

ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	Li&Co AG
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-LIC-20230311-CCA1-EN
Issue date	21.12.2023
Valid to	20.12.2028

Luxury Vinyl Tiles (LVT) - Resilient Vinyl Floor Covering HDF / Hydrowood
Li&Co AG

www.ibu-epd.com | <https://epd-online.com>



General Information

Li&Co AG

Programme holder

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

Declaration number

EPD-LIC-20230311-CCA1-EN

This declaration is based on the product category rules:

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

Issue date

21.12.2023

Valid to

20.12.2028



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



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

Luxury Vinyl Tiles (LVT) - Resilient Vinyl Floor Covering HDF / Hydrowood

Owner of the declaration

Li&Co AG
Palü Daint 12
7537 Müstair
Switzerland

Declared product / declared unit

1 m² Li&Co Luxury Vinyl Tiles - Resilient Vinyl Floor Covering HDF / Hydrowood

Scope:

Li&Co Luxury Vinyl Tiles HDF / Hydrowood refers to a floating floor covering with a thickness between 8.2 mm and 11 mm. The products are manufactured in Müstair (GR), Switzerland.

In the EPD Luxury Vinyl Tiles (LVT) - Resilient Vinyl Floor Covering HDF has been declared.

Additionally 3 public annexes are available to the EPD:

- Luxury Vinyl Tiles (LVT)- Dry Back
- Luxury Vinyl Tiles (LVT) – Hydrofix / Hydrofix Object / Hydrofix S / Hydro Sound (Hydro)
- Luxury Vinyl Tiles (LVT) – Loose Lay (Looselay)

The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

The EPD was created according to the specifications of EN 15804+A2. In the following, the standard will be simplified as *EN 15804*.

Verification

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

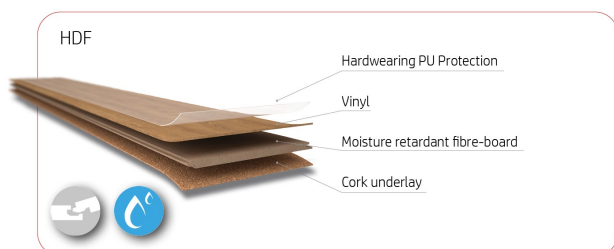


Ms Jane Anderson,
(Independent verifier)

Product

Product description/Product definition

Li&Co Luxury Vinyl Tiles HDF / Hydrowood are decorative resilient vinyl floor coverings with a total thickness between 8.2 mm and 11.0 mm and with a wear layer on top in the thickness of 0.30 and 0.70 mm. The floor has a multilayer structure, which integrates a high density wood fiber board (HDF) or alternatively a waterproof high density wood fiber board, a cork sound underlay and a PVC layer on top. The uppermost surface is treated with a PU surface coating offering enhanced resistance to dirt pick up and staining. The PVC layer is also embossed to give the product a natural wood or stone impression along with a slip performance class DS (EN 13893) to R 10 (EN 51130). The edges of the products are processed with a click connection which enables a form-fitting assembly of the products to form larger, flat units. The products are laid as a floating floor system and is declared according to product standard EN 16511.



Sustainability:

Li&Co offers its customers the Second Life service with the aim of sustainably extending the lifespan of Luxury Vinyl Tiles. In this way, Lico makes a decisive contribution to ensuring that floor coverings that have already been used are remanufactured. As a result, natural resources can be saved and the environmental impact during the process of remanufacturing can be reduced to a minimum (www.lico.ch/en/company/innovation-sustainability/second-life/). For the placing of the product on the market in the European Union/European Free Trade Association /EU/EFTA) (with the exception of Switzerland) the Regulation (EU) No. 305/2011 (CPR) applies. The product needs a declaration of performance according to EN 16511:2014+A1:2019, Panels for floating installation - Semirigid, multilayer, modular floor coverings (MMF) with abrasion resistant top layer and the CE marking. The respective national regulations apply. A declaration of performance is available and can be sent on request (info@lico.ch).

Application

Li&Co Luxury Vinyl Tiles HDF / Hydrowood (either tile or plank form) are a multi-layer, semi-rigid, modular flooring for

commercial and residential use, manufactured in accordance with EN 16511. The floor covering is laid indoors on screed or other subfloors such as wood, tiles or plastic as a floating floor. The substrate must be clean, resistant to tension and pressure, permanently dry and level. The laying is to be carried out in accordance with the laying instructions and the state of the art. The installation instructions are available for download at www.lico.ch.

The floor coverings have a high-performance surface layer and are suitable products for areas with heavy traffic, such as commercial, business, or general public areas. This floating flooring product meets the requirements of the usage classes 32/33 for commercial use and 23 for domestic use according to EN 16511. Class 33 products are suitable for commercial areas with high traffic.

Technical Data

The technical data of the products are tested according to EN 16511. The corresponding technical datas sheets (TDS) can be sent on request (info@lico.ch).

Technical Data

Relevant technical construction data for the product with thickness 10 mm is referred in the following table.

Name	Value	Unit
Total thickness	10	mm
Wear layer thickness	0.55	mm
Grammage	9000 - 12000	g/m ²
Abrasion Class	-	-
Reaction of fire	Bfl s1	
Thermal resistance	0,088	m ² K/W
Slip resistance	R10	
Formaldehyd	<60	µg/m ³
Pentachlorophenol	0,00	µg/m ³

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to EN 16511:2014+A1:2019, Panels for floating installation - Semi-rigid, multilayer, modular floor coverings (MMF) with abrasion-resistant top layer.

Base materials/Ancillary materials

One m² of Li&Co Luxury Vinyl Tiles HDF / Hydrowood flooring, averaged over the amount that was produced in one year, consists of the following material components (in mass %)

Name	Value	Unit
Cork Sound Underlay	5	%
HDF / Hydrowood Core Board	68	%
Adhesive	1,3	%
LVT (Luxury Vinyl Tiles)	25,7	%

The products contain substances from the ECHA list of substances of very high concern (SVHC, 14th of April 2023) that are eligible for authorization above 0.1 % by mass: **No.**

Reference service life

According to the BBSR table "Useful lives of components for life cycle analysis according to "BNB" the useful life is 20 years (code no. 352.711). No damage is to be expected if used, maintained, cared for and cleaned as recommended. A service life in accordance with the BBSR table is not a RSL (reference service life) according to ISO 15686.

LCA: Calculation rules

Declared Unit

1m² of floor covering.

Name	Value	Unit
Declared unit	1	m ²
Layer thickness	0.01	m
Grammage	9.27	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 transport of the floor covering to the place of installation (100km).

Module A5 includes the incineration of packaging material. No adhesives are declared in the EPD.

Module B2 is including provision of cleaning agent, energy and water consumption for the cleaning of the floor covering incl. waste water treatment. The LCA results in this EPD are declared for a one-year usage.

Module C1 considers the manual deconstruction.

Module C2 includes transportation of the postconsumer waste

to waste processing (100km).

Module C3/1: 100% Incineration in a waste incineration plant in EU.

Module C3/2: reuse (second life) of HDF board (60- 65 % of the total product weight) and the rest in incineration.

Module C3/1 and C3/2 declares the biogenic carbon dioxide emission. This is declared in order to ensure the carbon neutrality within the product system.

Module D/1 includes potential benefits from all net flows given in modules A5 and C3/1 that leave the product boundary system after having passed the end-of-waste state in the form of recovery potential.

Module D/2 includes potential benefits from all net flows given in module A5 and C3/2 recovery potential from the reuse (substitution of core material- HDF) and incineration of the rest of the product.

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. The data was collected for the year 2021. The used database is *LCA FE (GaBi)* 2022, version 2022.2.

LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon

Informationen zur Beschreibung des biogenen Kohlenstoffgehalts am Werkstor

Information on describing the biogenic carbon content at factory gate

Name	Value	Unit
Biogenic carbon content in product	2.52	kg C
Biogenic carbon content in accompanying packaging	0.14	kg C

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

Transport to the building site (A4)

Name	Value	Unit
Litres of fuel	0.02	l/100km
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%
Vehicle Type	Euro 6	

Einbau ins Gebäude (A5)

In A5, only the effort for the thermal recycling of the of the packaging materials are declared. The credits from energy substitution are declared in D.

The production of the following packaging materials is included in the life cycle assessment:

Name	Value	Unit
Carton	0.22	kg
Wooden pallet	0.11	kg

Maintenance (B2) per year

Name	Value	Unit
Water consumption	0.003	m ³
Auxiliary	0.04	kg
Electricity consumption	0.55	kWh

End of life (C1-C4)

Name	Value	Unit
Reuse (Scenario 2)	5.8	kg
Energy recovery (Scenario 1)	9.27	kg

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

For module D/1 the potential benefits given in module A5 and C3/1 are declared.

For Module D/2 potential benefits given in module A5 and credit

for core material (HDF) from C3/2 and credit for incineration of the rest of the material from C3/2 are declared.

Name	Value	Unit
Core material (HDF)	5.8	kg

LCA: Results

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

Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundaries
Raw material supply	Transport	Manufacturing	Transport from the gate to the site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	X	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² LVT - HDF floor covering (9.27kg/m²)

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3/1	C3/2	C4	D/1	D/2
GWP-total	kg CO ₂ eq	3.09E+00	6.59E-02	5.12E-01	2.62E-01	0	6.36E-02	1.14E+01	1.07E+01	0	-4.29E+00	-3.98E+00
GWP-fossil	kg CO ₂ eq	7.78E+00	6.58E-02	1.04E-02	2.61E-01	0	6.35E-02	2.12E+00	1.46E+00	0	-4.27E+00	-3.98E+00
GWP-biogenic	kg CO ₂ eq	-9.75E+00	1.08E-04	5.01E-01	7.58E-04	0	1.04E-04	9.24E+00	9.24E+00	0	-2.12E-02	-5.39E-03
GWP-luluc	kg CO ₂ eq	4.28E-03	8.1E-07	1.76E-06	1.68E-05	0	7.82E-07	8.79E-04	-1.65E-05	0	-4.57E-04	-1.95E-03
ODP	kg CFC11 eq	1.71E-10	4.03E-15	4.95E-14	2.27E-12	0	3.89E-15	4.16E-12	8.06E-13	0	-2.85E-11	-2.41E-11
AP	mol H ⁺ eq	5.04E-02	5.46E-05	1.14E-04	3.84E-04	0	5.27E-05	2.74E-03	1.55E-05	0	-5.56E-03	-1.15E-02
EP-freshwater	kg P eq	2.92E-05	1.32E-08	1.44E-08	8.34E-07	0	1.28E-08	1.85E-06	4.06E-08	0	-5.67E-06	-1.63E-05
EP-marine	kg N eq	1.4E-02	1.79E-05	4.05E-05	1.09E-04	0	1.73E-05	9.09E-04	5.07E-06	0	-1.52E-03	-5.28E-03
EP-terrestrial	mol N eq	1.36E-01	1.99E-04	5.25E-04	1.15E-03	0	1.92E-04	1.21E-02	4.51E-05	0	-1.62E-02	-4.22E-02
POCP	kg NMVOC eq	3.8E-02	5.28E-05	1.08E-04	3.36E-04	0	5.1E-05	2.49E-03	1.2E-05	0	-4.25E-03	-1.07E-02
ADPE	kg Sb eq	1.88E-06	2.69E-09	1.22E-09	4.51E-08	0	2.59E-09	1.06E-07	6.73E-09	0	-6.32E-07	-6.88E-07
ADPF	MJ	1.51E+02	8.88E-01	1.36E-01	5.63E+00	0	8.57E-01	9.47E+00	1.19E+00	0	-7.29E+01	-8.08E+01
WDP	m ³ world eq deprived	1.16E+00	1.22E-04	5.93E-02	1.11E-01	0	1.18E-04	1.6E+00	8.4E-04	0	-4.41E-01	-4.88E-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 LVT - HDF floor covering (9.27kg/m²)

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3/1	C3/2	C4	D/1	D/2
PERE	MJ	4.44E+01	3.35E-03	5.44E+00	7.19E-01	0	3.24E-03	1.11E+02	6.25E-01	0	-1.94E+01	-1.27E+02
PERM	MJ	1.13E+02	0	-5.41E+00	0	0	0	-1.08E+02	-1.08E+02	0	0	0
PERT	MJ	1.58E+02	3.35E-03	3.1E-02	7.19E-01	0	3.24E-03	2.54E+00	-1.07E+02	0	-1.94E+01	-1.27E+02
PENRE	MJ	7.56E+01	8.9E-01	1.36E-01	5.65E+00	0	8.59E-01	8.62E+01	2.87E+00	0	-7.29E+01	-8.08E+01
PENRM	MJ	7.67E+01	ND	ND	0	0	0	-7.67E+01	-7.67E+01	0	0	0
PENRT	MJ	1.52E+02	8.9E-01	1.36E-01	5.65E+00	0	8.59E-01	9.48E+00	-7.38E+01	0	-7.29E+01	-8.08E+01
SM	kg	0	0	0	0	0	0	0	0	0	0	5.83E+00
RSF	MJ	0	0	0	0	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0	0	0	0	0
FW	m ³	4.07E-02	5.06E-06	1.39E-03	3.28E-03	0	4.88E-06	3.85E-02	1.3E-02	0	-1.87E-02	-2.23E-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 LVT - HDF floor covering (9.27kg/m²)

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3/1	C3/2	C4	D/1	D/2
HWD	kg	8.29E-07	2.94E-12	1.34E-11	3.88E-10	0	2.84E-12	7.02E-10	2.07E-10	0	-9.82E-09	-1.42E-08
NHWD	kg	1.33E-01	8.33E-05	1.12E-02	2.86E-03	0	8.04E-05	2.19E+00	3.95E-01	0	-3.59E-02	-7.01E-02
RWD	kg	3.32E-03	9.75E-07	7.57E-06	8.1E-04	0	9.42E-07	5.22E-04	5.06E-04	0	-5.78E-03	-4.12E-03
CRU	kg	0	0	0	0	0	0	0	5.83E+00	0	0	0
MFR	kg	0	0	0	0	0	0	0	0	0	0	0
MER	kg	0	0	0	0	0	0	0	0	0	0	0

EEE	MJ	1.15E-01	0	-7.6E-01	0	0	0	1.83E+01	4.22E+00	0	0	0
EET	MJ	2.62E-01	0	-1.37E+00	0	0	0	3.28E+01	9.61E+00	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 LVT - HDF floor covering (9.27kg/m²)

Parameter	Unit	A1-A3	A4	A5	B2	C1	C2	C3/1	C3/2	C4	D/1	D/2
PM	Disease incidence	7.66E-07	2.92E-10	6.08E-10	3.37E-09	0	2.82E-10	3.13E-08	9.05E-09	0	-4.61E-08	-1.66E-07
IR	kBq U235 eq	4.95E-01	1.42E-04	1.22E-03	1.18E-01	0	1.37E-04	8.08E-02	5.74E-02	0	-9.72E-01	-6.7E-01
ETP-fw	CTUe	8.34E+01	6.18E-01	6.36E-02	1.84E+00	0	5.97E-01	6.1E+00	1.45E+00	0	-1.59E+01	-2.47E+01
HTP-c	CTUh	3.61E-08	1.14E-11	3.7E-12	3.62E-11	0	1.1E-11	2.46E-10	7.93E-11	0	-7.24E-10	-3.32E-08
HTP-nc	CTUh	1.05E-07	4.74E-10	1.5E-10	1.9E-09	0	4.58E-10	1.81E-08	1.14E-08	0	-2.8E-08	-5.34E-08
SQP	SQP	4.83E+02	2.45E-03	3.88E-02	4.55E-01	0	2.37E-03	2.82E+00	6.09E-01	0	-1.26E+01	-3.7E+02

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

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

References

Standards

DIN EN 16511:2014+A1:2019

DIN EN 16511:2014+A1:2019, Loose-laid panels - Semi-rigid multilayer modular floor covering (MMF) panels with wear resistant top layer.

DIN EN 15804:2012+A1 2013

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

DIN EN 15804:2012+A2:2019+AC:2021

DIN EN 15804:2012+A2:2019+AC:2021, Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products.

ISO 14025

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

Further References

BNB

BBSR table (german): 'Nutzungsdauern von Bauteilen zur Lebenszyklusanalyse nach BNB', Bundesinstitut für Bau-, Stadt- und Raumforschung, Referat II Nachhaltiges Bauen; online available under <https://www.nachhaltigesbauen.de/austausch/nutzungsdauern-von-bauteilen/>

CPR Regulation

(EU) No 305/2011 of the European parliament and of the

council of 9 March 2011 laying down harmonised conditions for the marketing of construction products and repealing Council Directive 89/106/EEC

LCA FE (GaBi) documentation

GaBi life cycle inventory data documentation

(<https://www.gabisoftware.com/support/gabi/gabidatabase2020lcidocum>)

LCA FE (GaBi) software

Sphera Solutions GmbH, GaBi Software System and Database for Life Cycle Engineering, CUP Version: 2022.2, University of Stuttgart, Leinfelden Echterdingen.

IBU 2021

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

PCR Part A

Institut Bauen und Umwelt e.V., Berlin (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. version 1.3, 08/2021 www.bau-umwelt.de

PCR Part B

Institut Bauen und Umwelt e.V., Berlin (pub.): Product Category Rules for Construction Products from the range of Environmental Product Declarations of Institut Bauen und Umwelt (IBU), Part B: Requirements on the EPD for floorcoverings, Institut Bauen und Umwelt e.V., www.bau-umwelt.com, version 4, 06/2023



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