ENVIRONMENTAL-PRODUCT DECLARATION

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

Owner of the Declaration	European Producers of Laminate Flooring (EPLF®)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-EPL-20210138-CBE2-EN
Issue date	09.07.2021
Valid to	08.07.2026

DPL laminate flooring

European Producers of Laminate Flooring e.V.

Institut Bauen und Umwelt e.V.

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ECO PLATFORM EPD VERIFIED

General Information

European Producers of Laminate Flooring e.V.

Programme holder

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

Declaration number

EPD-EPL-20210138-CBE2-EN

This declaration is based on the product category rules:

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

Issue date

09.07.2021

Valid to

08.07.2026

Dipl.-Ing Hans Peters
(chairman of Institut Bauen und Umwelt e.V.)

Florian Pronold
(Managing Director Institut Bauen und Umwelt e.V.)

DPL laminate flooring

Owner of the declaration

European Producers of Laminate Flooring (EPLF®)
Mittelstraße 50
33602 Bielefeld
Germany

Declared product / declared unit

1m² of DPL floor covering

Scope:

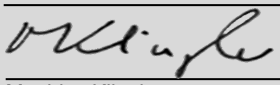
This Environmental Product Declaration refers to a representative European DPL floor covering produced by manufacturers that are members of EPLF®. Data are based upon production during 2019 in Europe.

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 bezeichnet*.

Verification

The standard EN 15804 serves as the core PCR
Independent verification of the declaration and data according to ISO 14025:2011
☐ internally ☒ externally



Matthias Klingler,
(Independent verifier)

Product

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

The technical specifications of the products within the scope of the EPD shall be listed, including the reference to the test methods/test standards for each specification.

For products with CE marking, the technical specifications must be specified in accordance with information in the declaration of performance. The properties relevant to the product should be specified in the table below. If no information is given for properties, an explanation must be given in the background report to the EPD as to why the property is not relevant to the product.

Constructional data

Name	Value	Unit
Grammage	7090	kg/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 (Al_2O_3) 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**.

Environment and health during use

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
Mass in kg per declared unit	7.09	kg/m²

For IBU core EPDs (where clause 3.6 is part of the EPD): for average EPDs, an estimate of the robustness of the LCA values must be made, e.g. concerning variability of the production process, geographical representativeness and the influence of background data and preliminary products compared to the environmental impacts caused by actual production.

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 CO_2 incorporated in the wood fraction of the DPL flooring is released in module C3.

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

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.

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.

Factors to calculate the results for module A1-A3 for different DPL floorings

thickness	7mm	10mm	12mm	14mm
Use class	23-33	23-33	23-33	23-33
Parameter				
GWP	0.93	1.44	1.83	1.99
GWP - Fossil	0.86	1.18	1.33	1.82
GWP - biogenic	0.88	1.26	1.48	1.87
GWP - LULUC	0.87	1.20	1.32	1.77
ODP	0.79	1.22	0.90	0.92
AP	0.85	1.23	1.37	1.76
EP Freshwater	0.88	1.15	1.14	1.82
EP Marine	0.85	1.19	1.35	1.91
EP Terrestrial	0.85	1.23	1.39	1.78
POCP	0.85	1.23	1.38	1.78
ADPE	0.87	1.18	1.31	1.75
ADPF	0.86	1.18	1.34	1.84
Water scarcity	0.86	1.21	1.30	1.62

Factors to calculate the results for module A5 for different DPL floorings

thickness	7mm	10mm	12mm	14mm
Use class	23-33	23-33	23-33	23-33
Parameter				
GWP	0.99	1.31	1.38	1.40
GWP - Fossil	0.91	1.28	1.07	1.09
GWP - biogenic	1.00	1.32	1.43	1.45
GWP - LULUC	0.96	1.29	1.24	1.26
ODP	0.97	1.29	1.28	1.30
AP	0.97	1.28	1.27	1.29
EP Freshwater	0.96	1.28	1.24	1.26
EP Marine	0.96	1.28	1.26	1.28
EP Terrestrial	0.97	1.28	1.28	1.30
POCP	0.96	1.28	1.26	1.28
ADPE	0.97	1.29	1.29	1.31
ADPF	0.97	1.29	1.30	1.32
Water scarcity	0.98	1.30	1.35	1.37

Factors to calculate the results for modules A4, C2, C3 and D for different DPL floorings

thickness	7mm	10mm	12mm	14mm
Use class	23-33	23-33	23-33	23-33
Valid for all parameters				
A4	0.87	1.24	1.46	1.85
C2	0.87	1.24	1.46	1.85
C3	0.87	1.25	1.48	1.86
D	0.87	1.24	1.46	1.86

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/RSL
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.

In case a **reference service life** according to applicable ISO standards is declared then the assumptions and in-use conditions underlying the determined RSL shall be declared. In addition, it shall be stated that the RSL applies for the reference conditions only.

The same holds for a service life declared by the manufacturer. Corresponding information related to in-use conditions needs not be provided if a service life taken from the list on service life by BNB is declared.

End of Life (C1-C4)

Name	Value	Unit
Collected separately waste type	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	MND	X	MNR	MNR	MNR	MND	MND	X	X	X	MND	X

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

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
GWP-total	kg CO_2 eq	-2.65E+00	4.37E-02	2.77E-01	1.7E-01	0	4.23E-02	1.19E+01	-6.67E+00
GWP-fossil	kg CO_2 eq	5.93E+00	4.34E-02	3.63E-02	1.58E-01	0	4.21E-02	0	-6.66E+00
GWP-biogenic	kg CO_2 eq	-8.58E+00	0	2.41E-01	-3.32E-02	0	0	1.19E+01	0
GWP-luluc	kg CO_2 eq	6.25E-03	3.51E-04	4.13E-06	4.53E-02	0	3.4E-04	0	-5.28E-03
ODP	kg CFC11 eq	2.7E-12	5.21E-18	4.47E-17	8.19E-09	0	5.05E-18	0	-7.91E-14
AP	mol H^+ eq	1.7E-02	1.43E-04	5.26E-05	4.67E-04	0	1.39E-04	0	3.99E-03
EP-freshwater	kg P eq	1.41E-05	1.32E-07	7.65E-09	6.01E-06	0	1.28E-07	0	-9.72E-06
EP-marine	kg N eq	8.1E-03	6.48E-05	1.79E-05	1.26E-04	0	6.28E-05	0	9.2E-04
EP-terrestrial	mol N eq	6.2E-02	7.25E-04	2.41E-04	1.29E-03	0	7.02E-04	0	1.11E-02
POCP	kg NMVOC eq	1.56E-02	1.27E-04	4.8E-05	4.61E-04	0	1.23E-04	0	4.02E-03
ADPE	kg Sb eq	9.32E-07	3.11E-09	6.99E-10	1.37E-07	0	3.01E-09	0	-1.2E-06
ADPF	MJ	1.19E+02	5.77E-01	7.48E-02	3.41E+00	0	5.59E-01	0	-1.14E+02
WDP	m^3 world eq deprived	6.61E-01	3.88E-04	3.06E-02	5.51E-02	0	3.75E-04	0	-3.85E-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 DPL Floor Covering (8mm)

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
PERE	MJ	3.1E+01	3.24E-02	3.06E+00	9.13E-01	0	3.14E-02	0	-2.81E+01
PERM	MJ	1.08E+02	0	-3.05E+00	0	0	0	-1.05E+02	0
PERT	MJ	1.39E+02	3.24E-02	1.4E-02	9.13E-01	0	3.14E-02	-1.05E+02	-2.81E+01
PENRE	MJ	9.54E+01	5.78E-01	5.79E-01	3.41E+00	0	5.6E-01	0	-1.14E+02
PENRM	MJ	2.32E+01	0	-5.04E-01	0	0	0	-2.27E+01	0
PENRT	MJ	1.19E+02	5.78E-01	7.48E-02	3.41E+00	0	5.6E-01	-2.27E+01	-1.14E+02
SM	kg	7.74E-03	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0	0

NRSF	MJ	0	0	0	0	0	0	0	0
FW	m^3	3.2E-02	3.76E-05	7.21E-04	1.41E-03	0	3.64E-05	0	-2.33E-02

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)

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
HWD	kg	3.71E-07	2.69E-08	1.09E-10	5.52E-05	0	2.6E-08	0	-4.53E-08
NHWD	kg	1.25E-01	8.84E-05	7.15E-03	8.06E-03	0	8.56E-05	0	5E-03
RWD	kg	4.01E-03	7.15E-07	3.94E-06	1.04E-04	0	6.93E-07	0	-9.6E-03
CRU	kg	0	0	0	0	0	0	0	0
MFR	kg	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	7.09E+00	0
EEE	MJ	0	0	3.78E-01	0	0	0	0	0
EET	MJ	0	0	6.82E-01	0	0	0	0	0

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 DPL Floor Covering (8mm)

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3	D
PM	Disease incidence	1.88E-07	7.7E-10	3.16E-10	1.88E-08	0	7.45E-10	0	-2.49E-08
IR	kBq U235 eq	6.18E-01	1.03E-04	6.02E-04	2.1E-02	0	1E-04	0	-1.58E+00
ETP-fw	CTUe	3.5E+01	4.08E-01	3.73E-02	1.88E+00	0	3.95E-01	0	-2.74E+01
HTP-c	CTUh	5.04E-08	8.55E-12	2.17E-12	1.79E-10	0	8.28E-12	0	-2.67E-10
HTP-nc	CTUh	6.56E-08	4.99E-10	1.16E-10	6.85E-09	0	4.83E-10	0	3.2E-08
SQP	SQP	6.82E+02	2.03E-01	2E-02	2.57E+00	0	1.96E-01	0	-2.02E+01

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
possiblenuclear 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 experienced 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.
www.ibu-epd.com

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 As-sessment and Requirementson the Project Re-portaccording to EN 15804+A2:2019, InstitutBauen 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

REACH

Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals

Publisher

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Programme holder

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

+49 (0)30 3087748- 0
info@ibu-epd.com
www.ibu-epd.com

Author of the Life Cycle Assessment

Sphera Solutions GmbH
Hauptstraße 111- 113
70771 Leinfelden-Echterdingen
Germany

+49 711 341817-0
info@sphera.com
www.sphera.com

Owner of the Declaration

European Producers of Laminate Flooring (EPLF®)
Mittelstraße 50
33602 Bielefeld
Germany

+49 521 13 69 760
info@eplf.com
www.eplf.com,
www.mylaminate.eu