ENVIRONMENTAL PRODUCT DECLARATION

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

Preliminary – EPD still in verification

Owner of the Declaration	Decospan NV
Publisher	Institut Bauen und Umwelt e.V. (IBU)
Programme holder	Institut Bauen und Umwelt e.V. (IBU)
Declaration number	
Issue date	EPD in verification, issuance expected for July 2024
Valid to	

Veneered, decorative wood panel

Decospan NV

Institut Bauen und Umwelt e.V.

ECO PLATFORM EPD VERIFIED

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1. General Information

Decospan NV

Programme holder

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

Declaration number

This declaration is based on the product category rules:

Wood-based panels, 01.08.2021
(PCR checked and approved by the SVR)

Issue date

EPD in verification, issuance expected for July 2024

Valid to

EPD in verification

Name of Chairman
(Chairman of Institut Bauen und Umwelt e.V.)

EPD in verification

Name of Managing Director
(Managing Director Institut Bauen und Umwelt e.V.)

Veneered, decorative wood panel

Owner of the declaration

Decospan NV
Lageweg 33
8930 Menen
Belgium

Declared product / declared unit

1 m² of veneered, decorative panel with MDF carrier (5 - 39 mm)

Scope:

This Environmental Product Declaration covers an average square meter of veneered, decorative panels with MDF carrier, produced by Decospan NV in Belgium.
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

EPD in verification

Name of verifier,
(Independent verifier)

2. Product

2.1 Product description/Product definition

The veneered, decorative panel is made up of 2 layers of wood veneer, each pressed onto a side of a medium-density fibreboard (MDF). The veneer layers originate from authentic wood species, sourced from responsible forestry.
The thickness of the veneer determines the look and can vary between 0,6mm and 2mm.

The wood veneer layers are pressed onto the MDF carrier according to the DSI (Double Sided Impregnation) system. During this process, the adhesive is pressed into and absorbed by the wood.

The application of wood veneer on both sides of the carrier ensures dimensional stability.

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 *13986:2004+A1:2005* Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking.
For the application and use, the respective national provisions apply.

2.2 Application

Veneered, decorative panels are covered by harmonised standard, *EN 13986:2004+A1:2015.* They are intended for internal use as non-structural component in dry conditions, with service class 1. Veneered, decorative panels can be installed for both private and commercial use. The installation must be carried out in accordance with the installation instructions, the rules of trade and the state of the art.

2.3 Technical Data

Technical specifications in accordance with information in the declaration of performance. With respect to its essential characteristics following *EN 13986:2004+A1:2015*, Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking.

Constructional data

Name	Value	Unit
Thickness	5 - 39	mm
Gross density (mean density)	700 ± 50	kg/m^3
Bending strength (longitudinal) EN 310	23 - 46	N/mm^2
Bending strength (transverse) EN 310	12 - 15.6	N/mm^2
Internal bond EN 319	0,45 ± 0.05	N/mm²
Formaldehyde emission EN 717-1	E1	Class
Reaction to fire EN 13501-1	D-s2,d0	Class
Biological durability EN 335	1	Class
Content of PCP EN 13986 §5.18	< 5	ppm

Performance data of the product in accordance with the declaration of performance with respect to its essential characteristics according to *EN 13986:2004+A1:2015,* Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking.
Verification and assessment of constancy of performance are carried out according to system 3.

2.4 Delivery status

All products are delivered in packaging units. Following information is specified on the packaging:

- Dimensions [mm]
- Quantity [pcs]

Dimensions of the declared products as delivered are within following ranges:

- Length: 2500 - 3050 mm
- Width: 1220 - 1240 mm
- Thickness: 5 - 38 mm

2.5 Base materials/Ancillary materials

The average composition of the finished product is calculated per product group. The components of veneered, decorative panels with MDF carrier are given below in kg/m².

Name	Value	Unit
Veneer	0.65 - 2.47	kg/m²
MDF	3.60 - 26.60	kg/m²
Glue	0.14	kg/m²

'This product/article/at least one partial article contains substances listed in the candidate list (23.01.2024) exceeding 0.1 percentage by mass": NO

'This product/article/at least one partial article contains other CMR substances in categories 1A or 1B which are not on the candidate list, exceeding 0.1 percentage by mass": NO

'Biocide products were added to this construction product or it has been treated with biocide products (this then concerns a treated product as defined by the (EU) Ordinance on Biocide Products No. 528/2012)": NO

2.6 Manufacture

Decospan produces veneered, decorative panels at its production site in Belgium. The production process mainly involves assembly of the above, purchased components (MDF, veneer, adhesive). Prior to the assembly process, an extended part of the production is dedicated to the sorting, preparing and jointing of the veneer.

Veneer is produced by slicing a log in thin layers. This process makes optimal use of the logs because in contrast with solid wood, there is no sawing loss. Since Decospan purchases bundels of sliced veneer, the production process in Belgium starts with a sorting process. Incoming veneer bundles are evaluated on various aspects:

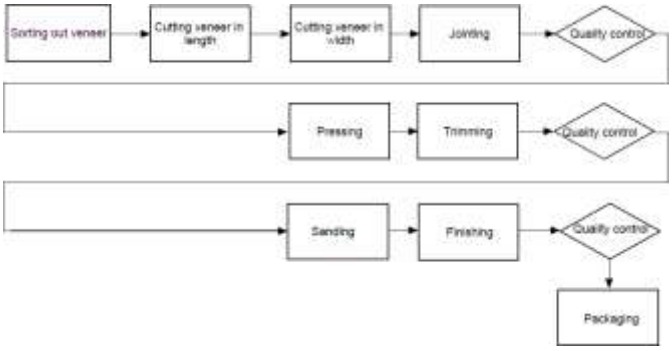
- Wood species
- Slicing technique
- Dimensions
- Quality

After assignment of a certain quality level, the bundles are cut in length and width. By using advanced technology, the sliced wood is jointed into veneer sheets, which are again graded, based on their quality.

The next step in the production process is pressing. Adhesive is applied to both sides of the MDF carrier, which is subsequently placed onto the veneer backing. By placing this combination of materials in the press for a predefined time, temperature and pressure level, the adhesive is pressed into and absorbed by the wood. After pressing, the veneered board is trimmed to the desired dimensions, sanded and subjected to quality control.

The wooden panels are stacked on a wood support and covered with a protective cardboard.

At the end of the manufacturing process, a full quality inspection check is performed and documented according to the internal Factory Production Control (FPC) system.



2.7 Environment and health during manufacturing

Decospan is constantly evolving and committed to contribute to a more sustainable world. Decospans sustainability strategy focuses on three main pillars, referred to as our "favourite places: Sustainable forests, a Healthy workplace and Beautiful interiors. An essential ingredient to our sustainability strategy are Partnerships, to make impact happen. Our latest sustainability report is available on www.decospan.com/sustainability.

Health protection measures

Decospan strictly and fully applies applicable legislation and also complies with all requirements for general good working conditions, in particular, with regard to health and safety. Possible hazards, related to chemicals used in production, are covered by a yearly due diligence exercise where material safety data sheets are collected and conformity with the REACH-regulation (incl. SVHC's) is evaluated. The health and safety manager keeps track of safe use guidelines and provides appropriate personal protection equipment when needed. Since air extraction systems filter ambient air in production, personal protection equipment mainly involves:

- Protective clothing
- Safety shoes
- Hearing protection
- Gloves

All employees are provided with the above mentioned, suitable protection measures.

A committee for prevention and protection at work is in place. Training for personnel is carried out at regular intervals, including: at the start of employment, annual recap or when deemed necessary. All of this is captured in safety procedures, prevention and protection reports and put into practice by means of e.g. fire exercises, first aid training organized by the HR- and HSE-manager. Chemical residues are sorted and collected separately. These containers are picked up by our waste processor and processed according to applicable disposal regulations.

Environmental protection measures:

Decospan is FSC® (FSC-C095327) and Program for the Enforcement of Forest Certification (PEFC/07-32-60) certified. Both organisations are committed to responsible forest management and include social aspects in their policy. Wood or wood-based materials are responsibly sourced with one of the abovementioned certifications or as 'Pure Wood'. All suppliers are requested to sign and comply with the Pure Wood charter and thus respect and commit to Decospans core values concerning responsible forestry.

2.8 Product processing/Installation

Veneered panels are intended for interior applications and can be installed in any commercial, retail, hospitality or residential project. Common applications include home or office cabinets, kitchen fronts, dressings, fixed furniture, reception desks, hotel closets etc. Veneered panels can be processed with all tools, suitable for solid wood.

Additional finishing with either oil or varnish upon delivery at the installation site is possible, tailored to meet the customer's needs.
Varnish provides a protective layer on wood surfaces and helps to maintain the integrity and appearance of the wood over time, extending its lifespan and enhancing its overall durability.
Oil offers a different approach to finishing veneered panels. While varnish provides a durable and hard coating, oil penetrates the wood, nourishing it from within and enhancing its natural beauty. It offers protection against moisture and some degree of external damage, though typically not as robust as varnish.

Finishing advice can be downloaded on www.decospan.com. Make sure that the necessary safety precautions and protection measures (e.g. hearing protection, respiratory mask, protective gloves, safety glasses) are applied. Provide adequate ventilation if the processing operations generate wood dust.

Dispose of the product and packaging in accordance with applicable local, or national disposal regulations.

2.9 Packaging

The veneered panels are stacked on a wood support, covered with a protective cardboard and held together with plast straps. Packaging material must be collected separately and disposed of in accordance with applicable legislation.

2.10 Condition of use

Before installation, it is recommended to keep veneered panels in a dry area with a constant temperature between 18°C - 25°C and maintain a relative humidity between 50% and 60%. To prevent natural discoloration of the wood over time, store the product in a dark space and limit exposure to light.
For best storage practices, store the panels horizontally and ensure they do not directly touch the floor.

Wood has, as a hygroscopic material, the ability to absorb and release moisture from the surrounding environment. This can result in dimensional changes and needs to be accommodated during installation. It's essential to allow the products to acclimatize for 2 days before processing.

2.11 Environment and health during use

The use phase of veneered panels is not in the scope of the Life Cycle Assessment (LCA) and the resulting EPD. However, measurement of VOC emissions to indoor air are measured and available. Veneered panels are tested against following regulations and protocols:

- *Indoor Air Comfort Gold®*
- *CDPH*
- *M1*

Additional and more detailed information can be provided on request. Veneered panels do not imply any hazards to water, air or soil when used as intended.

2.12 Reference service life

The service life for veneered, decorative panels, in accordance with the Bundesinstitut fûr Stadt- und Raumforschung (*BBSR*),

table 'Service lives of components for life cycle assessment according to Bewertungssystem Nachhaltiges Bauen (*BNB*)" is ≥ 50 years.

The following information, related to maintenance and repair is informative, given that module B is not declared.
The product must be installed and maintained according to the installation and maintenance
instructions.
Misuse or poor maintenance will adversely affect the service life. This also applies for unusually low or high humidity, excessive water use, etc.

2.13 Extraordinary effects

Fire

Decorative, veneered panels are Classified Without Further Testing as D-s_2,d_0 according to *EN 13986:2004+A1:2015, Table 8 - Classes of reaction to fire performance for wood-based panels.*

Fire protection

Name	Value
Building material class	D
Smoke gas development	s2
Burning droplets	d0

Water

To enhance the protection of decorative veneered panels against liquids, further application of either oil or varnish is necessary.

While this treatment enhances surface resistance, it cannot endure prolonged water exposure.
Despite potential product damage, there are no adverse environmental consequences.

Mechanical destruction

No negative impacts on the environment are identified when mechanically destroying the product. Suitable personal protection equipment is recommended to prevent injury or health risks, caused by sharp edges, wood chips or wood dust.

2.14 Re-use phase

At the end of its life cycle, decorative veneered products will be collected and sent to a waste treatment facility. In this study, it is assumed that at the waste treatment facility the veneered products are chipped into wood chips. These wood chips are then utilized for incineration, with energy recovery.

2.15 Disposal

Decorative, veneered panels are classified as wood waste with EWC-code 17 02 01, according to *EUROSTAT* Guidance.
The product must be disposed of in accordance with applicable local or national disposal regulations.

2.16 Further information

Additional information, contact details, installation and maintenance instructions are available on www.decospan.com

3. LCA: Calculation rules

3.1 Declared Unit

The declared unit is 1 m² of wood veneered product. The total inputs, outputs and produced m² for the period under consideration are taken as a basis.
The products in this EPD represent an average in a product group. The most important variable which leads to differences in the environmental profiles within the group is the thickness of the MDF in these products.

Declared unit and mass reference

Name	Value	Unit
Declared unit	1	m²
Gross density	700 ± 50	kg/m³
Grammage	4.39 - 28.50	kg/m²
Weighted average thickness	5- 39	mm

Decospan collected data for a full year: 2022.
More specifically:

- Raw material use and transport to the production location
- Decospan contacted relevant suppliers for primary data
- Energy use
- Emissions
- Production

3.2 System boundary

This EPD is a cradle to gate - with options (C1-C4, D)

Product stage A1-A3

Decorative, veneered panels consist of a medium density fibreboard, to which a wood veneer layer is applied (glued) on both sides. All the raw materials are supplied to Decospan by truck. The application of wood veneer onto the baseboard is called the pressing process. This pressing is achieved by means of pressure, temperature and time. The veneered products are then trimmed and may undergo further finishing.

Raw materials A1

For each raw material, the average loss factors are inventoried. These factors are used to calculate the gross amounts of raw materials used and the waste treatment of production waste. None of these materials are secondary materials.

Transport to Decospan A2

The raw materials are transported to Decospan by truck. The transport distance from suppliers to the construction site is inventoried.

Production process A3

Energy consumption

The energy used for the production of veneered products is inventoried. Part of the electricity is generated on site with solar panels. The generated electricity, used by Decospan is included in the calculation. The amount of electricity, injected in the net is not included in the calculations.
Emissions for the combustion of natural gas are not measured at the plant and are therefore included via the Ecoinvent data.
In products with UF glue there is a process specific emission to be expected of formaldehyde. The exact emission is not measured and therefore included based on the Ecoinvent process for plywood production. Plywood {RER}| plywood production | Cut-off. In that process the formaldehyde emission is 0,15% of the amount of UF glue used. The same assumption is applied on the Decospan process.

Production waste

Decospan inventoried the amount of production waste generated by the production of the products in this study. The

amounts have been averaged over the total production. All wastes are transported 30 km to a waste treatment company. This transport (by truck) is also included in the LCA calculations.
The followed approach regarding the treatment of production waste and co-products means that allocation is avoided. All processes described in this LCA are allocated to the products in this study. No environmental burdens have been allocated to co-products or other Decospan products.

Transport to construction (A4)
This module is not in scope of this EPD.

Construction process (A5)
This module is not in scope of this EPD.

Use phase (B)
This module is not in the scope of this EPD. However, the emissions to indoor air will be mentioned informatively in this EPD.

Recovery D
The benefit of the recuperation of electricity and heat that often occurs in waste incineration plants was included in module D. The avoided production of electricity from primary sources is based on[1]:
Electricity, high voltage {NL}| heat and power co-generation, natural gas, combined cycle power plant, 400MW electrical | Cut-off. The avoided production of heat from primary sources is based on:
Heat, district or industrial, natural gas {Europe without Switzerland}| heat production, natural gas, at industrial furnace >100kW | Cut-off.

For the electrical and thermal efficiency of the waste to energy plant we calculated with 18% and 31% respectively. For the heat of combustion of panels (wood) the lower heating value was used: 13,99 MJ/kg.

3.3 Estimates and assumptions

Demolition (C1)
Veneered panels are typically removed from the building in a manual process. It is anticipated that the environmental impact from this process is neglectable.

Transport to waste treatment C2
After the panels are removed from the application, they are transported to a waste treatment facility. In the waste treatment scenario in this LCA a transport distance of 50 km is assumed.

Waste processing C3
The waste treatment scenario in this study assumes that at the waste treatment facility the panels are chipped into wood chips.

Final waste treatment C4
The waste treatment scenario in this study assumes that that the wood chips are used for incineration with energy recovery. It is assumed that the energy efficiency of energy recovery is 18% electric and 31% thermal. Since this efficiency is <60%, the incineration process is included in module C4 .

3.4 Cut-off criteria

Since the LCA is based on production information from a full production year it is expected that mass and energy balance is in close proximity to complete as no materials or processes have been excluded. The cut-off criteria are well below 1%.

3.5 Background data

For background processes the Ecoinvent database v3.9.1 (allocation cut-off) has been used.

3.6 Data quality

Data quality and validation of economix flows
Decospan collected data on the production of veneered products for a full production year: 2022. More specifically:

- Raw material use and transport to the production location
- Decospan contacted important suppliers if primary data was available for their product
- Energy use
- Emissions
- Production waste

The provided data was checked for plausibility. The quality and representativeness are considered high. The product in this EPD represents the minimum thickness in the product range. The most important variable which leads to differences in the environmental profiles within the group is the amount of MDF in these products. Environmental profiles of thicker products can be extrapolated based on the thickness of the MDF carrier. This is a worst-case approach, since the extrapolation of constant elements per m² will result in an overestimation of the environmental burdens of the actual product.

For background processes the Ecoinvent database v3.9.1 (allocation cut-off) has been used.

Data quality and validation of environmental inventories
Since the LCA is based on production information from a full production year it is expected that mass and energy balance is in close proximity to complete as no materials or processes have been excluded. The cut-off criteria are well below 1%.
For the LCA calculations the following methods have been used:

- Simapro's LCA method: 'EN 15804+A2' via Determination method 'set 1', 'set2' & param (NMD 3.4) (see appendix C).

SGS INSTRON has checked potential uncharacterised substances. This check is part of the validation of environmental inventories.

3.7 Period under review

The production data for this EPD is based on the production of a full production year (2022).

3.8 Geographic Representativeness

Land or region, in which the declared product system is manufactured, used or handled at the end of the product´s lifespan: Global

3.9 Allocation

The energy use for the production processes has been allocated based on the area produced for each of the products. The amount of production waste has been allocated based on the mass of the products and the loss factor for each of the products.

3.10 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. For background processes the Ecoinvent database v3.9.1 (allocation cut-off) has been used.

4. LCA: Scenarios and additional technical information

Characteristic product properties of biogenic carbon
The amount of biogenic C in the product has been calculated using the mass of veneer and carriers in the veneered products.

According to Ecoinvent, the amount of biogenic C, at factory gate, in these materials is:

Name	Value	Unit
Biogenic C / kg veneer	0.410	kg C
Biogenic C / kg MDF	0.422	kg C
Biogenic C / kg cardboard	0.450	kg C

Use or application of the installed product (B1) see section 2.12 "Use"
This module is not in scope. However the emissions to indoor air are informatively menitoned in § 2.11.
The following information, related to maintenance is informative, given that module B is not declared.

Maintenance (B2)
Normal maintenance involves no more than removing dust with a soft, dry cloth. A slightly damp cloth can also be used, but avoid using too much water. If liquids are spilled, it is recommended that they are dried immediately. Tough dirt can be removed using water and a mild cleaning agent or a detergent. Never use a cleaner based on acetone or ethyl butyl acetate without consulting Decospan, as these substances can leave marks that cannot be removed. Wax and oil based products can also cause damage.

Reference service life
The service life is declared in accordance with the *BBSR*, table "Service lives of components for life cycle assessment according to *BNB*".

Name	Value	Unit
Life Span According to BBSR	50	years

End of life (C1-C4)
Demolition C1Veneered panels are typically removed from the building in a manual process. It is anticipated that the environmental impact from this process is neglectable.

Transport to waste treatment C2
After the panels are removed from the application, they are transported to a waste treatment facility. In the waste treatment scenario in this LCA a transport distance of 50 km is assumed (Ecoinvent: Transport, freight, lorry, unspecified {GLO}| market group for transport, freight, lorry, unspecified | Cut-off).

Waste processing (C3)
The waste treatment scenario in this study assumes that, at the waste treatment facility the veneered products are chipped into wood chips. The following Ecoinvent process is used: Wood chipping, industrial residual wood, stationary electric chipper {GLO}| market for wood chipping, industrial residual wood, stationary electric chipper | Cut-off.

Final waste treatment (C4)
The waste treatment scenario in this study assumes that that the wood chips are used for incineration with energy recovery. It is assumed that the energy efficiency of energy recovery is 18% electric and 31% thermal. Since this efficiency is <60% is the incineration process is included in module C4.

Name	Value	Unit
Collected separately waste wood - untreated /m²	4,39 - 28,50	kg
Energy recovery /m²	4,39 - 28,50	kg

Reuse, recovery and/or recycling potentials (D), relevant scenario information
The benefit of the recuperation of electricity and heat that often occurs in waste incineration plants was included in module D. For the heat of combustion of veneered products (wood), the lower heating value was used: 13.99 MJ/kg.

5. LCA: Results Please note – EPD in verification

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	MND	MND	MND	MND	MNR	MNR	MNR	MND	MND	X	X	X	X	X

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT according to EN 15804+A2: 1 m² veneered, decorative panel

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Global Warming Potential total (GWP-total)	kg CO_2 eq	1.16E-01	0	6.72E-02	5.9E-02	5.13E+00	-2.85E+00
Global Warming Potential fossil fuels (GWP-fossil)	kg CO_2 eq	4.97E+00	0	6.67E-02	5.81E-02	2.11E-01	-2.3E-01
Global Warming Potential biogenic (GWP-biogenic)	kg CO_2 eq	-4.87E+00	0	1.76E-04	8.73E-04	4.92E+00	-2.62E+00
Global Warming Potential luluc (GWP-luluc)	kg CO_2 eq	1E-02	0	2.38E-04	1.17E-04	2.2E-05	-2.46E-03
Depletion potential of the stratospheric ozone layer (ODP)	kg CFC11 eq	1.28E-07	0	1.16E-09	4.54E-10	2.18E-09	-3.6E-08
Acidification potential of land and water (AP)	mol H^+ eq	2.97E-02	0	3.12E-04	2.78E-04	6.14E-04	-8.38E-03
Eutrophication potential aquatic freshwater (EP-freshwater)	kg P eq	2.27E-04	0	6.49E-07	3.15E-06	1.07E-06	-4.06E-05
Eutrophication potential aquatic marine (EP-marine)	kg N eq	8.47E-03	0	1.19E-04	4.93E-05	2.83E-04	-2.44E-03
Eutrophication potential terrestrial (EP-terrestrial)	mol N eq	1.01E-01	0	1.27E-03	5.5E-04	3.02E-03	-4.08E-02
Formation potential of tropospheric ozone photochemical oxidants (POCP)	kg NMVOC eq	3.32E-02	0	4.32E-04	1.65E-04	7.83E-04	-7.09E-03
Abiotic depletion potential for non fossil resources (ADPE)	kg Sb eq	2.83E-05	0	2.04E-07	6.76E-08	1.45E-07	-5.95E-07
Abiotic depletion potential for fossil resources (ADPF)	MJ	8.58E+01	0	9.34E-01	7.9E-01	5.93E-01	-2.62E+00
Water use (WDP)	m^3 world eq deprived	3.56E+00	0	4.92E-03	9.93E-03	-1.43E-02	-2.19E-02

RESULTS OF THE LCA - INDICATORS TO DESCRIBE RESOURCE USE according to EN 15804+A2: 1 m² veneered, decorative panel

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Renewable primary energy as energy carrier (PERE)	MJ	0	0	0	0	0	0
Renewable primary energy resources as material utilization (PERM)	MJ	0	0	0	0	0	0
Total use of renewable primary energy resources (PERT)	MJ	8.27E+01	0	1.32E-02	1.08E-01	2.23E-02	-4.16E+01
Non renewable primary energy as energy carrier (PENRE)	MJ	0	0	0	0	0	0
Non renewable primary energy as material utilization (PENRM)	MJ	0	0	0	0	0	0
Total use of non renewable primary energy resources (PENRT)	MJ	9.21E+01	0	9.93E-01	8.38E-01	6.4E-01	-2.78E+00
Use of secondary material (SM)	kg	0	0	0	0	0	0
Use of renewable secondary fuels (RSF)	MJ	0	0	0	0	0	0
Use of non renewable secondary fuels (NRSF)	MJ	0	0	0	0	0	0
Use of net fresh water (FW)	m^3	1.01E-01	0	1.48E-04	3.83E-04	1.67E-03	-9.86E-04

RESULTS OF THE LCA – WASTE CATEGORIES AND OUTPUT FLOWS according to EN 15804+A2: 1 m² veneered, decorative panel

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed (HWD)	kg	3.22E-04	0	5.96E-06	1.23E-06	6.13E-06	-1.43E-05
Non hazardous waste disposed (NHWD)	kg	1.37E+00	0	6.17E-02	5.34E-03	8.95E-02	-1.01E-01
Radioactive waste disposed (RWD)	kg	1.94E-04	0	2.14E-07	2.78E-06	3.31E-07	-4.05E-06
Components for re-use (CRU)	kg	0	0	0	0	0	0
Materials for recycling (MFR)	kg	2.46E-01	0	0	0	0	0
Materials for energy recovery (MER)	kg	0	0	0	0	0	0
Exported electrical energy (EEE)	MJ	0	0	0	0	1.16E+01	0
Exported thermal energy (EET)	MJ	0	0	0	0	1.99E+01	0

RESULTS OF THE LCA – additional impact categories according to EN 15804+A2-optional: 1 m² veneered, decorative panel

Parameter	Unit	A1-A3	C1	C2	C3	C4	D
Incidence of disease due to PM emissions (PM)	Disease incidence	5.13E-07	0	5.25E-09	2.25E-09	6.39E-09	-1.15E-07
Human exposure efficiency relative to U235 (IR)	kBq U235 eq	2.41E-01	0	3.64E-04	3.93E-03	4.76E-04	-5.59E-03
Comparative toxic unit for ecosystems (ETP-fw)	CTUe	2.34E+01	0	7.1E-01	1.12E-01	3.32E+00	-4.73E+00
Comparative toxic unit for humans (carcinogenic) (HTP-c)	CTUh	3.36E-08	0	3.45E-11	2.34E-11	1.55E-10	-7.97E-10

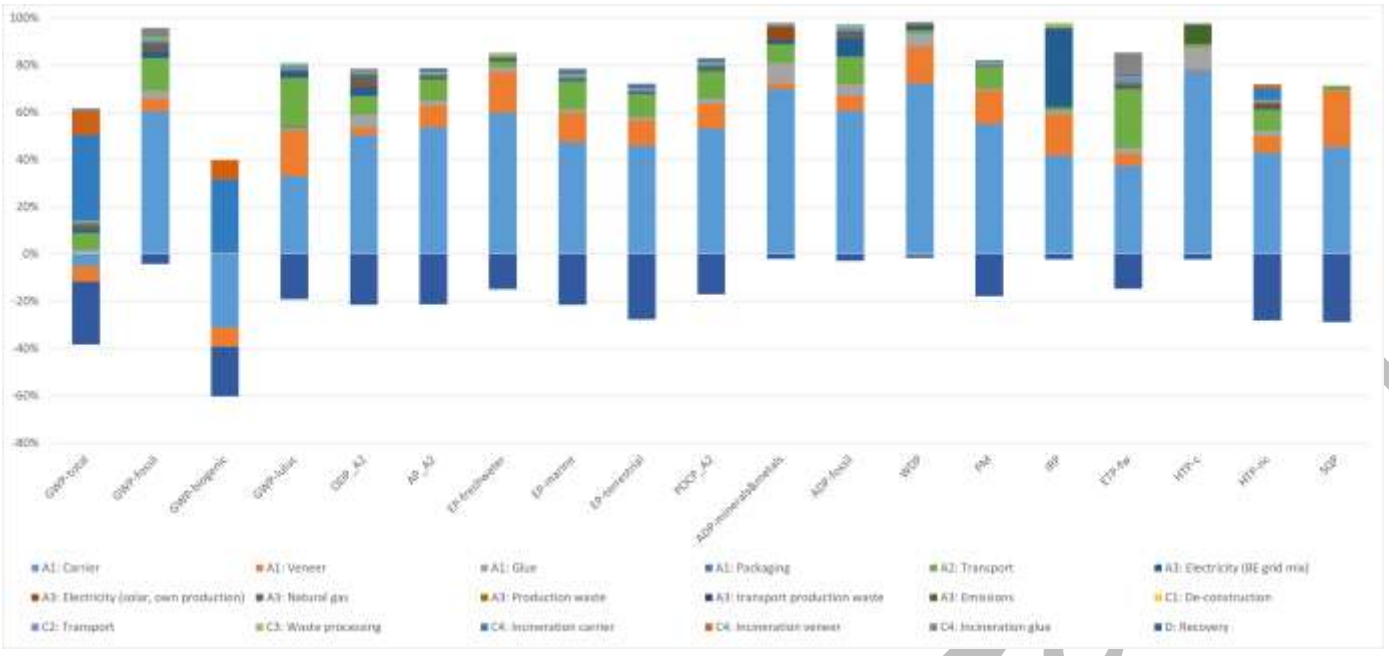
Comparative toxic unit for humans (noncarcinogenic) (HTP-nc)	CTUh	7.85E-08	0	9.76E-10	5.57E-10	8.1E-09	-3.44E-08
Soil quality index (SQP)	SQP	4.32E+02	0	7.37E-01	1.26E-01	2.45E-01	-1.75E+02

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.

This EPD was created using a software tool.

6. LCA: Interpretation



To visualize which materials and processes give the largest contribution to the environmental indicators a major contributions analysis has been included. In the graph below the total value of each indicator has been set to 100%. The colours indicate which part of the environmental effects are caused by the different materials and processes in the life cycle of the veneered products.

The production of the carrier gives the largest contribution to most of the environmental indicators. The exceptions are GWP where the incineration of wood (waste) gives the largest contribution.

7. Requisite evidence

Use phase (B) is not in the scope of this EPD, however, the emissions to indoor air will be mentioned informatively. VOC emission test reports by Eurofins Product Testing A/S, Smedeskovvej 38, 8464 Galten, Denmark are available.

7.1. Formaldehyde

Test method: EN 16516

Name	Value	Unit
EN 717-1	20	µg/m³

.

AgBB overview of results (28 days [µg/m³])

Name	Value	Unit
TVOC (C6 - C16)	150	µg/m^3
Sum SVOC (C16 - C22)	< 5	µg/m^3
R (dimensionless)	0.47	-
VOC without NIK	6.7	µg/m^3
Carcinogenic Substances	< 1	µg/m^3

AgBB overview of results (3 days [µg/m³])

Name	Value	Unit
TVOC (C6 - C16)	610	µg/m^3
Sum SVOC (C16 - C22)	< 5	µg/m^3
R (dimensionless)	0.99	-
VOC without NIK	< 5	µg/m^3
Carcinogenic Substances	< 1	µg/m^3

8. References

EN 322
EN 322:1994, Wood-based panels - Determination of moisture content

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

EN 13986

EN 13986:2004+A1:2015, Wood-based panels for use in construction - Characteristics, evaluation of conformity and marking.

ISO 14025
ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures, 2006.

ISO 14040

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework, 2006.

ISO 14044
ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines, 2006.

EN 15804
EN 15804:2012+A2:2019, Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products, 2019.

EN 16485
EN 16485:2014; Round and sawn timber - Environmental Product Declarations - Product category rules for wood and wood-based products for use in construction, 2014.

EN 16516
EN 16516:2017+A1:2020, Construction products: Assessment of release of dangerous substances - Determination of emissions into indoor air.

ISO 21930
ISO 21930:2017 Sustainability in buildings and civil engineering works — Core rules for environmental product declarations of construction products and services, 2017.
Further references

AgBB/ABG
Anforderungen an bauliche Anlagen bezüglich des Gesundheitsschutzes (ABG)

AltholzV
Ordinance on Requirements for the Recovery and Disposal of Waste Wood of 15 August 2002 (BGBl. I p. 3302), last amended by Article 120 of the Ordinance of 19 June 2020 (BGBl. I p. 1328).

Belgian Regulation
Royal decree of May 2015

BBSR
Bundesinstitut für Bau-, Stadt- und Raumforschung

BNB
BNB Code No. 352.812 Useful lives of building components for life cycle analyses according to the Sustainable Building Assessment System, 2017: Wood multilayer parquet. Berlin: Federal Ministry of the Interior, for Construction and Home Affairs.

CDPH
Californian Department of Public Health Standard Method for VOC Emissions

ECHA Candidate List
List of Substances of Very High Concern (SVHC) Candidate for Authorisation (ECHA Candidate List), dated 17.01.2023, published in accordance with Article 59(10) of the REACH Regulation. Helsinki: European Chemicals Agency.

EUROSTAT
European waste classification for statistics

EWC-code
EWC-code 17 02 01: Non-hazardous wood waste

French VOC Regulation
Regulation of March and May 2011 (DEVL1101903D and DEVL1104875A)

French CMR Components
Regulation of April and May 2009

FSC®
Forest Stewardship Council
License number: FSC-C095327

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 HYPERLINK "http://www.ibu-epd." www.ibu-epd.com

Indoor Air Comfort Gold®
Eurofins product certification

M1
Finnish classification test for building materials

PEFC
Programme for the Endorsement of Forest Certification Schemes.
License number: PEFC/07-31-60

PCR Part A
'Product Category Rules for Building-Related Products and Services Part A: Calculation Rules for the Life Cycle Assessment and Requirements on the Project Report according to EN 15804+A2:2019 Version 1.3,'

PCR Part B
'Product Category Rules for Building-Related Products and Services Part B: Requirements on the EPD for Wood-based panels v5, 10/07/2023.'

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

Regulation (EU) No 528/2012
of the European Parliament and the Council of 12 May 2012 concerning the making available on the market and use of biocidal products.

Software/database
Ecoinvent database v3.9.1

Stichting Nationale Milieudatabase
Bepalingsmethode Milieuprestatie Bouwwerken Versie 1.1 (maart 2022).

The literature referred to in the Environmental Product Declaration must be listed in full.Standards already fully quoted in the EPD do not need to be listed here again.
The current version of PCR Part A and PCR Part B of the PCR document on which they are based must be referenced.

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