

# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804

Owner of the Declaration	BerryAlloc
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
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Issue date	
Valid to	

**BerryAlloc**  
High Pressure Laminate Floor Covering (HPL floor covering)  
**BerryAlloc**

[www.bau-umwelt.com](http://www.bau-umwelt.com) / <https://epd-online.com>



## General Information

<p><b>BerryAlloc</b></p> <hr/> <p><b>Programme holder</b>                  IBU - Institut Bauen und Umwelt e.V.                  Panoramastr. 1                  10178 Berlin                  Germany</p> <hr/> <p><b>Declaration number</b>                  EPD-BAC-20150179-CBA1-EN</p> <hr/> <p><b>This Declaration is based on the Product Category Rules:</b>                  Floor coverings, 07.2014                  (PCR tested and approved by the SVR)</p> <hr/> <p><b>Issue date</b></p> <hr/> <p><b>Valid to</b></p> <hr/> <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">[Unterschrift]</div> <hr/> <p>Prof. Dr.-Ing. Horst J. Bossenmayer                  (President of Institut Bauen und Umwelt e.V.)</p> <hr/> <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">[Unterschrift]</div> <hr/> <p>Dr.-Ing. Burkhard Lehmann                  (Managing Director IBU)</p>	<p><b>BerryAlloc HPL</b></p> <hr/> <p><b>Owner of the Declaration</b>                  Alloc AS                  Fibovegen 26                  NO-4580 Lyngdal</p> <hr/> <p><b>Declared product / Declared unit</b>                  1 m<sup>2</sup> high pressure laminate floor covering (9mm, 8.7kg/m<sup>2</sup>)</p> <hr/> <p><b>Scope:</b>                  This Environmental Product Declaration refers to 1m<sup>2</sup> HPL floor covering with a thickness of 9mm and grammage of 8.7 kg/m<sup>2</sup>. The production site is located in Lyngdal, Norway.                  The data is based on production during 2013.                  In order to enable the user of this EPD to calculate the LCA results for a HPL floor covering with a thickness of 10.3mm this 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.</p> <hr/> <p><b>Verification</b></p> <div style="border: 1px solid black; padding: 5px;">                 The CEN Norm /EN 15804/ serves as the core PCR                  Independent verification of the declaration according to /ISO 14025/  <input type="checkbox"/> internally    <input checked="" type="checkbox"/> externally             </div> <hr/> <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 0 auto;">[Unterschrift]</div> <hr/> <p>Mr Carl-Otto Neven                  (Independent verifier appointed by SVR)</p>
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## Product

### Product description

BerryAlloc HPL flooring is a durable High Tech laminate floor performing according to /EN 13 329/. The complete manufacturing process is located in Lyngdal, Norway.  
 The surface consists of several paper layers. The top layer has a transparent wear resistant surface above a decorative paper. The body of the top layer is made of craftpaper(s) with a more flexible performance. The core consists of a high density fiberboard (HDF). The backing layer consists of a balancing paper.

The declared product has a thickness of 9mm. In order to enable the user of this EPD to calculate the LCA results for a HPL floor covering with a thickness of 10.3mm this EPD contains the respective calculation rules.

### Application

The HPL floor covering described in this EPD is intended to be used within a building, for the classes 21-23 and 31-34 described in the accompanying descriptions, according to /EN 13 329/ and /ISO 10 874/.

### Technical Data

#### Constructional data

Name	Value	Unit
Product thickness (thickness of the element) /EN 13 329/	9 - 10.3	mm
Grammage	8700	g/m <sup>2</sup>
Abrasion Class AC /EN 13 329/	AC5 to AC6	-
Product Form	Panel	-
Length of the surface layer /EN 13 329/	1200 - 2410	mm
Width of the surface layer /EN 13 329/	190 - 245	mm
Density /EN 323/	930 - 1030	kg/m <sup>3</sup>
Layer thickness (Top layer) /EN 324-1/	0.6	mm

For detailed technical data: Technical datasheet for each individual product are available.

#### Base materials / Ancillary materials

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

- 81% High Density Fibre board (HDF)
- 9 % paper
- 6 % resin

- 4% aluminium (locking system)
- < 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-ureaformaldehyde and phenol resins. Amino resins are thermosetting resins that are cured using heat and pressure.

Aluminium

Mechanical locking system that allows planks to be precisely aligned and joined without using glue or special tools.

Corundum

Bauxite is the mineral resource of corundum. By using aluminiumoxide (Al<sub>2</sub>O<sub>3</sub>) the surface layer of a laminate flooring obtains abrasion and wear resistance. HPL floor coverings do not contain substances that are listed in the "Candidate List of Substances of Very High Concern for Authorisation" /REACH/.

**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 himself and the maintenance of the product. Comparisons of different floor coverings are only allowed, if these parameters are considered in a consistent way.

According to /BBSR/ a reference service life of 20 years can be assumed for laminate floor coverings. Technical service life can be considerably longer. 20 years is the minimum reference service life for Alloc's floor coverings. For residential use Alloc offers warranty for lifetime > 20 years (www.berryalloc.com). The use stage is declared in this EPD for a one year usage.

**Factors for different thicknesses**

The LCA results for the HPL floor covering declared in this EPD refer to a laminate flooring with a thickness of 9 mm, which meets the requirements of the use classes: 33-34 according to /EN 13329 and EN ISO 10874/. In order to enable the user of the EPD to

calculate the results for a thickness of 10.3mm and the use classes 33-34 the factors in the following table can be used for the calculation. For A1-A3, A4, A5, B2 and D the LCA results of the declared product (thickness 9 mm) have to be multiplied with these factors.

Factors to calculate the results for module **A1-A3** for a 10.3 mm HPL flooring:

Parameter	Factor for A1-A3
GWP	1,46
ODP	1,06
AP	1,11
EP	1,10
POCP	1,11
ADPE	1,06
ADPF	1,12
PERT	1,14
PENRT	1,12

Factors to calculate the results for modules **A4, A5** and **B2** for a 10.3 mm HPL flooring:

Factors valid for all parameters		
A4	A5	B2
1,14	1,0	1,0

Factors to calculate the results for **module D** for a 10.3 mm HPL flooring:

Parameter	Factor for A1-A3
GWP	1,16
ODP	1,15
AP	1,14
EP	0,99
POCP	1,17
ADPE	1,15
ADPF	1,15
PERT	1,15
PENRT	1,15

**LCA: Calculation rules**

**Declared Unit**

The functional unit is 1m<sup>2</sup> laminate flooring (8.74 kg/m<sup>2</sup>, thickness 9 mm).

**Declared unit**

Name	Value	Unit
Declared unit	1	m <sup>2</sup>
Conversion factor to 1 kg	0.114	-

**System boundary**

Type of EPD: cradle-to-gate - with options

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 is not applicable, because the HPL floor

coverings reach the end-of-waste state after dismantling 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 stage. It is assumed that post-consumer HPL floor covering waste reaches the end-of-waste stage and is 100% incinerated in an European biomass power plant. Module D contains the loads (from incineration process) and benefits (from energy substitution) beyond the system boundaries including the biogenic

CO<sub>2</sub> incorporated in the wood fraction of the HPL flooring. The incorporated CO<sub>2</sub> in the wood fraction is approx. 11 kg/m<sup>2</sup>. The value declared in module D is the sum of: - 5.86 kg CO<sub>2</sub> equiv. + 11 kg CO<sub>2</sub> biogenic = 5.14 kg CO<sub>2</sub> equiv.

**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.

**LCA: Scenarios and additional technical information**

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.

in a biomass power plant (R1-value >0.6).

**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	-	kg/m <sup>3</sup>

For the calculation of a transport distance to a specific point of installation the declared value for 250 km should be multiplied accordingly.

**Installation in the building (A5)**

Name	Value	Unit
Output substances following waste treatment on site	0.518	kg

The amount of installation waste varies and is not declared in this EPD. For the calculation of the environmental impact of 1m<sup>2</sup> laminate flooring including a certain amount of installation waste the values for the production stage (A1-A3), delivery (A4) and end-of-life (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	Number/RSL
Water consumption	0.0068	m <sup>3</sup>
Auxiliary	0.0507	kg
Electricity consumption	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 of a higher cleaning frequency is possible.

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

100% of post-consumer waste (8.74 kg) is incinerated

## LCA: Results

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

The module D contains the loads and benefits beyond the system boundaries including the biogenic CO<sub>2</sub> incorporated in the wood fraction of the HPL flooring. The incorporated CO<sub>2</sub> in the wood fraction is approx. 11 kg/m<sup>2</sup>. The value declared in module D is the sum of: -5.86 kg CO<sub>2</sub> equiv. + 11 kg CO<sub>2</sub> biogenic = 5.14 kg CO<sub>2</sub> equiv.

### 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 <sup>1)</sup>	Refurbishment <sup>1)</sup>	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	MND	X

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT: 1 m<sup>2</sup> HPL floor covering (9mm, 8.74 kg/m<sup>2</sup>)

Parameter	Unit	A1-A3	A4	A5	B2	D
Global warming potential	[kg CO <sub>2</sub> -Eq.]	-1.64E+0	1.09E-1	7.46E-1	1.15E-1	5.14E+0
Depletion potential of the stratospheric ozone layer	[kg CFC11-Eq.]	3.40E-9	4.50E-13	2.81E-12	2.97E-11	-4.21E-9
Acidification potential of land and water	[kg SO <sub>2</sub> -Eq.]	3.57E-2	4.88E-4	1.02E-4	4.06E-4	-6.13E-3
Eutrophication potential	[kg (PO <sub>4</sub> ) <sup>3-</sup> -Eq.]	8.66E-3	1.24E-4	1.54E-5	1.24E-4	-4.96E-5
Formation potential of tropospheric ozone photochemical oxidants	[kg Ethen Eq.]	4.07E-3	-1.63E-4	7.71E-6	7.15E-5	6.56E-4
Abiotic depletion potential for non-fossil resources	[kg Sb Eq.]	2.80E-6	4.30E-9	1.34E-8	5.79E-8	-1.11E-6
Abiotic depletion potential for fossil resources	[MJ]	1.41E+2	1.51E+0	1.59E-1	2.12E+0	-1.20E+2

### RESULTS OF THE LCA - RESOURCE USE: 1 m<sup>2</sup> HPL floor covering (9mm, 8.74 kg/m<sup>2</sup>)

Parameter	Unit	A1-A3	A4	A5	B2	D
Renewable primary energy as energy carrier	[MJ]	7.73E+1	-	-	-	-
Renewable primary energy resources as material utilization	[MJ]	1.09E+2	-	-	-	-
Total use of renewable primary energy resources	[MJ]	1.86E+2	8.45E-2	1.89E-2	4.08E-1	-2.12E+1
Non-renewable primary energy as energy carrier	[MJ]	1.17E+2	-	-	-	-
Non-renewable primary energy as material utilization	[MJ]	3.70E+1	-	-	-	-
Total use of non-renewable primary energy resources	[MJ]	1.54E+2	1.51E+0	1.88E-1	2.44E+0	-1.58E+2
Use of secondary material	[kg]	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
Use of non-renewable secondary fuels	[MJ]	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Use of net fresh water	[m <sup>3</sup> ]	6.29E-2	1.48E-4	1.81E-3	9.39E-4	-3.10E-2

### RESULTS OF THE LCA – OUTPUT FLOWS AND WASTE CATEGORIES:

#### 1 m<sup>2</sup> HPL floor covering (9mm, 8.74 kg/m<sup>2</sup>)

Parameter	Unit	A1-A3	A4	A5	B2	D
Hazardous waste disposed	[kg]	5.49E-5	7.19E-7	5.94E-8	6.34E-7	-5.53E-5
Non-hazardous waste disposed	[kg]	2.42E-1	2.16E-4	1.28E-2	1.24E-2	1.60E-2
Radioactive waste disposed	[kg]	5.15E-3	2.07E-6	1.15E-5	1.27E-4	-1.51E-2
Components for re-use	[kg]	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
Materials for energy recovery	[kg]	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	1.02E+0	0.00E+0	4.15E+1
Exported thermal energy	[MJ]	0.00E+0	0.00E+0	2.36E+0	0.00E+0	4.97E+1

## References

### PCR Part A

Institut Bauen und Umwelt e.V., Königswinter (pub.):  
Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Background Report. April 2013  
www.bau-umwelt.de

### PCR Part B

Institut Bauen und Umwelt e.V.: Requirements on the

EPD for floor coverings

### EN 323

EN 323: 1993: Wood-based panels; determination of density

### EN 324-1

EN 324-1: 1993: Wood-based panels; determination of dimensions of boards; part 1: determination of thickness, width and length

### EN 13329

Laminate floor coverings - Elements with a surface layer based on aminoplastic thermosetting resins - Specifications, requirements and test methods

**EN ISO 10874**

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

**EN 14041**

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

**BBSR**

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

**GaBi Software**

GaBi 6 dataset documentation for the software-system and databases, LBP, University of Stuttgart and PE INTERNATIONAL AG, Leinfelden-Echterdingen, 2014 (<http://documentation.gabi-software.com/>)

**REACH**

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

**Institut Bauen und Umwelt**

Institut Bauen und Umwelt e.V., Berlin(pub.): Generation of Environmental Product Declarations (EPDs);

**General principles**

for the EPD range of Institut Bauen und Umwelt e.V. (IBU), 2013/04  
[www.bau-umwelt.de](http://www.bau-umwelt.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

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**BERRYALLOC**

LAMINATE • PARQUET • WALLS • CLICK VINYL

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