Surface weight	9.0 g/m²
All figures +/- 10%.	

Laminate flooring "wear class 32"	
Product features	
Format / Packaging	according to current type list
Wear layer	Class AC 4 melamine resin overlay
Decor layer	Various versions, resin impregnated
Core board	HDF / thickness: 6.8 - 8.8mm
Backing	resin-impregnated
Overall thickness	6.6 - 9.0mm
Surface weight	7.0 - 9.0kg/m²
All figures +/- 10%.	

Laminate flooring "wear class 31"	
Product features	
Format / Packaging	according to current type list
Wear layer	Class AC 4 melamine resin overlay
Decor layer	Various versions, resin impregnated
Core board	HDF / thickness: 6.4 - 8.8mm
Backing	resin-impregnated
Overall thickness	6.6 - 7.0mm
Surface weight	6.4 – 6.8kg/m²
All figures +/- 10%.	

Detailed information				
	WC 31/32 6.6 – 7mm	WC 31/32 8mm	WC 32 9mm	WC 33 9mm
Perpendicularity	≤ 0.10mm			
Edge straightness	≤ 0.10mm			
Surface flush	mean ≤ 0.05mm			
	max. ≤ 0.1 mm			
Joint opening	mean ≤ 0.05mm			
	max. ≤ 0.10mm			
Thermal transfer resistance	0.043m² k/W	0.043m² k/W	0.048m² k/W	0.048m² k/W
Formaldehyde emission	E1 / ≤ µg/m³			
Pentachlorophenol (PCP) content	≤ 5 ppm			
Fire behaviour	Cfl-s1			
Gliding behaviour	DS			
Electrical behaviour	see information in the current type list / declaration of performance (DoP).			

2.5 Base materials / Ancillary materials

The main product components show the following weighted average percentage by mass:

Designation	Value	Unit
High-density fibreboard (HDF)	95	%
Decor paper	2	%
Overlay	2	%
Backing paper	1	%

HDF board

The core board is a high-density fibreboard (HDF board). All core boards come from /PEFC/ certified stocks (/PEFC/; Chain of Custody).

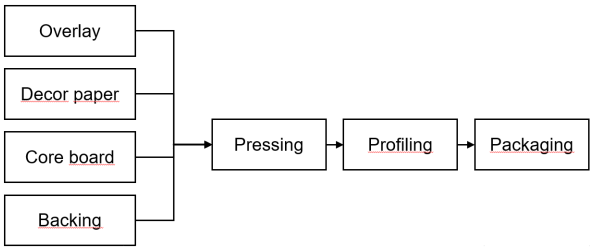
The product/at least one subassembly contains substances from the candidate list (/ECHA/) (date 03.12.2018) above 0.1 mass percent: no.

The product/at least one subassembly contains additional CMR substances category 1A or 1B that are not on the candidate list (/ECHA/) above 0.1 mass percent in at least one subassembly: no.

No biocide products have been added to this building product and it has not been treated with biocide products (thus it is an untreated product in the sense of the Biocide Products Ordinance (EU) No. 528/2012): no.

2.6 Manufacture

Illustration of the Direct Pressed Laminate flooring (DPL) manufacturing process:



The overlay, decor paper, core board (HDF), and backing materials are thermally pressed together in one working step in a short-cycle press. Through an irreversible polycondensation reaction during compression, the impregnating resin (melamine-urea-formaldehyde) is three-dimensionally cross-linked under thermal input. The chemically stable binding agents are thus firmly bound in the wood.

After pressing, the semi-finished formats acclimatise to ambient temperature. After an acclimatisation period, the semi-finished formats are cut according to the product formats and given a lengthways and crossways profile. After quality control of the individual laminate flooring elements, they are packed in half-shell cartons and shrink-wrapped.
These individual packaging units are stacked on pallets according to the different formats.
All processes are continually inspected and documented as part of the in-house Factory Production Control (FPC).

2.7 Environment and health during manufacturing

Due to the manufacturing conditions, no health protection measures are necessary beyond those required by law or other regulations. A risk and stress analysis (risk assessment) was carried out and necessary measures have been derived. The workplace limit values (according to /TRGS 900/) are clearly never reached at any point of production. Furthermore, the PARADOR locations are certified according to both /ISO 14001/ and /EMAS/.

2.8 Product processing/Installation

You will need the following tools and aids for installing Parador laminate flooring: tape measure or hinged ruler, cutter, pencil, handsaw, Parador spacer wedges, Parador MultiTool, hammer, drill, and jigsaw, crosscut saw, or circular saw. Depending on the application, further tools and materials may be required: "gun" for construction adhesive; metal saw for aluminium profiles; Parador Glue D3. The usual safety precautions (e.g. safety goggles and dust mask when sawing) must be observed. The resulting sawdust should be extracted. The provisions of the employers' liability insurance association apply for industrial processing.
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 "/Laminate Flooring advice section/", which is available for download from the Parador website.

2.9 Packaging

The packaging consists of a cardboard box, perforated PE film, and PET strapping tape. These packaging materials must be collected separately and recycled in accordance with local regulations. In Germany and Austria, the films must be returned to the Dual System. Cardboard boxes must be placed in paper/cardboard/cardboard box collection points.

2.10 Condition of use

Wood is a hygroscopic material, i.e. it can absorb and release moisture. When using wood it is therefore important to ensure a balanced room climate to prevent dimensional changes. The indoor climate should be maintained throughout the year at a temperature of approx. 20°C and a relative humidity between 35 - 60%.

Parador products must be cleaned and cared for in accordance with the "/Laminate Flooring advice section/".

2.11 Environment and health during use

No damage to the environment or health is expected if Parador laminate floors are used properly. All laminate flooring meets the award criteria of /RAL-UZ176/ (Blue Angel) contract no. /27259/ and /eco-INSTITUT/ ID 1112-12656-001. All emission values are well below legal limits. Parador laminate flooring poses no risk to water, air, or soil when used as intended.

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.

Description on the influences on the ageing of the product when applied in accordance with the rules of technology.

2.13 Extraordinary effects

Fire
The following building material class according to /EN 13501-1/ is adhered to in the area of fire protection:

Fire protection

Name	Value
Building material class	Cfl
Smoke gas development	n.a.
Burning droplets	s1

Laminate flooring is therefore classified as flame-retardant and exhibits only low smoke emission.

Water
An edge swell protection exists against short-term exposure to water. Laminate flooring is not resistant to permanent exposure to water. However, a dangerous impact on the environment is not to be expected when exposed to water.

Mechanical destruction
Mechanical destruction can result in sharp-edged fractures, which can pose a risk of injury.
In case of a hole/impression damage in the top layer, it can be repaired with appropriate hard waxes or surface pens. If the damage is too great, individual planks in the area can also be replaced.

2.14 Re-use phase
In case of selective dismantling, the product can easily be reused even after the end of the useful life.

2.15 Disposal
According to /AltholzV/, /AVV/ 17 02 01 and /AVV/ 20 01 38, placing old wood in a landfill is prohibited.

Residues and wastes from laminate flooring must be recycled in accordance with /AVV 17 02 01/ and /AVV 20 01 38/. If repeated use of the product as flooring is no longer possible, then the high heating value of approx. 17 MJ/kg means that it can be thermally recycled to generate heat and electricity.

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

Old wood category A II applies: glued, painted, coated, varnished, or otherwise treated old wood without organohalogen compounds in the coating and without wood preservatives.

2.16 Further information
Additional information about the company and other products as well as information brochures can be downloaded at www.parador.de

3. LCA: Calculation rules

3.1 Declared Unit
The declared unit is 1 m2 of the laminate flooring including packaging materials of the weighted average according to the production quantity.

Declared unit

Name	Value	Unit
Declared unit	1	m^2
Laminate flooring	7.52	kg
Packaging materials	0.10	kg
Total weight	7.62	kh
Conversion factor to 1 kg	0.131	-

3.2 System boundary
Type of EPD: Cradle to factory gate - with options. The system boundaries for module A1-3 include all raw material extraction processes, both for the material and for energy flows, which are used from the cradle to the factory gate, their further processing into primary and intermediate products up to the production of the laminate flooring.
Modules A4 and A5 include transport and installation of the building product on the construction site as well as the disposal of packaging waste.
Modules C2 and C3 cover the transport and energy recovery of the product in the *end of life*.

3.3 Estimates and assumptions
The individual layers of the laminate flooring were modelled on the basis of averaged tolerance data provided by suppliers. The energy requirement of the production facilities was determined on the basis of manufacturer data of the production facilities and internal energy analyses by Parador. In order to take all loads into account, recycling rates of 100% were assumed for packaging materials on the construction site (module A5) and for the product in the *end of life* stage (module C3). An average distance of 75 km was estimated as the average distance to a waste disposal plant.

3.4 Cut-off criteria
The decor print was excluded due to the extremely small amount of ink applied to the decor medium, as neither adequate data sets nor official empirical values or estimates exist.

No manufacturer data on energy consumption and waste generation in production related to the manufacture of the individual product layers (upstream) is available for the purchased individual layers. Generic data sets were therefore used for the upstream production processes. The use of adhesive labels and the modelling of procurement transports for packaging were however omitted completely.
Pallets for transport in A4 were also excluded, as they do not have a significant mass fraction in the analysed product system of 1 m² laminate flooring due to the fact that they are used 20 times on average and therefore have no appreciable effect.

It can be assumed that the sum of the omitted mass fractions does not exceed 5% of the results in the impact categories.

3.5 Background data

The software system for holistic balancing /GaBi 8.7/ was used for life cycle modelling. All background datasets relevant for production and disposal originated from various GaBi add-on databases as well as /ecoinvent/ (v.2.2). The datasets contained in the databases are documented online.

3.6 Data quality

The background datasets from the GaBi databases used for accounting purposes are not older than 10 years. An ecoinvent dataset that exceeds the age of 10 years was also used. However, both datasets are considered well suited and represent only a small mass fraction.

The geographical representativity can be regarded as good. Apart from a few exceptions, German datasets were always used for modelling purposes.

The data for the examined products was captured on the basis of evaluations of internal production and environmental data, the collection of LCA-relevant data within the supply chain, as well as the manufacturer's disclosure of relevant data for the energy supply. The data collected were checked for plausibility and consistency, and good data representativity can be assumed.

The structure of the products contained in the average is very similar. A variance analysis confirms that averaging across laminate products provides a thoroughly representative average value.

3.7 Period under review

The life cycle assessment is based on data from the period 01/2017 to 12/2017.

3.8 Allocation

Possible potentials and avoided burdens resulting from the thermal recovery of packaging waste (Module A5) and the energy recovery of the laminate flooring in the *End of life* stage (module C3) are allocated to module D.

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 background database used is /GaBi/ version 8.7, Service Pack 36..

4. LCA: Scenarios and additional technical information

Transport to the construction site (A4)

Name	Value	Unit
Transport distance truck, DE: Diesel	646	km
Capacity utilisation (including empty runs)	50	%
Transport distance container ship	1067	km
Capacity utilisation (including empty runs)	48	%

When calculating the transport distance, all distribution countries were included proportionately. The transport to the construction site is mapped with German fuel datasets due to the high percentage of the DACH region.

Installation in the building (A5)

During installation, it can be expected that approx. 5% more material will be needed than is theoretically required to cover the surface due to cutting waste and remaining planks. However, this fact is not taken into consideration in the results of this EPD. Instead, the user can adjust the results by a corresponding factor.

Name	Value	Unit
Packaging waste	0.104	kg

Reference service life

Name	Value	Unit
Reference service life	20	a
Usage conditions, e.g. frequency of use, mechanical exposure	-	-

Source: BNB-Leitfaden /BNB Nutzungsdauern von Bauteilen/BNB (Guide /BNB Service life of components/.)

End of Life (C1-C4)

Name	Value	Unit
Reuse	0	kg
Recycling	0	kg
Energy recovery	752	kg
Landfilling	0	kg

For end of life modelling it was assumed that 100% of laminate flooring to be disposed of would be used for energy recovery if reinstallation was no longer possible. Recycling of the materials is not possible because the different layers are irreversibly connected to each other. The end of life processes are modelled with datasets representing the European average. Intra-European transports and recycling quotas were taken into account.

Reuse, recovery and/or recycling potentials (D), relevant scenario information

Name	Value	Unit
Combustible material	7.52	kg
R1 factor waste incineration plant	>60	%
Lower heating value	17	MJ/kg

Module D shows both the possible potentials and avoided burdens from energy recovery of the product at the *end of life* stage (resulting from module C3) and for the packaging materials (resulting from module A5).

5. LCA: Results

The LCIA results for 1 m² of the declared product are shown below. It should be considered that the LCIA results are only relative statements that do not make statements about endpoints of impact categories, threshold exceedance, safety margins, or risks.

For the assessment of the possible environmental impact of 1 m² laminate flooring, the CML methodology with the characterisation factors of version 2001 - Apr. 2013 is applied.

The results refer to the potential environmental impacts over a period of 100 years.
Long-term emissions (> 100 years) are not taken into account in the impact assessment.

DESCRIPTION OF THE SYSTEM BOUNDARY (X = INCLUDED IN LCA; MND = MODULE NOT DECLARED)

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	X	X	MND	MND	MNR	MNR	MNR	MND	MND	MND	X	X	MND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 m² laminate flooring

Parameter	Unit	A1-A3	A4	A5	C2	C3	D
Global warming potential	[kg CO_2-Eq.]	-5.27E+0	3.49E-1	1.69E-1	3.59E-2	1.35E+1	-3.65E+0
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	4.45E-7	8.80E-15	3.94E-15	9.78E-16	2.84E-13	-8.02E-12
Acidification potential of land and water	[kg SO_2-Eq.]	1.96E-2	4.45E-3	2.92E-5	2.15E-4	4.43E-3	-6.18E-3
Eutrophication potential	[kg $(PO_4)^{3-}$-Eq.]	6.68E-3	5.95E-4	5.61E-6	5.47E-5	1.11E-3	-6.67E-4
Formation potential of tropospheric ozone photochemical oxidants	[kg ethene-Eq.]	5.36E-3	-1.99E-4	2.00E-6	-9.69E-5	2.83E-4	-4.82E-4
Abiotic depletion potential for non-fossil resources	[kg Sb-Eq.]	3.09E-6	2.78E-8	2.87E-9	3.85E-9	1.41E-7	-1.04E-6
Abiotic depletion potential for fossil resources	[MJ]	1.05E+2	4.54E+0	3.78E-2	4.85E-1	3.25E+0	-5.01E+1

RESULTS OF THE LCA - RESOURCE USE: 1 m² laminate flooring

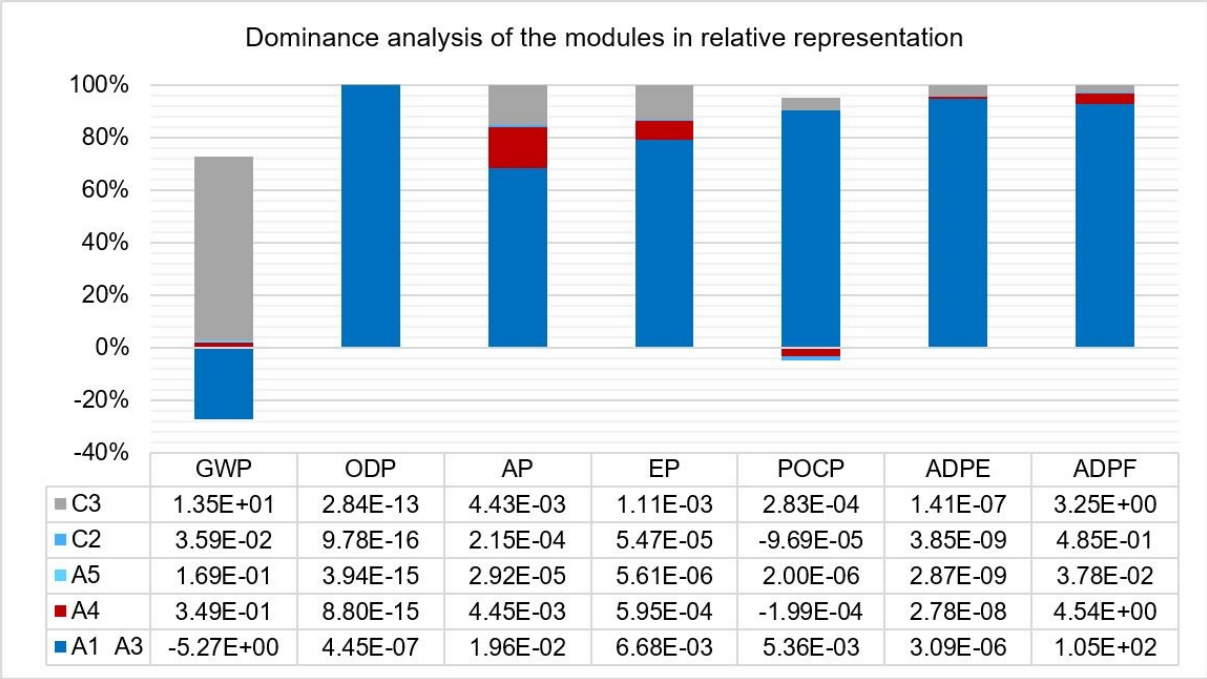
Parameter	Unit	A1-A3	A4	A5	C2	C3	D
Renewable primary energy as energy carrier	[MJ]	6.53E+0	2.19E-1	1.54E+0	3.34E-2	1.43E+2	-1.24E+1
Renewable primary energy resources as material utilization	[MJ]	1.44E+2	0.00E+0	-1.53E+0	0.00E+0	-1.43E+2	0.00E+0
Total use of renewable primary energy resources	[MJ]	1.51E+2	2.19E-1	7.09E-3	3.34E-2	5.00E-1	-1.24E+1
Non-renewable primary energy as energy carrier	[MJ]	1.30E+2	4.56E+0	6.37E-1	4.87E-1	3.75E+0	-6.39E+1
Non-renewable primary energy as material utilization	[MJ]	5.92E-1	0.00E+0	-5.92E-1	0.00E+0	0.00E+0	0.00E+0
Total use of non-renewable primary energy resources	[MJ]	1.30E+2	4.56E+0	4.48E-2	4.87E-1	3.75E+0	-6.39E+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]	0.00E+0	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	[m³]	1.84E+0	2.55E-4	4.63E-4	3.85E-5	3.08E-2	-1.70E-2

RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES: 1 m² laminate flooring

Parameter	Unit	A1-A3	A4	A5	C2	C3	D
Hazardous waste disposed	[kg]	1.33E-7	1.99E-7	7.02E-11	3.10E-8	2.12E-9	-2.61E-8
Non-hazardous waste disposed	[kg]	5.38E-2	2.54E-4	3.26E-3	3.83E-5	2.87E-2	-2.76E-2
Radioactive waste disposed	[kg]	6.67E-3	6.64E-6	2.76E-6	7.67E-7	1.99E-4	-5.47E-3
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	2.80E-1	0.00E+0	2.51E+1	0.00E+0
Exported thermal energy	[MJ]	1.65E+0	0.00E+0	5.10E-1	0.00E+0	4.64E+1	0.00E+0

Additional technical scenario information:
13.7 kg of CO2 equivalent are bonded in one square metre of laminate flooring (including packaging), which in module A1-A3 creates a corresponding negative contribution.

6. LCA: Interpretation



	GWP	ODP	AP	EP	POCP	ADPE	ADPF
C3	1.35E+01	2.84E-13	4.43E-03	1.11E-03	2.83E-04	1.41E-07	3.25E+00
C2	3.59E-02	9.78E-16	2.15E-04	5.47E-05	-9.69E-05	3.85E-09	4.85E-01
A5	1.69E-01	3.94E-15	2.92E-05	5.61E-06	2.00E-06	2.87E-09	3.78E-02
A4	3.49E-01	8.80E-15	4.45E-03	5.95E-04	-1.99E-04	2.78E-08	4.54E+00
A1 A3	-5.27E+00	4.45E-07	1.96E-02	6.68E-03	5.36E-03	3.09E-06	1.05E+02

ENVIRONMENTAL IMPACTS
Global warming potential (**GWP**): A1-A3 reflects the material bonding of the CO2 potential in the material, C3 its release in a waste incineration plant.

Neither the transports nor the installation on site have a significant effect on the overall result.

The manufacturing phase (A1-A3) plays a significant role in the results of other environmental impact categories.
In the case of acidification (**AP**) and eutrophication potential (**EP**), transport - particularly from Module A4 - also plays a noticeable role alongside the disposal phase.

USE OF RESOURCES
Primary energy
The renewable share of energy sources dominates the result in module A1-A3. This is due to the high wood content associated with the product system. The non-renewable portion is also almost as high, at least when considered across all phases of life. This is due to the consistently conservative energy mix on which the product system in module A1-A3 is based, as well as the energy sources used for the rather wide distribution transports in module A4 and the incineration processes in module C3.

Fresh water
Module A1-3 has a significant effect on water consumption with >98%. In addition, disposal of the product at the *end of life* is the next largest unit of consumption, at around 2%.

WASTE CATEGORIES
The waste generated is significantly characterised by non-hazardous waste. Most of these are generated during the manufacturing phase (65%), but also during waste incineration at the end of the product life cycle (31%).

The A4 and C2 transport modules and the disposal of packaging in module A5 play a comparatively minor role.

The variance of results between the lightest (6.4 kg) and the heaviest possible product (9.0 kg) of the declared average is -10% and +13% respectively for the GWP for the A1-C3 cumulated values.

7. Requisite evidence

7.1 VOC emissions

Testing laboratory:
eco-INSTITUT Germany GmbH
Schanzenstraße 6-20
Carlswerk 1.19
51063 Cologne, Germany

/Test report: 53435-003-009/
Test method: Emission analysis according to /EN 16516/

Results overview (3 days)

Designation	Value	Unit
Pentachlorophenol (PCP)	9	mg/kg
Tetrachlorophenol (TeCP)	29	mg/kg
Lindane	< 5	mg/kg

7.2 PCP/Lindane

Testing laboratory:
TÜV Rheinland LGA Products GmbH
Tillystaße 2
90431 Nuremberg, Germany

/Test report: 21213988 001/
Test method: Alkaline extraction, derevalisation, GC-MS

Result:

Designation	Value	Unit
Pentachlorophenol (PCP)	9	mg/kg
Tetrachlorophenol (TeCP)	29	mg/kg
Lindane	< 5	mg/kg

7.3 Fire behaviour

Testing laboratory:
TFI Aachen GmbH
Charlottenburger Allee 41
52068 Aachen, Germany

/Test report: 441773-06 / 450739/
Test method: Fire behaviour classification according to /DIN EN 13501-1:2010/

Certificate /RAL-UZ176/ (Blue Angel)
Parador laminate flooring carries the "Blue Angel" eco-label on the basis of the /Label Use Contract No. 27259/ of RAL gGmbH, Fränkische Straße 7, 53229 Bonn, Germany, and the Federal Environment Agency, because it is a low emissions product.

Certificate /eco-INSTITUT/ Label
According to the test criteria of the /eco-INSITUT/ label (status: December 2017) of /eco-INSTITUT/ Germany GmbH, Schanzenstrasse 6-20, Carlswerk Kupferzug 1.19, 51063 Cologne, Germany, Parador laminate flooring may carry the /eco-Institut/ label with ID /1112-12656-001/.

Certificate /PEFC/
With certificate no. /TT-PEFC-COC180/ of 01 December 2018 it is confirmed that the procedures for the production of Parador laminate flooring (if listed) meet the requirements of the /PEFC/ standard "PEFC ST 2002:2013" of the Chain of Custody according to the percentage method.
https://media.parador.eu/media/pdf/96/3c/ee/PEFC-Certifikat_BMT-PEFC-1289_PA_2017-03.pdf

Certificate /EMAS/
With the registration in the /EMAS/ register under the number: DE-156-00107 of 10 November 2015, Parador GmbH is entitled to use the /EMAS/ logo.
https://media.parador.eu/media/pdf/68/0c/ee/EMAS-Urkunde-COE_DE_bis-20211026.pdf

8. References

Literature referenced in the Environmental Product Declaration:

/IBU 2016/
IBU (2016): General Programme Instructions for the Preparation of EPDs at the Institut Bauen und Umwelt e.V., Version 1.1 Institut Bauen und Umwelt e.V., Berlin.
www.ibu-epd.de

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

/EN 15804/
/EN 15804:2012-04+A1 2013/, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

/AgBB-Schema – August 2018/
Requirements for indoor air quality in buildings: health assessment of emissions of volatile organic compounds (VVOC, VOC, and SVOC) from building products.
https://www.umweltbundesamt.de/sites/default/files/medien/355/dokumente/agbb-bewertungsschema_2018.pdf

/AltholzV/
Ordinance on requirements for the recovery and disposal of old wood.

/AVV/
Waste list directive, serves to designate and classify waste according to its need for monitoring.
http://www.gesetze-im-internet.de/avv/index.html

/BNB/
Useful life of components for life cycle analyses according to the sustainable building assessment system, 2011.
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/BNB_Nutzungsdauern_von_Bauteilen_%C3%84nderungs%C3%BCbersicht_2017-02-24.pdf

/DIN EN 13329/
Laminate flooring - Elements with a top layer based on aminoplastic thermosetting resins - Specifications, requirements and test methods; German version EN 13329:2017-12

/DIN EN 13501
Classification of construction products and construction types with respect to their fire behaviour - Part 1: Classification based on results of fire behaviour tests of construction products; German version EN 13501-1:2007+A1:2009

/DIN EN ISO 14001/
Environmental management systems - Requirements with guidance for use; German version EN ISO 14001:2015

/DIN EN 16516/
Building products - Evaluation of release of hazardous substances - Determination of indoor air emissions; German version EN 16516:2017

/DIN EN 14041/
Resilient, textile, laminate, and modular multi-layer flooring - Essential characteristics; German version EN 14041:2018

eco-INSTITUT
Label ID: 1112-12656-001

/Ecoinvent/
Database on life cycle assessments (Life Cycle Inventories), Version 2.2 Swiss Centre for Life Cycle Inventories, St. Gallen, 2010.

/EMAS/
(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 audit and for 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 8.7/
Software and database for holistic balancing, Chair of Building Physics at University of Stuttgart and thinkstep AG, Leinfelden-Echterdingen, 1992 - 2018.

/PEFC/
Programme for the Endorsement of Forest Certification Schemes
Parador Certificate No.: TT-PEFC-COC180.

/Product Category Rules for Construction Products, Part A/:
Institut Bauen und Umwelt e.V., Königswinther (publisher): Produktkategorieregeln für Bauprodukte aus dem Programm für Umwelt-Produktdeklarationen des Instituts für Bauen und Umwelt (IBU) [product category regulations for construction products from the program for environmental product declarations of the Institute for Construction and Environment (IBU)] Part A: Rechenregeln für die Ökobilanz und Anforderungen an den Hintergrundbericht, Version 1.7 2018-03. [Algorithms for life cycle assessment and background report requirements, Version 1.7 2018-03.]

/**Product Category Rules 2018, Part B/:**
PCR Anleitungstext für gebäudebezogene Produkte und Dienstleistungen der Bauproduktgruppe Bodenbeläge [PCR instruction text for building-related products and services of the building product group flooring], Version 1.2 2018-02.

/test report: 21213988 001/
Test method: Alkaline extraction, derevalisation, GC-MS

/Test report: 441773-06 / 450739/
Test method: Fire behaviour classification according to /DIN EN 13501-1:2010/

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Test method: Emission analysis according to /EN 16516/

/RAL-UZ 176/
Low-emission flooring, panels and doors made of wood and wood-based products for interiors. Subscription agreement Parador /No. 27259/
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/TRGS 900/ Occupational exposure limit values
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of the European Parliament and of the Council of 9 March 2011 specifying harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC text with EEA relevance.
https://eur-lex.europa.eu/legal-content/DE/TXT/PDF/?uri=CELEX:32011R0305&from=DE

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