

Wielsbeke, 04.04.2024

## Topic : Achieve LEED v4.1 points with Unilin Panels HPL

LEED (Leadership in Energy and Environmental Design) is a green building rating system. LEED certification provides a framework for healthy, highly efficient, and cost-saving green buildings, which offer environmental, social and governance benefits.

Unilin Panels products can not be certified as LEED, though they can contribute to a higher LEED credit of a building. Following table explains how LEED points can be achieved by using **Unilin Panels HPL**.

Section	Chapter Title	Requirement	Requirement Detail	Points	Deliverables Unilin	Score	Comment
Material and Resources	Environmental Product Declarations	Option 1: LCA's and EPDs	Use at least 10 different permanently installed products sourced from at least three different manufacturers that meet one of the disclosure criteria below.	1	EPD on product level	✓	Sectoral EPD HPL (ICDLI) available and visible on IBU database Germany.
Material and Resources	Environmental Product Declarations	Option 2: Embodied Carbon/ LCA Optimization	Use products that have a compliant embodied carbon optimization report or action plan separate from the LCA or EPD. Use at least 5 permanently installed products sourced from at least three different manufacturers. Products are valued according to the table below.	1	Table p.46 Impact categories: - GHG - Depletion of pzone layer - Acidification (land + water) - Eutrophication	NA	See option 1
Material and Resources	Sourcing of Raw Materials	Option 1: Sustainability Record	Use products sourced from at least three different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 15%, by cost, of the total value of permanently installed building products in the project (1 point). Use products sourced from at least five different manufacturers that meet at least one of the responsible sourcing and extraction criteria below for at least 30%, by cost, of the total value of permanently installed building products in the project (2 points)	2	Sustainability Report GR standards, audited by independent party	✓	Unilin Group Sustainability Report available. SBTI Approved science-based target. Unilin Group available and published on SBTI platform.
Material and Resources	Sourcing of Raw Materials	Option 2.3: Wood products	Wood products must be certified by FSC or USGBC-approved equivalent	2	FSC or USGBC-approved equivalent	✓	FSC Certification possible on demand
Material and Resources	Sourcing of Raw Materials	Option 2.5: Recycled Content	Recycled content, based on weight: Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on weight. The recycled fraction of the assembly is then multiplied by the cost of assembly to determine the recycled content value.	1	Declaration with the recycled content %.	X	Raw materials used for HPL are not defined as recycled materials according to LEED definitions.
Material and Resources	Material Ingredients	Option 1: Material Ingredient Reporting	Use at least 10 different permanently installed products from at least three different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm). Different programs: - ANS/BIFMA e3 Furniture Sustainability Record - Cradle to Cradle - Facts - NSF/ANSI 336 - Global Green TAG - Health Product Declaration - Living Product Challenge - Manufacturer Inventory - CASRN and/or EC Number - If secret: chemical role, amount and hazard disclosed using: -> Greenscreen List Translato (LT) and/or Full Greenscreen Benchmark (BM) or GHS or Product Lens Certification	1	Manufacturer declaration or C2C certificate.	✓	SDS available with board composition on 0.1% level. As from Q3 '24 HPL will be C2C Material Health certified which is a approved program for LEED.
Indoor Environmental Quality	Low-Emitting Materials (Outside US)	VOC Emission Evaluation	Labs accredited accordig ISO/IEC 17025 LCI values of German AgBB Testing and Evaluation Scheme	3	VOC test report which meets LCI values of German AgBB	✓	VOC Report available which shows compliance to AgBB scheme.
Indoor Environmental Quality	Low-Emitting Materials (Outside US)	Formaldehyde Emissions Evaluation	Concentration limit in composite wood is 0,05 ppm (Outside US)	3	Formaldehyde Emission Test Report 717-1 with < 0.05ppm.	✓	ChemVerbotsV Compliance declaration available. Compliancy reports are available on demand (ustec.panels@unilin.com)
Indoor Environmental Quality	Low-Emitting Materials (Inside US)	Formaldehyde Emissions Evaluation	- Certified as ultra-low-emitting formaldehyde (ULEF) product under EPA Toxic Substances Control Act, Formaldehyde Emission Standards for Composite Wood Products (TSCA, Title VI) (EPA TSCA Title VI) or California Air Resources Board (CARB) Airborne Toxic Control Measure (ATCM) - Certified as no added formaldehyde resins (NAF) product under EPA TSCA Title VI or CARB ATCM	3	ULEF of NAF certificate	X	No products available that comply.

Kind regards,

Cristian Delaere – Certification Manager



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# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	ICDLI aisbl – International Committee of the Decorative Laminates Industry
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ICL-20220237-CBE1-EN
Issue date	18/11/2022
Valid to	17/11/2027

HPL-Compact  
**International Committee of the Decorative  
Laminates Industry (ICDLI aisbl)**

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



ECO PLATFORM

**EPD**  
VERIFIED



## General Information

### International Committee of the Decorative Laminates Industry aisbl (ICDLI)

#### Programme holder

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

#### Declaration number

EPD-ICL-20220237-CBE1-EN

#### This declaration is based on the product category rules:

Laminates, 09.2022  
(PCR checked and approved by the SVR)

#### Issue date

18/11/2022

#### Valid to

17/11/2027



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



Dr. Alexander Röder  
(Managing Director Institut Bauen und Umwelt e.V.)

### High Pressure Compact Laminate

#### Owner of the declaration

ICDLI aisbl – International Committee of the Decorative Laminates Industry  
Rue de la presse 4  
1000 Brussels/Belgium  
Headoffice:  
Mainzer Landstraße 55  
60239 Frankfurt am Main/Germany

#### Declared product / declared unit

HPL-Compact according to EN 438-4 produced by ICDLI aisbl members. The EPD applies to 1 m<sup>2</sup> of Compact Laminate Panels without fire-retardant properties with an average density of 1350 kg/m<sup>3</sup>.

#### Scope:

The applicability of this document is restricted to HPL-Compact produced by member companies of the Laminate Association ICDLI aisbl. Data has been provided by 10 member HPL-Compact producing companies of the ICDLI aisbl for the year 2021. These companies represent 75 % of the ICDLI aisbl members. The production volume of these companies contributes more than 45 % to the HPL-Compact production in Europe.

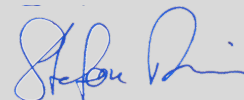
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

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



Dr. Stefan Diederichs  
(Independent verifier)

## Product

#### Product description/Product definition

This EPD describes HPL-Compact according to EN 438-4 (Compact HPL, thickness  $\geq 2$  mm) with a density of at least 1350 kg/m<sup>3</sup>.

HPL-Compact is characterised by its aesthetic qualities, strength, durability and functional performance. HPL-Compact sheets are available in a wide variety of colours, patterns and surface finishes. They are resistant to wear, impact, scratching, moisture, heat, staining and light and possess good hygienic and -antistatic properties. HPL-Compact is easy to clean and maintain.

HPL-Compact can be glued, riveted or screwed on wooden or metallic substructures or anchored in

mechanical fastening brackets to be used in invisible mounting systems.

#### Dimensions:

Length: up to 5600 mm  
Width: up to 2200 mm

Thickness  $2 \leq t < 40$  mm (HPL-Compact, EN 438-4)  
A large number of HPL manufacturing plants are certified to ISO 9001 and/or ISO 14001.

For the placing on the market of HPL Compact Panels in the European Union/European Free Trade Association (EU/EFTA) (with the exception of

Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. HPL Compact Panels needs a Declaration of Performance (DoP) taking into consideration *EN 438-7:2005* and the CE-marking. For the application and use the respective national provisions apply.

### Application

HPL-Compact can be used for private and -residential housing, hospitals and laboratories, public buildings, - railway stations, airport terminals/infrastructure, transportation, -hotels, education, retail and commercial buildings, sport & recreation centres and industrial buildings.

The performance properties of HPL-Compact make them suitable for use in a wide variety of interior applications such as wall cladding, railing infill panels, furniture, tables, desks, column cladding and lab equipment, cubicles, ceilings, window sills, worktops, countertops, wash basins, etc.

### Technical Data

An extract of the technical properties of HPL-Compact according to *EN 438* part 4 is given in the following tables. For general purpose HPL-Compact used in products without flame retardants, the following properties are given.

#### Constructional data

Name	Value	Unit
Density	≥ 1350	kg/m <sup>3</sup>
Grammage	10.8	kg/m <sup>2</sup>
Resistance to surface wear (IP) acc. to EN 438	≥ 150	revolution s
Resistance to scratches acc. to EN 438	≥ 2	rating
Resistance to impact (large diameter ball) acc. to EN 438	≥ 1800	mm drop height
Flexural strength acc. to EN 438	≥ 80	N/mm <sup>2</sup>
Modulus of elasticity acc. to EN 438	≥ 9000	N/mm <sup>2</sup>
Light resistance acc. to EN 438	≥ 4	-
Dimensional deviation : Thickness tolerance acc. to EN 438	± 0.5	mm

Dimensional deviation: Length and width acc. to EN 438	+10/-0	mm
Formaldehyde emissions acc. to EN 717-1	< 100	µg/m <sup>3</sup>

- Performance data of HPL Compact Panels in accordance with the Declaration of Performance (DoP) with respect to its Essential Characteristics according to *EN 438-7:2005* apply.
- Voluntary data: *EN 438-4:2016*

### Base materials/Ancillary materials

More than 60 % of the HPL-Compact consists of paper, and the remaining 30 to 40 % consists of cured phenol resin for core layers and melamine resin for the surface layer. HPL-Compact is produced in a high-pressure process. Papers are impregnated with thermosetting resins and pressed together under simultaneous application of heat (temperature > 120 °C) and high specific pressure (≥ 5 MPa). This method produces a homogeneous, nonporous material with a density ≥ 1350 kg/m<sup>3</sup>.

HPL-Compact typically have two decorative sides. For packaging the materials cardboard, wood/wooden pallets and polyethylene film are used.

This product HPL-Compact contains substances listed in *the candidate list* (date: 12.08.2022) exceeding 0.1 percentage by mass: No.

### Reference service life

Due to the wide range of applications, no single reference service life can be established. For information, the service life in standard applications can range from 20 to 50 years (ICDLI aisbl suggestion based on expert judgment).

## LCA: Calculation rules

### Declared Unit

The declared unit is 1 m<sup>2</sup> of HPL-Compact with 8 mm thickness and a density of at least 1350 kg/m<sup>3</sup>. The declared unit refers to the HPL-Compact products manufactured with phenolic-impregnated kraft paper core and melamine-impregnated decor paper. Special decors, fire retardants or alternative core production technologies are not included. The declared unit refers to the average HPL-Compact products manufactured by ICDLI aisbl members (weighted average).

### Declared unit

Name	Value	Unit
Declared unit	1	m <sup>2</sup>
Grammage	10.8	kg/m <sup>2</sup>

The EPD is an average product from factories of several HPL manufacturers. The averaging was done by weighting according to the total production quantities of the declared products of the member companies.

The EPD is representative for (of) the ICDLI association. With regard to the variability compared to the actual production, a slight variability can occur due to different production technologies and locations (different national energy mixes)

### System boundary

Type of EPD: Cradle-to-gate with options.

Considered product stages:

- Production of pre-products (e.g. resin ingredients and papers), extraction of energy carriers, raw material transportation, manufacture of product and packaging materials are declared in modules A1-A3. Modules A1-A3 also include the manufacturing and supply of energy.

- The scenario for the transport of the product to the construction site is declared in module A4.
- The treatment of packaging materials at installation is declared in module A5.
- The end-of-life scenarios include manual dismantling (C1), transportation to waste processing (C2), emissions and energy requirements of combustion (C3). Credits for electricity and thermal energy, which result from energy recovery in modules A5 and C3, are declared in module D.
- The CO<sub>2</sub> incorporation in the product (from the sequestration in the paper material) is considered. The C-balance is closed by

considering the biotic CO<sub>2</sub> emissions according to the incorporation on input side

The data collected by the manufacturers is based on yearly production amounts. The production data refers to the yearly consumption in 2021.

#### 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 *GaBi ts* software (CUP 2022.1) was used as background datasets.

## LCA: Scenarios and additional technical information

### Characteristic product properties Information on biogenic Carbon

Biogenic carbon is present in the product and the packaging materials.

Note: 1 kg biogenic Carbon is equivalent to 44/12 kg of CO<sub>2</sub>

### Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic Carbon Content in product	2.94	kg C
Biogenic Carbon Content in accompanying packaging	0.27	kg C

The transport to waste processing (module C2) is assumed to be 50 km.

Name	Value	Unit
Collected separately	10.8	kg
Energy recovery	10.8	kg

### Reuse, recovery and/or recycling potentials (D),

Module D includes the potential benefits in form of energy recovery of the incineration process C3 (incineration of HPL-Compact). A waste incineration plant with R1-value > 0.6 is assumed.

The following technical information is a basis for the declared modules. This information can also be used for developing specific scenarios in the context of a building assessment for modules that are not declared (MND)

### Transport to the building site (A4)

Name	Value	Unit
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%
Gross density of products transported	1350	kg/m <sup>3</sup>
Capacity utilisation volume factor	1	-

### Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging materials)	0.73	kg

### Packaging material:

polyethylene film : 0,08 kg/m<sup>2</sup>

cardboard: 0,05 kg/m<sup>2</sup>

wood (from pallets and fibreboard) : 0,60 kg/m<sup>2</sup>

### End of life (C1-C4)

The deconstruction (module C1) is assumed to be done manually (no environmental impact).

## LCA: Results

The following tables display the environmentally relevant results according to EN 15804 for 1 m<sup>2</sup> HPL-Compact.

### 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	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m<sup>2</sup> HPL-Compact, thickness 8.0 mm (10.8 kg/m<sup>2</sup>)

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> -Eq.]	5.44E+0	8.42E-2	1.19E+0	0.00E+0	4.21E-2	1.12E+1	0.00E+0	-5.28E+0
GWP-fossil	[kg CO <sub>2</sub> -Eq.]	1.71E+1	8.06E-2	2.15E-1	0.00E+0	4.03E-2	3.64E-1	0.00E+0	-5.25E+0
GWP-biogenic	[kg CO <sub>2</sub> -Eq.]	-1.17E+1	3.67E-3	9.76E-1	0.00E+0	1.84E-3	1.08E+1	0.00E+0	-2.70E-2
GWP-luluc	[kg CO <sub>2</sub> -Eq.]	1.34E-2	1.03E-6	4.12E-6	0.00E+0	5.16E-7	4.11E-5	0.00E+0	-5.80E-4
ODP	[kg CFC11-Eq.]	1.09E-10	5.13E-15	1.04E-13	0.00E+0	2.56E-15	1.64E-12	0.00E+0	-3.57E-11
AP	[mol H <sup>+</sup> -Eq.]	6.12E-2	2.43E-4	1.54E-4	0.00E+0	1.22E-4	9.31E-3	0.00E+0	-6.94E-3
EP-freshwater	[kg P-Eq.]	1.60E-4	1.69E-8	2.54E-8	0.00E+0	8.43E-9	4.25E-7	0.00E+0	-7.27E-6
EP-marine	[kg N-Eq.]	1.92E-2	1.14E-4	4.88E-5	0.00E+0	5.70E-5	4.41E-3	0.00E+0	-1.88E-3
EP-terrestrial	[mol N-Eq.]	1.75E-1	1.25E-3	7.27E-4	0.00E+0	6.26E-4	5.11E-2	0.00E+0	-2.01E-2
POCP	[kg NMVOC-Eq.]	5.13E-2	2.26E-4	1.34E-4	0.00E+0	1.13E-4	1.14E-2	0.00E+0	-5.26E-3
ADPE	[kg Sb-Eq.]	2.65E-6	3.42E-9	2.54E-9	0.00E+0	1.71E-9	4.32E-8	0.00E+0	-7.96E-7
ADPF	[MJ]	3.89E+2	1.13E+0	2.63E-1	0.00E+0	5.66E-1	5.31E+0	0.00E+0	-8.94E+1
WDP	[m <sup>3</sup> world-Eq deprived]	2.17E+0	1.55E-4	1.13E-1	0.00E+0	7.77E-5	1.88E+0	0.00E+0	-5.63E-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 m<sup>2</sup> HPL-Compact, thickness 8.0 mm (10.8 kg/m<sup>2</sup>)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.45E+2	4.27E-3	9.97E+0	0.00E+0	2.14E-3	1.17E+2	0.00E+0	-2.47E+1
PERM	[MJ]	1.26E+2	0.00E+0	-9.91E+0	0.00E+0	0.00E+0	-1.16E+2	0.00E+0	0.00E+0
PERT	[MJ]	2.71E+2	4.27E-3	6.00E-2	0.00E+0	2.14E-3	1.00E+0	0.00E+0	-2.47E+1
PENRE	[MJ]	2.96E+2	1.13E+0	3.99E+0	0.00E+0	5.67E-1	9.55E+1	0.00E+0	-8.94E+1
PENRM	[MJ]	9.39E+1	0.00E+0	-3.73E+0	0.00E+0	0.00E+0	-9.02E+1	0.00E+0	0.00E+0
PENRT	[MJ]	3.89E+2	1.13E+0	2.63E-1	0.00E+0	5.67E-1	5.31E+0	0.00E+0	-8.94E+1
SM	[kg]	2.76E+0	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 <sup>3</sup> ]	8.93E-2	6.44E-6	2.67E-3	0.00E+0	3.22E-6	4.43E-2	0.00E+0	-2.37E-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 m<sup>2</sup> HPL-Compact, thickness 8.0 mm (10.8 kg/m<sup>2</sup>)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.79E-6	3.74E-12	2.44E-11	0.00E+0	1.87E-12	6.63E-10	0.00E+0	-1.21E-8
NHWD	[kg]	5.15E-1	1.06E-4	2.47E-2	0.00E+0	5.31E-5	1.36E-1	0.00E+0	-4.53E-2
RWD	[kg]	5.54E-3	1.24E-6	1.42E-5	0.00E+0	6.21E-7	2.48E-4	0.00E+0	-7.08E-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	4.80E-2	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	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	1.68E+0	0.00E+0	0.00E+0	2.21E+1	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	3.02E+0	0.00E+0	0.00E+0	3.92E+1	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 m<sup>2</sup> HPL-Compact, thickness 8.0 mm (10.8 kg/m<sup>2</sup>)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease Incidence]	8.14E-7	1.29E-9	9.40E-10	0.00E+0	6.43E-10	2.77E-8	0.00E+0	-5.75E-8
IRP	[kBq U235-Eq]	9.58E-1	1.81E-4	2.25E-3	0.00E+0	9.04E-5	4.01E-2	0.00E+0	-1.20E+0
ETP-fw	[CTUe]	1.38E+2	7.88E-1	1.37E-1	0.00E+0	3.94E-1	1.97E+0	0.00E+0	-1.97E+1
HTP-c	[CTUh]	7.82E-9	1.46E-11	8.66E-12	0.00E+0	7.29E-12	1.29E-10	0.00E+0	-9.03E-10
HTP-nc	[CTUh]	2.35E-7	7.13E-10	5.01E-10	0.00E+0	3.57E-10	4.77E-9	0.00E+0	-3.47E-8
SQP	[-]	1.74E+3	3.12E-3	7.49E-2	0.00E+0	1.56E-3	1.25E+0	0.00E+0	-1.60E+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 “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

#### EN 438-2

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties; EN 438-2:2016+A1:2018

#### EN 438-3

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 3: Classification and specifications for laminates less than 2 mm thick intended for bonding to supporting substrates; EN 438-3: 2016

#### EN 438-7

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 7: Compact laminate and HPL composite panels for internal and external wall and ceiling finishes; EN 438-7:2005

#### EN 717-1

Wood-based panels - Determination of formaldehyde release - Part 1: Formaldehyde emission by the chamber method; EN 717-7:2004

#### EN 15804

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

#### ISO 9001

DIN EN ISO 9001:2015-11, Quality management systems - Requirements

#### ISO 14001

DIN EN ISO 14001:2015-09, Environmental management systems - Requirements with guidance for use

#### ISO 14025

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

### Further References

#### 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

#### 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

#### GaBi

GaBi Software System and Database for Life Cycle Engineering, 1992-2021, Sphera Solutions GmbH, Leinfelden-Echterdingen, with acknowledgement of LBP University of Stuttgart, program version GaBi 10; database version 2022.1

#### GaBi documentation

GaBi dataset documentation for the software system and databases, LBP, University of Stuttgart and Sphera Solutions GmbH, Leinfelden-Echterdingen, 2021.  
(<http://www.gabi-software.com/support/gabi/gabi-database-2021-lci-documentation/>)

**PCR Part A**

PCR - Part A: Calculation rules for the Life Cycle Assessment and Requirements on the Background Report, version 1.6, Institut Bauen und Umwelt e.V., [www.bau-umwelt.com](http://www.bau-umwelt.com), 2017

**PCR Part B**

Part B: Requirements on the EPD for Laminates, 09/2022

**REACH**

Regulation (EC) No 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

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# ENVIRONMENTAL PRODUCT DECLARATION

as per ISO 14025 and EN 15804+A2

Owner of the Declaration	ICDLI aisbl – International Committee of the Decorative Laminates Industry
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	EPD-ICL-20220238-CBE1-EN
Issue date	18/11/2022
Valid to	17/11/2027

HPL (Dekorative High Pressure Laminates)  
**International Committee of the Decorative Laminates Industry (ICDLI aisbl)**

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



ECO PLATFORM

**EPD**  
VERIFIED



## General Information

### International Committee of the Decorative Laminates Industry aisbl (ICDLI)

#### Programme holder

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

#### Declaration number

EPD-ICL-20220238-CBE1-EN

#### This declaration is based on the product category rules:

Laminates, 09.2022  
(PCR checked and approved by the SVR)

#### Issue date

18/11/2022

#### Valid to

17/11/2027



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



Dr. Alexander Röder  
(Managing Director Institut Bauen und Umwelt e.V.)

### HPL

#### Owner of the declaration

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60239 Frankfurt am Main/Germany

#### Declared product / declared unit

HPL according to EN 438-3 produced by ICDLI aisbl members. The EPD applies to 1 m<sup>2</sup> of HPL without fire-retardant properties with an average density of 1350 kg/m<sup>3</sup>.

#### Scope:

The applicability of this document is restricted to HPL produced by member companies of the Laminate Association ICDLI aisbl.

Data has been provided by 10 member HPL-producing companies of the ICDLI aisbl for the year 2021. These companies represent 75 % of the ICDLI aisbl members. The production volume of these companies contributes more than 55 % to the HPL production in Europe.

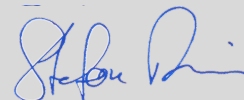
The owner of the declaration shall be liable for the underlying information and evidence; the IBU shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

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



Dr. Stefan Diederichs  
(Independent verifier)

## Product

### Product description/Product definition

This EPD describes HPL (High-pressure laminate) according to EN 438-3 (HPL, thickness < 2 mm) with a density of at least 1350 kg/m<sup>3</sup>.

HPL is characterised by its aesthetic qualities, strength, durability and functional performance. HPL sheets are available in a wide variety of colours, patterns and surface finishes. They are resistant to wear, impact, scratching, moisture, heat, staining and light and possess good hygienic and -antistatic properties. HPL is easy to clean and maintain. HPL is not self-supporting and requires bonding to a substrate. Typically it is glued to wood-based substrates to form an HPL Composite Panel.

### Dimensions:

Length: up to 5600 mm

Width: up to 2200 mm

Thickness  $0,5 \leq t < 2,0$  mm (HPL, EN 438-3)

A large number of HPL manufacturing plants are certified to ISO 9001 and/or ISO 14001.

For the placing on the market of HPL Composite Panels in the European Union/European Free Trade Association (EU/EFTA) (with the exception of Switzerland) Regulation (EU) No. 305/2011 (CPR) applies. HPL Composite Panels needs a Declaration of Performance (DoP) taking into consideration EN 438-

7:2005 and the CE-marking. For the application and use the respective national provisions apply.

### Application

HPL can be used for private and -residential housing, hospitals and laboratories, public buildings, -railway stations, airport terminals/infrastructure, transportation, -hotels, education, retail and commercial buildings, sport & recreation centres and industrial buildings. The performance properties of HPL make them suitable for use in a wide variety of interior applications such as wall cladding, railing infill panels, furniture, tables, desks, column cladding and lab equipment, cubicles, ceilings, window sills, worktops, countertops, wash basins, etc.

### Technical Data

An extract of the technical properties of HPL according to EN 438 part 3 is given in the following table. For horizontal grade, HPL used in general purpose products without flame retardants, the following properties are given:

#### Constructional data

Name	Value	Unit
Density	≥ 1350	kg/m <sup>3</sup>
Grammage	1.08	kg/m <sup>2</sup>
Resistance to surface wear (IP) acc. to EN 438	≥ 150	revolution s
Resistance to scratches acc. to EN 438	≥ 2	rating
Resistance to impact /small diameter ball) acc. to EN 438 acc. to EN 438	≥ 20	N
Light resistance acc. to EN 438	≥ 4	grey scale rating
Dimensional deviation - Thickness tolerance acc. to EN 438	± 0.1	mm
Dimensional deviation - Length and width acc. to EN 438	+10/-0	mm

Formaldehyde emissions acc. to EN 717-1	< 100	µg/m <sup>3</sup>
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- Performance data of HPL Composite Panels in accordance with the Declaration of Performance (DoP) with respect to its Essential Characteristics according to EN 438-7:2005
- Voluntary data: EN 438-3:2016

### Base materials/Ancillary materials

More than 60 % of the HPL consists of paper, and the remaining 30 to 40 % consists of cured phenol resin for core layers and melamine resin for the surface layer. HPL is produced in a high-pressure process. Papers are impregnated with thermosetting resins and pressed together under simultaneous application of heat (temperature > 120 °C) and high specific pressure (≥ 5 MPa). This method produces a homogeneous, nonporous material with a density ≥ 1350 kg/m<sup>3</sup>.

HPL with thickness < 2,0 mm typically has one decorative surface.

For packaging the materials cardboard, wood/wooden pallets and polyethylene film are used.

This product HPL contains substances listed in *the candidate list* (date: 12.08.2022) exceeding 0.1 percentage by mass: No.

### Reference service life

Due to the wide range of applications, no single reference service life can be established. For information, the service life in standard applications can range from 20 to 50 years (ICDLI aisbl suggestion based on expert judgment).

## LCA: Calculation rules

### Declared Unit

The declared unit is 1 m<sup>2</sup> of HPL product with 0.8 mm thickness for the HPL with a density of at least 1350 kg/m<sup>3</sup>.

The declared unit refers to the HPL products manufactured with phenolic-impregnated kraft paper core and melamine-impregnated decor paper. Special decors, fire retardants or alternative core production technologies are not included.

The declared unit refers to the average HPL products manufactured by ICDLI aisbl members (weighted average).

### Declared unit

Name	Value	Unit
Declared unit	1	m <sup>2</sup>
Grammage	1.08	kg/m <sup>2</sup>

The EPD is an average product from factories of several HPL manufacturers. The averaging was done by weighting according to the total production quantities of the declared products of the member companies.

The EPD is representative for(of) the ICDLI association. With regard to the variability compared to the actual production, a slight variability can occur due to different production technologies and locations (different national energy mixes)

### System boundary

Type of EPD: Cradle-to-gate with options.

Considered product stages:

- Production of pre-products (e.g. resin ingredients and papers), extraction of energy carriers, raw material transportation, manufacture of product and packaging materials are declared in modules A1-A3. Modules A1-A3 also include the generation and supply of energy.
- The scenario for the transport of the product to the construction site is declared in module A4.

- The treatment of packaging materials at installation is declared in module A5.
- The end-of-life scenarios include manual dismantling (C1), transportation to waste processing (C2), emissions and energy requirements of combustion (C3). Credits for electricity and thermal energy, which result from energy recovery in modules A5 and C3, are declared in module D.
- The CO<sub>2</sub> incorporation in the product (from the sequestration in the paper material) is considered. The C-balance is closed by considering the biotic CO<sub>2</sub> emissions according to the incorporation on input side

The data collected by the manufacturers is based on yearly production amounts. The production data refers to the yearly consumption in 2021.

#### 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 *GaBi ts* software (CUP 2022.1) was used as background datasets.

## LCA: Scenarios and additional technical information

### Characteristic product properties Information on biogenic Carbon

Biogenic carbon is present in the product and the packaging materials.

Note: 1 kg biogenic Carbon is equivalent to 44/12 kg of CO<sub>2</sub>

### Information on describing the biogenic Carbon Content at factory gate

Name	Value	Unit
Biogenic Carbon Content in product	0.29	kg C
Biogenic Carbon Content in accompanying packaging	0.028	kg C

Energy recovery	1.08	kg
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### Reuse, recovery and/or recycling potentials (D)

Module D includes the potential benefits in form of energy recovery of the incineration process C3 (incineration of HPL). A waste incineration plant with R1-value > 0.6 is assumed.

The following technical information is a basis for the declared modules. This information can also be used for developing specific scenarios in the context of a building assessment for modules that are not declared (MND).

### Transport to the building site (A4)

Name	Value	Unit
Transport distance	100	km
Capacity utilisation (including empty runs)	61	%
Gross density of products transported	1350	kg/m <sup>3</sup>
Capacity utilisation volume factor	1	-

### Installation into the building (A5)

Name	Value	Unit
Output substances following waste treatment on site (packaging materials)	0.075	kg

#### Packaging material:

polyethylene film : 0,008 kg/m<sup>2</sup>

cardboard: 0,005 kg/m<sup>2</sup>

wood (from pallets and fibreboard) : 0,062 kg/m<sup>2</sup>

### End of life (C1-C4)

The deconstruction (module C1) is assumed to be done manually (no environmental impacts).

The transport to waste processing (module C2) is assumed to be 50 km.

Name	Value	Unit
Collected separately	1.08	kg

## LCA: Results

The following tables display the environmentally relevant results according to EN 15804 for 1 m<sup>2</sup> HPL.

### 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	ND	MNR	MNR	MNR	ND	ND	X	X	X	X	X	

### RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m<sup>2</sup> HPL, thickness 0.8 mm (1.08 kg/m<sup>2</sup>)

Core Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO <sub>2</sub> -Eq.]	1.26E+0	8.42E-3	1.23E-1	0.00E+0	4.21E-3	1.10E+0	0.00E+0	-5.29E-1
GWP-fossil	[kg CO <sub>2</sub> -Eq.]	2.41E+0	8.06E-3	2.13E-2	0.00E+0	4.03E-3	3.64E-2	0.00E+0	-5.26E-1
GWP-biogenic	[kg CO <sub>2</sub> -Eq.]	-1.14E+0	3.67E-4	1.01E-1	0.00E+0	1.84E-4	1.06E+0	0.00E+0	-2.70E-3
GWP-luluc	[kg CO <sub>2</sub> -Eq.]	1.30E-3	1.03E-7	4.16E-7	0.00E+0	5.16E-8	4.11E-6	0.00E+0	-5.81E-5
ODP	[kg CFC11-Eq.]	1.18E-11	5.13E-16	1.06E-14	0.00E+0	2.56E-16	1.64E-13	0.00E+0	-3.58E-12
AP	[mol H <sup>+</sup> -Eq.]	6.34E-3	2.43E-5	1.58E-5	0.00E+0	1.22E-5	9.31E-4	0.00E+0	-6.95E-4
EP-freshwater	[kg P-Eq.]	1.75E-5	1.69E-9	2.59E-9	0.00E+0	8.43E-10	4.25E-8	0.00E+0	-7.28E-7
EP-marine	[kg N-Eq.]	2.75E-3	1.14E-5	5.03E-6	0.00E+0	5.70E-6	4.41E-4	0.00E+0	-1.88E-4
EP-terrestrial	[mol N-Eq.]	1.92E-2	1.25E-4	7.48E-5	0.00E+0	6.26E-5	5.11E-3	0.00E+0	-2.02E-3
POCP	[kg NMVOC-Eq.]	5.50E-3	2.26E-5	1.38E-5	0.00E+0	1.13E-5	1.14E-3	0.00E+0	-5.27E-4
ADPE	[kg Sb-Eq.]	3.18E-7	3.42E-10	2.59E-10	0.00E+0	1.71E-10	4.32E-9	0.00E+0	-7.98E-8
ADPF	[MJ]	4.98E+1	1.13E-1	2.69E-2	0.00E+0	5.66E-2	5.31E-1	0.00E+0	-8.96E+0
WDP	[m <sup>3</sup> world-Eq deprived]	2.37E-1	1.55E-5	1.17E-2	0.00E+0	7.77E-6	1.88E-1	0.00E+0	-5.64E-2

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 m<sup>2</sup> HPL, thickness 0.8 mm (1.08 kg/m<sup>2</sup>)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	1.54E+1	4.27E-4	1.03E+0	0.00E+0	2.14E-4	1.17E+1	0.00E+0	-2.47E+0
PERM	[MJ]	1.26E+1	0.00E+0	-1.03E+0	0.00E+0	0.00E+0	-1.16E+1	0.00E+0	0.00E+0
PERT	[MJ]	2.80E+1	4.27E-4	6.42E-3	0.00E+0	2.14E-4	1.02E-1	0.00E+0	-2.47E+0
PENRE	[MJ]	4.06E+1	1.13E-1	3.95E-1	0.00E+0	5.67E-2	9.55E+0	0.00E+0	-8.96E+0
PENRM	[MJ]	9.39E+0	0.00E+0	-3.68E-1	0.00E+0	0.00E+0	-9.02E+0	0.00E+0	0.00E+0
PENRT	[MJ]	5.00E+1	1.13E-1	2.69E-2	0.00E+0	5.67E-2	5.31E-1	0.00E+0	-8.96E+0
SM	[kg]	2.60E-1	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 <sup>3</sup> ]	1.05E-2	6.44E-7	2.75E-4	0.00E+0	3.22E-7	4.43E-3	0.00E+0	-2.38E-3

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 m<sup>2</sup> HPL, thickness 0.8 mm (1.08 kg/m<sup>2</sup>)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	1.71E-7	3.74E-13	2.50E-12	0.00E+0	1.87E-13	6.63E-11	0.00E+0	-1.21E-9
NHWD	[kg]	4.90E-2	1.06E-5	2.47E-3	0.00E+0	5.31E-6	1.36E-2	0.00E+0	-4.54E-3
RWD	[kg]	9.81E-4	1.24E-7	1.46E-6	0.00E+0	6.21E-8	2.48E-5	0.00E+0	-7.09E-4
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	5.00E-3	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	0.00E+0	0.00E+0
EEE	[MJ]	0.00E+0	0.00E+0	1.73E-1	0.00E+0	0.00E+0	2.21E+0	0.00E+0	0.00E+0
EET	[MJ]	0.00E+0	0.00E+0	3.10E-1	0.00E+0	0.00E+0	3.92E+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 m<sup>2</sup> HPL, thickness 0.8 mm (1.08 kg/m<sup>2</sup>)

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease Incidence]	8.14E-8	1.29E-10	9.59E-11	0.00E+0	6.43E-11	2.77E-9	0.00E+0	-5.76E-9
IRP	[kBq U235-Eq.]	1.47E-1	1.81E-5	2.31E-4	0.00E+0	9.04E-6	4.01E-3	0.00E+0	-1.20E-1
ETP-fw	[CTUe]	1.52E+1	7.88E-2	1.39E-2	0.00E+0	3.94E-2	1.97E-1	0.00E+0	-1.98E+0
HTP-c	[CTUh]	1.14E-9	1.46E-12	8.83E-13	0.00E+0	7.29E-13	1.29E-11	0.00E+0	-9.05E-11
HTP-nc	[CTUh]	2.81E-8	7.13E-11	5.05E-11	0.00E+0	3.57E-11	4.77E-10	0.00E+0	-3.47E-9
SQP	[-]	1.74E+2	3.12E-4	7.67E-3	0.00E+0	1.56E-4	1.25E-1	0.00E+0	-1.61E+0
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 “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, from radon and 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

#### EN 438-2

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 2: Determination of properties; EN 438-2:2016+A1:2018

#### EN 438-3

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 3: Classification and specifications for laminates less than 2 mm thick intended for bonding to supporting substrates; EN 438-3: 2016

#### EN 438-7

High-pressure decorative laminates (HPL) - Sheets based on thermosetting resins (usually called laminates) - Part 7: Compact laminate and HPL composite panels for internal and external wall and ceiling finishes; EN 438-7:2005

#### EN 717-1

Wood-based panels - Determination of formaldehyde release - Part 1: Formaldehyde emission by the chamber method; EN 717-1:2004

#### EN 15804

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

#### ISO 9001

DIN EN ISO 9001:2015-11, Quality management systems - Requirements

#### ISO 14001

DIN EN ISO 14001:2015-09, Environmental management systems - Requirements with guidance for use

#### ISO 14025

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

#### Further References

#### 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

#### 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](http://www.ibu-epd.com)

#### GaBi

GaBi Software System and Database for Life Cycle Engineering, 1992-2021, Sphera Solutions GmbH, Leinfelden-Echterdingen, with acknowledgement of LBP University of Stuttgart, program version GaBi 10; database version 2022.1

#### GaBi documentation

GaBi dataset documentation for the software system and databases, LBP, University of Stuttgart and Sphera Solutions GmbH, Leinfelden-Echterdingen, 2021.

(<http://www.gabi-software.com/support/gabi/gabi-database-2021-lci-documentation/>)

#### PCR Part A

PCR - Part A: Calculation rules for the Life Cycle Assessment and Requirements on the Background Report, version 1.6, Institut Bauen und Umwelt e.V.,



www.bau-umwelt.com, 2017

**PCR Part B**

Part B: Requirements on the EPD for Laminates,  
09/2022

**REACH**

Regulation (EC) No 1907/2006 concerning the  
Registration, Evaluation, Authorisation and Restriction  
of Chemicals (REACH)

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Wielsbeke, 04.04.2024

## Topic : Recycled content Declaration LEED


To achieve LEED points a determination of recycled content should be calculated where POST-consumer material is counting for 100% recycled content en PRE-consumer for 50%.

For Unilin Products table below shows results of the LEED calculation :

Product Composition	Particleboard	Melamine Faced Particleboard	MDF	Melamine Faced MDF	HPL
% Wood	91	89	87	86	-
<i>Residues</i>	<i>0.46</i>	<i>0.45</i>	<i>78</i>	<i>77.10</i>	-
<i>Co-products</i>	<i>4.10</i>	<i>4.00</i>	<i>8.5</i>	<i>8.40</i>	-
<i>PRE-Consumer</i>	<i>5.60</i>	<i>5.48</i>	<i>0</i>	<i>0</i>	-
<i>POST-Consumer</i>	<i>74.47</i>	<i>72.83</i>	<i>0</i>	<i>0</i>	-
<i>Internal Scrap</i>	<i>6.37</i>	<i>6.23</i>	<i>0.5</i>	<i>0.49</i>	-
% Glue	8	7	11	10	
% Additives	1	1	2	1	3
% Impregnation resin	-	1.5	-	1.5	37 - 42
% Paper (fresh)	-	1.5	-	1.5	55 - 60
Leed Score Recycled Content	77.27 % (74.47+5.6/2)	75.57 % (72.83+5.48/2)	0 % (0+0/2)	0 % (0+0/2)	0 % (0+0/2)

Kind regards,

Cristian Delaere – Certification Manager



# T E S T C E R T I F I C A T E

CT-24-01-22-04

**Product:** UE-HPL  
**Producer:** Unilin BV - Division Panels  
 Ooigemstraat 3  
 BE – 8710 Wielsbeke  
**Order:** Determination and evaluation of the VOC-, formaldehyde, ammonia and odour emission and phthalates according to different schemes/labels by test chamber method  
**Test Reports:** 2523476/4/A1 dated 22/01/2024  
**Test Results:** The tested product “UE-HPL” fulfils the requirements of the following schemes/labels/emission classes:

Label	Results
AgBB-Scheme 2018 / 2021	✓
French VOC-Regulation	A+
French CMR-Regulation	✓
Belgian VOC-Regulation	✓
Italian VOC-Regulation	✓
Blue Angel DE-UZ 76*	✓
Eurofins Indoor Air Comfort ®	✓
Eurofins Indoor Air Comfort GOLD ®	✓
BREEAM International	General Level
New Construction 2016	Exemplary Level
LEED v4.1 Interior Design and Construction	✓
Finish M1 Emission Classification of Building Materials	M1

\* Calculated to loading factor 1.4 m<sup>2</sup>/m<sup>3</sup>, closed edges

Dresden, 22/01/2024

Head of laboratory



Engineer in charge