

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	European Producers of Laminate Flooring e.V.
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EPL-20210138-CBE1-EN
Issue date	09/07/2021
Valid to	08/07/2026

Direct Pressure Laminate Floor Covering (DPL Floor Covering)
European Producers of Laminate Flooring e.V.

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General Information

European Producers of Laminate Flooring e.V.

Programme holder

IBU – Institut Bauen und Umwelt e.V.
Panoramastr. 1
10178 Berlin
Germany

Declaration number

EPD-EPL-20210138-CBE1-EN

This declaration is based on the product category rules:

Floor coverings, 02/2018
(PCR checked and approved by the SVR)

Issue date

09/07/2021

Valid to

08/07/2026

Direct Pressure Laminate Floor Covering (DPL Floor Covering)

Owner of the declaration

EPLF®
European Producers of Laminate Flooring e.V.
Mittelstr. 50
33602 Bielefeld
Germany

Declared product / declared unit

1m² of DPL floor covering

Scope:

This Environmental Product Declaration refers to a representative European DPL floor covering produced by manufacturers that are members of EPLF®. Data are based upon production during 2019 in Europe.

The laminate floor covering described in this EPD has a thickness of 8 mm and meets the requirements of the use classes: 21-23, 31-34 according to *EN 13329*, *EN ISO 10874*. In order to enable the user of the EPD to calculate the LCA results for different thicknesses and use classes, the EPD contains the respective calculation rules.

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 14025:2010*

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.)

Matthias Klingler
(Independent verifier)

Product

Information about the enterprise

The European network of the EPLF – the Association of European Producers of Laminate Flooring – is made up of laminate flooring producers, supplier companies and supporting members. This is the world's largest regional association for the laminate industry and it celebrates its 25th anniversary in 2019.

Product description/Product definition

DPL floor coverings described in this EPD are produced by member companies of EPLF®. The floor coverings meet the requirements of *EN 13329*. DPL floorings consist of a number of layers. On the top side there is a decor with a transparent, wear-resistant contact surface; in the middle there is a core layer

made of high-density wood fibres and on the back side there is a stabilizing layer to guarantee floor stability. The decorative paper of a DPL floor covering can be printed with any design and gives the floor its individual appearance.

According to EPLF the participating companies are representative for the declaration of the product, the weighting was done according to production volumes.

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 13329* and the CE-marking. For the

application and use the respective national provisions apply.

Application

The laminate floor covering described in this EPD is intended to be used within a building and meets the requirements of the use classes: 21-23, 31-34 according to *EN 13329*, *EN ISO 10874*.

For the application and use the respective national provisions apply.

Technical Data

Constructional data

Name	Value	Unit
Grammage	7090	g/m ²
Abrasion Class EN 13329	AC1-AC6	-
Product Form	panel	-
Thickness of the element	8	mm
Length of the surface layer	300 - 2500	mm
Width of the surface layer	70 - 400	mm
Length and width of squared elements	250 - 700	mm
Density	800 - 1200	kg/m ³

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 13329*.

Base materials/Ancillary materials

The composition of a DPL floor covering in mass % is:

- 90-95 % High Density Fibre board (HDF)
- 1-3 % paper
- 4-7 % resin
- <1 % corundum

HDF (high-density fibreboard)

The core board is an HDF board composed of wood fibres and a thermosetting resin, mainly MUF (melamine-urea-formaldehyde) resin.

Paper

The renewable resource wood is the main raw material for paper production.

Resins

The used amino resins are melamine-urea-formaldehyde resins. Amino resins are thermosetting resins that are cured using heat and pressure.

Corundum

Bauxite is the mineral resource of corundum. By using aluminiumoxide (Al₂O₃) the surface layer of a laminate flooring obtains abrasion and wear resistance.

DPL floor coverings do not contain substances that are listed in the "Candidate List of Substances of Very High Concern for Authorisation" *REACH*.

This product contains substances listed in the candidate list (date: 02.03.2021) exceeding 0.1 percentage by mass: **NO**.

Reference service life

The estimated service life of a floor covering depends e.g. on the type of floor covering and the area of application, the user and the maintenance of the product. Comparisons of different floor coverings are only allowed if these parameters are considered in a consistent way. A minimum service life of 20 years can be assumed according to Bundesinstitut für Bau-, Stadt- und Raumforschung (*BBSR*), technical service life can be considerably longer. The use stage is declared in this EPD for a one-year usage.

LCA: Calculation rules

Declared Unit

The declared unit is 1m² laminate flooring (7.09 kg/m², thickness 8 mm)

Declared unit

Name	Value	Unit
Declared unit	1	m ²
Conversion factor to 1 kg (mass in kg per declared unit)	7.09	-
Mass in kg per declared unit	7.09	kg/m ²

System boundary

Type of EPD: cradle to gate with options, modules C1–C4, and module D (A1–A3 + C + D and additional modules A4, A5 and B2).

Modules A1-A3 include processes that provide materials and energy input for the system, manufacturing and transport processes up to the factory gate, as well as waste processing.

Module A4 includes the transport to the point of installation.

Module A5 includes packaging waste processing during the construction process. A waste treatment in a waste incineration plant is assumed. Credits from energy substitution are declared in module D.

Module B2 includes the cleaning of the floor covering. Provision of water, cleaning agent and electricity for the cleaning of the floor covering is considered, incl. waste water treatment. The LCA results in this EPD are declared for a one-year usage.

Module C includes dismantling (C1) and transport to waste a treatment site (C2). It is assumed that dismantling is manually done without environmental burdens, The DPL floor coverings reach the end-of-waste state after dismantling and transport to a waste treatment site from the building.

Module D includes benefits from all net flows in the end-of-life stage that leave the product boundary system after having passed the end-of-waste state. It is assumed that post-consumer DPL floor covering waste reaches the end-of-waste state and is 100% incinerated in a European biomass power plant. Loads from material incineration and resulted potential energy credits (electricity and thermal energy) are declared

within module D.

Module D contains the loads and potential benefits beyond the system boundary. Biogenic CO₂ incorporated in the wood fraction of the DPL flooring is released in module C3.

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.

GaBi ts (CUP 2020.2) is the background database for the calculation..

Factors for different thicknesses

The LCA results for the DPL floor covering declared in this EPD refer to a laminate flooring with a thickness of 8 mm, which meets the requirements of the use classes: 21-23, 31-34 according to *EN 13329*, *EN ISO 10874*. In order to enable the user of the EPD to calculate the results for different thicknesses and use classes the factors in the following table can be used for the calculation. For A1-A3, A4, A5, C2, C3 and D the LCA results of the declared product (thickness 9mm) have to be multiplied with these factors.

LCA: Scenarios and additional technical information

Characteristic product properties

Information on biogenic Carbon

The biogenic carbon content quantifies the amount of biogenic carbon in a construction product leaving the factory gate, and it shall be separately declared for the product and for any accompanying packaging.

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

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic Carbon Content in product	3.25	kg C
Biogenic Carbon Content in accompanying packaging	0.09	kg C

The following technical information is a basis for the declared modules or can be used for developing specific scenarios in the context of a building assessment.

Transport to the construction site (A4)

Name	Value	Unit
Litres of fuel (consumption per kg)	0.00159	l/100km
Transport distance	250	km
Capacity utilisation (including empty runs)	85	%
Gross density of products transported	800-1200	kg/m ³

Installation in the building (A5)

Name	Value	Unit
Output substances following waste treatment on-site packaging waste	0.231	kg

The amount of installation waste varies and is not declared in this EPD. For the calculation of the environmental impact of 1m² laminate flooring including a certain amount of installation waste the values for the production stage (A1-A3), delivery (A4) and end of life (C, D) have to be multiplied with the amount of waste (e.g. 3% installation waste, factor 1.03).

Maintenance (B2)

Name	Value	Unit
Maintenance cycle (cleaning frequency per year)	120 times/year	Number/R SL
Water consumption (per year)	0.0068	m ³
Auxiliary (per year)	0.0507	kg
Electricity consumption (per year)	0.074	kWh

The common cleaning method for laminate floor coverings is damp mopping. Loose dirt should be removed by means of a dry mop or a vacuum cleaner. In case of higher requirements on hygiene (e.g. hospitals, care homes) or strongly frequented areas (shops) a need for a higher cleaning frequency is possible.

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

100% of post-consumer waste (7.09kg) is incinerated

in a biomass power plant.

End of Life (C1-C4)

Name	Value	Unit
Collected separately	7.09	kg

LCA: Results

The results for module B2 refer to a period of one year.

Note: The results declared for EP-freshwater are declared in the unit “P eq.” according to the European Platform on Life Cycle Assessment (<http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml>). This web link is provided in EN 15804+A2, clause 6.3.8.2.

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	X	X	ND	X	MNR	MNR	MNR	ND	ND	X	X	X	ND	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² DPL Floor Covering (8mm)

Core Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
GWP-total	[kg CO ₂ -Eq.]	-2.65E+0	4.37E-2	2.77E-1	1.70E-1	0.00E+0	4.23E-2	1.19E+1	-6.67E+0
GWP-fossil	[kg CO ₂ -Eq.]	5.93E+0	4.34E-2	3.63E-2	1.58E-1	0.00E+0	4.21E-2	0.00E+0	-6.66E+0
GWP-biogenic	[kg CO ₂ -Eq.]	-8.58E+0	0.00E+0	2.41E-1	-3.32E-2	0.00E+0	0.00E+0	1.19E+1	0.00E+0
GWP-luluc	[kg CO ₂ -Eq.]	6.25E-3	3.51E-4	4.13E-6	4.53E-2	0.00E+0	3.40E-4	0.00E+0	-5.28E-3
ODP	[kg CFC11-Eq.]	2.70E-12	5.21E-18	4.47E-17	8.19E-9	0.00E+0	5.05E-18	0.00E+0	-7.91E-14
AP	[mol H ⁺ -Eq.]	1.70E-2	1.43E-4	5.26E-5	4.67E-4	0.00E+0	1.39E-4	0.00E+0	3.99E-3
EP-freshwater	[kg PO ₄ -Eq.]	1.41E-5	1.32E-7	7.65E-9	6.01E-6	0.00E+0	1.28E-7	0.00E+0	-9.72E-6
EP-marine	[kg N-Eq.]	8.10E-3	6.48E-5	1.79E-5	1.26E-4	0.00E+0	6.28E-5	0.00E+0	9.20E-4
EP-terrestrial	[mol N-Eq.]	6.20E-2	7.25E-4	2.41E-4	1.29E-3	0.00E+0	7.02E-4	0.00E+0	1.11E-2
POCP	[kg NMVOC-Eq.]	1.56E-2	1.27E-4	4.80E-5	4.61E-4	0.00E+0	1.23E-4	0.00E+0	4.02E-3
ADPE	[kg Sb-Eq.]	9.32E-7	3.11E-9	6.99E-10	1.37E-7	0.00E+0	3.01E-9	0.00E+0	-1.20E-6
ADPF	[MJ]	1.19E+2	5.77E-1	7.48E-2	3.41E+0	0.00E+0	5.59E-1	0.00E+0	-1.14E+2
WDP	[m ³ world-Eq deprived]	6.61E-1	3.88E-4	3.06E-2	5.51E-2	0.00E+0	3.75E-4	0.00E+0	-3.85E-1

Caption: 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 DPL Floor Covering (8mm)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
PERE	[MJ]	3.10E+1	3.24E-2	3.06E+0	9.13E-1	0.00E+0	3.14E-2	0.00E+0	-2.81E+1
PERM	[MJ]	1.08E+2	0.00E+0	-3.05E+0	0.00E+0	0.00E+0	0.00E+0	-1.05E+2	0.00E+0
PERT	[MJ]	1.39E+2	3.24E-2	1.40E-2	9.13E-1	0.00E+0	3.14E-2	-1.05E+2	-2.81E+1
PENRE	[MJ]	9.54E+1	5.78E-1	5.79E-1	3.41E+0	0.00E+0	5.60E-1	0.00E+0	-1.14E+2
PENRM	[MJ]	2.32E+1	0.00E+0	-5.04E-1	0.00E+0	0.00E+0	0.00E+0	-2.27E+1	0.00E+0
PENRT	[MJ]	1.19E+2	5.78E-1	7.48E-2	3.41E+0	0.00E+0	5.60E-1	-2.27E+1	-1.14E+2
SM	[kg]	7.74E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	[m ³]	3.20E-2	3.76E-5	7.21E-4	1.41E-3	0.00E+0	3.64E-5	0.00E+0	-2.33E-2

Caption: 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 DPL Floor Covering (8mm)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
HWD	[kg]	3.71E-7	2.69E-8	1.09E-10	5.52E-5	0.00E+0	2.60E-8	0.00E+0	-4.53E-8
NHWD	[kg]	1.25E-1	8.84E-5	7.15E-3	8.06E-3	0.00E+0	8.56E-5	0.00E+0	5.00E-3
RWD	[kg]	4.01E-3	7.15E-7	3.94E-6	1.04E-4	0.00E+0	6.93E-7	0.00E+0	-9.60E-3
CRU	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MER	[kg]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.09E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	3.78E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	6.82E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Caption 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; EEE = Exported thermal energy

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² DPL Floor Covering (8mm)

Indicator	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
PM	[Disease Incidence]	1.88E-7	7.70E-10	3.16E-10	1.88E-8	0.00E+0	7.45E-10	0.00E+0	-2.49E-8
IR	[kBq U235-Eq.]	6.18E-1	1.03E-4	6.02E-4	2.10E-2	0.00E+0	1.00E-4	0.00E+0	-1.58E+0
ETP-fw	[CTUe]	3.50E+1	4.08E-1	3.73E-2	1.88E+0	0.00E+0	3.95E-1	0.00E+0	-2.74E+1
HTP-c	[CTUh]	5.04E-8	8.55E-12	2.17E-12	1.79E-10	0.00E+0	8.28E-12	0.00E+0	-2.67E-10
HTP-nc	[CTUh]	6.56E-8	4.99E-10	1.16E-10	6.85E-9	0.00E+0	4.83E-10	0.00E+0	3.20E-8
SQP	[-]	6.82E+2	2.03E-1	2.00E-2	2.57E+0	0.00E+0	1.96E-1	0.00E+0	-2.02E+1

Caption 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

Disclaimer 1 – for the indicator IRP

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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – for the indicators ADPE, ADPF, WDP, ETP-fw, HTP-c, HTP-nc, SQP

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

References

Standards

EN 14041

EN 14041:2004: Resilient, textile and laminate floor coverings - Essential characteristics.

EN 13329

EN 13329: 2009-01: Laminate floor coverings - Elements with a surface layer based on aminoplastic thermosetting resins - Specifications, requirements and test methods.

EN ISO 10874

ISO 10874:2009: Resilient, textile and laminate floor coverings - Classification.

ISO 14025

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

EN 15804

EN 15804:2019+A2, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

IBU

Institut Bauen und Umwelt e.V.: General Instructions for the EPD Programme of Institut Bauen und Umwelt

e.V. Version 2.0, Berlin: Institut Bauen und Umwelt e.V., 2021.
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Further References

BBSR

Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR): Nutzungsdauer von Bauteilen für Lebenszyklusanalyse nach Bewertungssystem Nachhaltiges Bauen (BNB), 2011

GaBi Software

GaBi 10.0 dataset documentation for the software-system (CUP 2020.2) and databases, Sphera Solutions GmbH, Leinfelden-Echterdingen, 2020 (<http://documentation.gabi-software.com/>)

PCR Part A

Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019, Institut Bauen und Umwelt e.V. (IBU), <https://ibu-epd.com/>

PCR Part B

Institut Bauen und Umwelt e.V.: Requirements on the EPD for floor coverings, Version 1.2, 14.02.2018



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