Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

Veneered Chipboard Panels

KALTSIDIS
WOOD INDUSTRY

Programme:	The International EPD System, www.environdec.com
Programme operator:	EPD International AB
Type of EPD:	EPD of multiple products, based on a representative product
EPD registration number:	EPD-IES-0031489:001
Version date:	2026-04-24
Validity date:	2031-04-23
	An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

GENERAL INFORMATION

Programme Information	
Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	support@environdec.com

Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): PCR2019:14 Construction Products (EPD International), version 2.0.1., cPCR-006 to PCR2019:14 Wood and Wood-based products for use in construction (EN16485:2014) UNCPC Code: 314 (Boards and Panels)
PCR review was conducted by: The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. The review panel may be contacted via info@environdec.com Chair of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair)
c-PCR, if applicable: cPCR-006 to PCR2019:14 Wood and Wood-based products for use in construction (EN16485:2014)

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ **Individual EPD verification without a pre-verified LCA/EPD tool** Third-party verifier: **Eurocert S.A.** Eurocert S.A. is an approved certification body accountable for the third-party verification. The certification body is accredited by: Hellenic Accreditation System SA (E.S.Y.D), **Accreditation number 21-8**
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit version number) or be based on fully aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is

demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.
For further information about comparability, see EN 15804 and ISO 14025.

INFORMATION ABOUT EPD OWNER

Owner of the EPD: Lazaros Kaltsidis Wood Industry S.A.
Address: AGROTEMACHIO 1499B2 – Oreokastro, P.C. 57013 Thessaloniki, Greece, P.O. Box 197
Telephone: +30 2310 682362
E-mail: kaltsidis@kaltsidiswood.com
Website: https://kaltsidiswood.com/
Contact person: Vicky Kaltsidou, CFO, Kaltsidis Wood Industry S.A.

KALTSIDIS
WOOD INDUSTRY

Address and contact information of the LCA practitioner commissioned by the EPD owner:
Zoi Eleni Moragli, R3 Knowledge Sustainability Consultants-Biosolids SA, Karavaggeli 6, Kalochori, Thessaloniki, P.C. 57009, Greece, e: sustainability@r3knowledge.gr , t: +30 2310538799, m: +30 6981571006, website: www.biosolids.gr/r3

BIOSOLIDS
INNOVATION DRIVEN BY NATURE FOR A SUSTAINABLE FUTURE
ΤΜΗΜΑ
R3 KNOWLEDGE
Πράσινη Συμβουλευτική

Description of the organisation:

Kaltsidis Wood Industry is one of the biggest and most modern Veneer & Veneered Panel companies in Europe exporting in more than 40 countries worldwide while sustaining a leader position. All of our products are certified while we maintain continuously the most advanced technical requirements and quality assurance. The company's new latest technology factory (started 2023) is the newest and most modern factory in Europe. The continuous flow of production, over 40,000 panels/month and over 1.000.000 m² of raw veneer produced, assures an immediate delivery of Panels and/or Veneers (including Fleeced or Jointed Veneer Layons) to any country in the world within 2 weeks from order date. Furthermore, Kaltsidis Wood Industry is producing monthly in USA over 300,000 m² of American Veneer Species (mainly White Oak and Walnut). The majority of our Veneer production is FSC and/or PEFC certified. All of this material is graded and processed in our facilities at Thessaloniki either for our Panel and Layon production or for Veneer sales. We are keeping over 150 species of veneer on stock at our premises. At last, as of May 2024 we have launched our newest and most innovative product KEROS ECO Pre-Finished Veneered Panels.

PRODUCT INFORMATION

The EPD covers multiple products based on a representative product; see image 1 for more product information.

Product name: Veneered Chipboard Panels
Product identification: Kaltsidis S.A. manufactures high-quality veneered decorative panels using chipboard. Chipboard is a multi-purpose material and one of the most popular wood-based panels.
It is manufactured from wood chip particles and synthetic binding resin.

Kaltsidis SA can apply all kinds of veneer species in their veneered chipboard panel including fire retardant and moisture resistant. These panels are ideal for internal architectural components and furnishing (kitchen applications, bedroom and office furniture, shelving, etc.)

UN CPC code: 314 Boards & Panels
Product specifications:

Available types of CHIPBOARD

- Chipboard
- Chipboard Fire-Retardant
- Chipboard Moisture-Resistant

Technical data

- Class E1 Certificate, or CARB P2
- Conform to the European standard EN 312-1, class 1
- FSC Certification upon request

Machinability

Due to its high density and strength, Kaltsidis SA particleboards are suitable for milling, drilling, and perfect finishing.

Density

The average density of chipboard panels is 650 kg/m³

Product Application & Use

Veneered, decorative panels are covered by the harmonized standard, EN 13986:2004+A1:2015. They are intended for internal use as non-structural components 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.

Name and location of production site(s):

AGROTEMACHIO 1499B2 – Oreokastro, P.C. 57013 Thessaloniki, Greece, P.O. Box 197

References to any relevant websites for more information or explanatory materials:

https://kaltsidiswood.com/veneered-panels/

Delivery status

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

• Dimensions [mm]
• Quantity [pcs]

Image 1: Dimensions of the declared products as delivered are within following ranges:

Veneered Chipboard panel dimensions

THICKNESS	DIMENSIONS			
9mm	3050x1850	2800x1850		2800x2070
11mm	3050x1850	2800x1850		2800x2070
13mm	3050x1850	3050x1850		2800x2070
16mm	3050x1850	2800x1850		2800x2070
18mm	3050x1850	2800x1850		2800x2070
19mm	3050x1850	2800x1850		2800x2070
23mm	3050x1850	2800x1850		2800x2070
26mm	3050x1850	2800x1850		2800x2070
29mm	3050x1850	2800x1850		2800x2070
39mm	3050x1850			2800x2070
41mm (light)			3050x1220	
51mm (light)			3050x1220	
61mm (light)			3050x1220	

Fire retardant Moisture resistant

Brief description of main processes of manufacturing

The production of veneered wood-based panels comprises raw material supply, processing, and finishing operations. Wood veneers and substrate panels (e.g., MDF, particleboard, plywood, or blockboard) are sourced from qualified suppliers and subjected to incoming quality control. Veneers are sorted and graded according to visual and technical criteria, then cut and assembled into continuous sheets. Adhesive is applied, and the veneer sheets are bonded to the substrate panels by means of automated pressing under controlled temperature and pressure conditions.

Subsequently, the panels undergo surface finishing processes, including sanding and trimming to achieve the required surface quality and dimensions. Product identification is applied to ensure traceability. A final quality control is performed to verify compliance with technical specifications. Non-

conforming products are either reprocessed or rejected. Conforming products are packaged and prepared for distribution. ‘

CONTENT DECLARATION

The average composition of the finished product is calculated for the most representative product group (veneered chipboard panel with dimensions 280cm x 207cm x 16mm). The components of veneered, decorative panels with chipboard carrier are given below in kg/m².

The mass (weight) of one unit of a product per declared unit: 10.06 kg per 1 m^2 of Veneered Chipboard Panel

Content of the product in the form of a list of materials and substances, and their mass:
The LCA study was conducted using a representative product: veneered chipboard panels with dimensions 280cm x 207cm x 16mm and composition as referred in the table below:

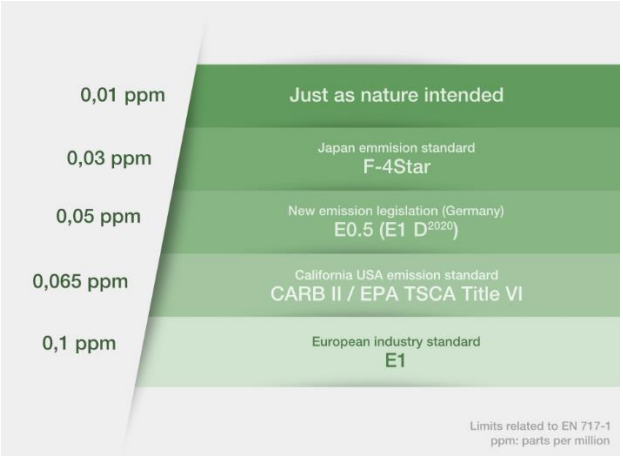
Composition	kg/m^2
Raw chipboard panel	9,20
veneer	0,68
glue	0,18
Total	**10,06**

The mass and the content of packaging per 1 m^2:
Galvanized wire: 0,005 kg/m^2
Kraft paper:0,003 kg/m^2
Therefore, the gross mass of is: 10,068 kg

Information on the environmental and hazardous/toxic properties of a substances contained in the product:

Kaltsidis Wood Industry does not utilize any environmental and hazardous/toxic substances. In contrast Kaltsidis Wood Industry utilizes environmentally friendly wood glue that provides the same level of performance as standard glue but contains materials that are biodegradable and ecofriendly.

Their high-performance glue achieves an incredibly strong bond when used on interior and exterior woodwork, it is very low in formaldehyde, and because the resulting wood product is entirely bio-based the wood panel can be completely recycled or even composted at the end of its life.



The declared share of biogenic materials:

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/product or declared unit
Chipboard	9,20	-	91,6%	4,60 kg C
Veneer	0,68	-	6,76%	0,34 kg C
Glue	0,18	-	1,79%	-
TOTAL	10,06		98,2%	4,94 kg C/declared unit

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO_2.

The main function that is used in this to calculate the biogenic carbon content of the products is: x kg of wood * 0,5 kg of C/kg dry matter * 44/12 * (-1 kg CO2 eq/kg CO2 in wood) as referred to in EN 16485:2014 ‘Round and sawn timber — Environmental Product Declarations — Product category rules for wood and wood-based products for use in construction’.

Biogenic carbon content in packaging:

The biogenic carbon in the packaging is <5%.

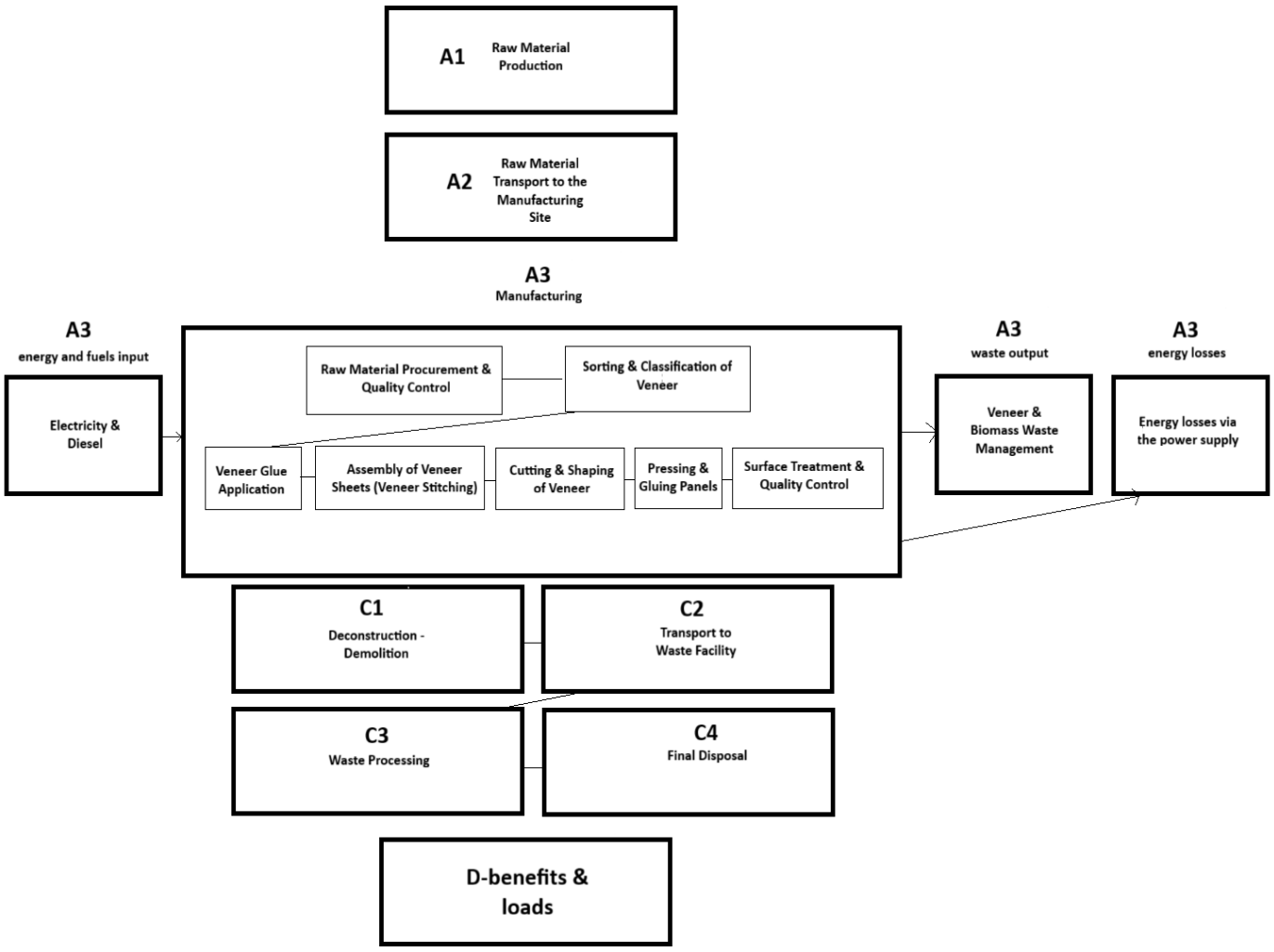
Post-consumer recycled content:
Post-consumer recycled content in the product is 0% (conservative estimate)

Hazardous substances from the candidate list of SVHC	EC No.	CAS No.	Mass-% per product or declared unit
NA	NA	NA	NA

The product does not contain Substances of Very High Concern (SVHC) above 0.1% (w/w), according to the REACH Candidate List. This statement is based on supplier Safety Data Sheets that has been provided to the verifier.

LCA INFORMATION

Declared unit: 1m^2 of Veneered Chipboard Panels (dimensions 2,80m x 2,07m x 0,016m)
Area Density 10,068 kg/m^2 & thickness 0,016 m
Conversion factor to mass: 10,06 kg/ m^2
Reference service life depends on the use and the conditions of the environment that the product is placed in; misuse or poor maintenance will adversely affect the service life. This also applies for unusually low or high humidity, excessive water use. Therefore, this information will be considered as irrelevant.
Time representativeness: 1st of January 2024 to 31st of December 2024 (12 months)
Geographical scope: Geographical scope is Greece and Europe and USA for Modules A1-A3, i.e. all the raw materials are sourced locally in Greece and Europe except for some of the Veneers that originate in USA; the manufacturing site is located in Greece; the end-of-life module is based on the PCR2019:14 v.2.0.1 default scenario.
Database(s) and LCA software used: The Life Cycle Assessment was modelled in SimaPro (v10.1.0.3). Background data were sourced from Ecoinvent (v3.10) for environmental performance indicators:15804 + A2 based on EF 3.1 characterization factor Impact assessment follows EN 15804:2012+A2:2019 characterization factors.
Description of system boundaries:
Cradle to gate with modules, C1–C4 and module D (A1–A3 + C + D)
Process flow diagram:



Declared Modules:

Product stage (A1-A3):

Module A1 – The raw material and supply stage covers production and processing of raw materials and package material to Kaltsidis Wood Industry S.A. veneered boards. The major materials chipboard panels, veneer sheets, adhesive agents, and auxiliary material for the product assembly and packaging.

Module A2 - All raw materials are transported to the plant. The transport distances and routes were calculated based on information provided by the manufacturer for 2024.

Module A3 – The consumption of Diesel and the energy consumption in manufacturing stage included heat, electricity from grid mix and electricity from the internal biomass furnace that burns biomass residues produced from the production processes. Energy loss and waste output were also considered in the LCI of this study.

NOTE: The results of the end-of-life stage (C1-C4) should be considered when using the results of the product stage (A1-A3)

End of Life Module (C1-C4 & D):

At the end of the life cycle, the veneered panels are deconstructed and processed. The following modules include: the deconstruction process (C1), transport (C2), waste processing (C3) and disposal (C4), using the default data provided by PCR2019:14 v.2 by Erlandsson et al. 2018 & Ovam 2015, page 40/83, in “Table 4. Default data for modelling modules C1, C2, C3 and C4. References: Erlandsson et al. (2015), OVAM (2018)”,

Module C1 - The default data for demounting and demolition at C1 stage outlined in PCR table 4 was used in this LCA modelling.

Module C2 - The default data for transport to the waste facility at C2 stage outlined in PCR table 4 was used in this LCA modelling.

Module C3 - The default data for waste treatment at C3 stage outlined in PCR table 4 was used in this LCA modelling.

Module C4 - The default data for final disposal of waste at C4 stage outlined in PCR table 4 was used in this LCA modelling.

Module D

Includes reuse, recovery and recycling potential scenarios, expressed as net impacts and benefits, based on WOOD2WOOD, 2024-N. Ikenze et. Al.,

- 46,02% recycling of chipboard panels
- 53,36 % incineration with energy recovery (LHV of wood waste products 13,99 Mj/kg)
- 0,59% disposed in sanitary landfills

Since the declared scenarios are a mix of end-of-life alternatives (recycling, incineration with energy recovery, landfill, etc.), also the corresponding 100% scenarios (100% recycling, 100% incineration with energy recovery, 100% landfill, etc.) are declared in the section 'Additional LCA results' in page 16.

Cut-off rules: No cut-off rules were applied.

Allocation:
According to PCR2019:14 v.2 and the cPCR006 there is no allocation regarding the product category with regards to co-product allocation and waste allocation.

Data Quality Assessment Summary:

The data quality assessment was conducted according to the rules provided by the GPI5 and the PCR2019:14 v.2.0.1 where at the same time, reliability, completeness, temporal correlation, geographical correlation, and further technological correlation were assessed as well.

Most of the data used for the modelling of the LCA of Veneered Chipboard Panels were provided from the manufacturer for the full production of the year 2024.
More specifically, primary data ware used as input to datasets from Ecoinvent 3.10 (secondary data) in Module A1; Modules A2 & A3 used primary data provided by the manufacturer; Modules C1-C4 used default modeling and data input as provided by the PCR2019:14 v.2.0.1 and Module D scenario was based on the most recent statistics of the European Union that regard the specific product category.
The results of the data quality assessment are accessible through the LCA Report that has been provided to the EPD verifiers.

Assumptions:
In this study, some assumptions were made:
-All Chipboard panels were assumed to be the same as there were no available data in Ecoinvent or other acceptable databases for specifications such as fire retardants in the chipboard panels or waterproof agents; in a bibliographical research conducted by the consultant it was discovered that the difference in composition between regular chipboard, waterproof chipboard and fire resistant chipboard were ±2% mostly associated to the adhesives used.
-All transport Lorries were assumed to be EURO5
- The Ecoinvent database datasets calculate transportation emissions with the assumption of an average load factor of 50%, in other words: fully loaded transport towards the customer, with empty returns.

Notes on modelling:
It must be noted that the Life Cycle Assessment Study for this EPD does not include the following:
- Infrastructure and Capital Goods
- Equipment Maintenance
- Human labor and employee transport

The climate impact (in kg CO2 eq./kWh using the GWP-GHG indicator) of electricity purchased in the manufacturing process in A3:
The LCA study for this EPD utilized the market-based approach to calculate the climate impact of electricity purchased in the manufacturing processes.

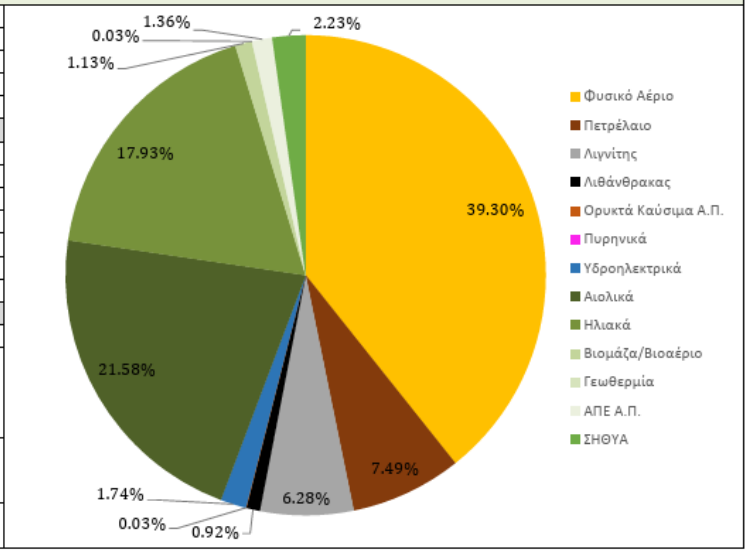
The Climate Impact of electricity using the GWP-GHG indicator is 0,271618 kg CO^2 eq/kWh

Πίνακας 5: Αποτελέσματα Υπολειπόμενου Ενεργειακού Μείγματος Προμηθευτών και των σχετικών περιβαλλοντικών επιπτώσεων για το έτος 2024

2024	Φυσικό αέριο	Πετρέλαιο	Λιγνίτης	Λιθάνθρακας	Ορυκτά Καύσιμα Α.Π.[1]	Σύνολο Ορυκτών Καυσίμων	Πυρηνική	Υδροηλεκτρικά	Αιολικά	Ηλιακά	Βιομάζα/Βιοαέριο	Γεωθερμία	ΑΠΕ Α.Π.[1]	Σύνολο ΑΠΕ	ΣΗΘΥΑ	CO_2 Εκπομπές (gCO2/kWh)	P.A.[2] (mgRW/kW)
ΔΗΜΟΣΙΑ ΕΠΙΧΕΙΡΗΣΗ ΗΛΕΚΤΡΙΣΜΟΥ Α.Ε.	39,30%	7,49%	6,28%	0,92%	0,03%	54,01%	0,00%	1,74%	21,58%	17,93%	1,13%	0,03%	1,36%	43,76%	2,23%	271,618	0,000

Πίνακας 7: Κατανομή Υπολειπόμενου Ενεργειακού Μείγματος για την ΔΗΜΟΣΙΑ ΕΠΙΧΕΙΡΗΣΗ ΗΛΕΚΤΡΙΣΜΟΥ Α.Ε. για το έτος 2024

ΥΠΟΛΕΙΠΟΜΕΝΟ ΕΝΕΡΓΕΙΑΚΟ ΜΕΙΓΜΑ - ΔΗΜΟΣΙΑ ΕΠΙΧΕΙΡΗΣΗ ΗΛΕΚΤΡΙΣΜΟΥ Α.Ε. 2024 *	
Φυσικό Αέριο	39,30%
Πετρέλαιο	7,49%
Λιγνίτης	6,28%
Λιθάνθρακας	0,92%
Ορυκτά καύσιμα Α.Π.[1]	0,03%
Σύνολο Ορυκτά καύσιμα	**54,01%**
Πυρηνικά	0,00%
Υδροηλεκτρικά	1,74%
Αιολικά	21,58%
Ηλιακά	17,93%
Βιομάζα/Βιοαέριο	1,13%
Γεωθερμία	0,03%
ΑΠΕ Α.Π.[1]	1,36%
Σύνολο ΑΠΕ	**43,76%**
ΣΗΘΥΑ	2,23%



Συνολική Κατανάλωση Πελατών που δεν έχουν επιλέξει αγορά περιβαλλοντικού προϊόντος (MWh)	**24.931.947,79**
Ε.Π. που ανακλήθηκαν για Ενεργειακό Μείγμα Προμηθευτή	**0**

[1] *Απροσδιόριστης Προέλευσης*

Market based residual mix used in the production processes of Veneered Chipboard Panels in 2024 by Kaltsidis Wood Industry S.A.

(Source: Energy mix, 2024, DAPEEP available at: https://www.dapeep.gr/wp-content/uploads/2025/06/%CE%95%CE%9D%CE%95%CE%A1%CE%93%CE%95%CE%99%CE%91%CE%9A%CE%9F-%CE%9C%CE%95%CE%99%CE%93%CE%9C%CE%91-2024-2.pdf)

The total share of primary data contributing to the declared GWP-GHG results of modules A1-A3:

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Raw material production	Collected data + database	EPD owner/Ecoinvent v3.10	2024	Secondary data	0,00%
Transport of raw materials to manufacturing site	Collected data	EPD owner	2024	Primary data	67,21%
Manufacturing of Veneered CHIPBOARD panels	Collected data	EPD owner	2024	Primary data	2,28%
Total share of primary data, of GWP-GHG results for A1-A3					69,49%

The share of primary data for the A1–A3 processes is 69,49%. This share is calculated as the proportion of GWP-GHG originating from primary data divided by the total GWP-GHG of A1–A3.

The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories

Characterisation method:
All environmental impacts were qualified. Direct emissions from the inventory have been characterized by the EN15804+A2 characterization factors of EF 3.1. The datasets used in the LCA modeling derived from Ecoinvent 3.10, which ensures that all relevant environmental impacts were characterized.

Modules declared, geographical scope, share of primary data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Distribution/ installation stage		Use stage							End-of-life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	EU GLO	EU	GR EU	-	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Share of primary data	>69%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

Modules/processes/life-cycle stages declared shall be noted with "X". Modules/processes/life-cycle stages not declared shall be marked as "ND".

ENVIRONMENTAL PERFORMANCE

LCA results of the product(s) - main environmental performance results

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	3,63E+00	3,92E-03	4,59E-01	1,88E+01	5,70E-03	-2,90E+00
GWP-fossil	kg CO_2 eq.	2,82E+01	3,92E-03	4,58E-01	2,14E-02	5,70E-03	-2,89E+00
GWP-biogenic	kg CO_2 eq.	-2,46E+01	1,02E-06	3,02E-04	1,88E+01	1,48E-06	0,00E+00
GWP-luluc	kg CO_2 eq.	2,12E-02	1,61E-06	1,76E-04	8,76E-06	2,33E-06	-3,52E-03
ODP	kg CFC 11 eq.	6,09E-07	7,76E-10	9,05E-09	4,23E-09	1,13E-09	-7,53E-08
AP	mol H^+ eq.	1,71E-01	2,94E-05	1,34E-03	1,60E-04	4,27E-05	-3,00E-02
EP-freshwater	kg P eq.	4,27E-03	3,54E-07	3,66E-05	1,93E-06	5,15E-07	-7,00E-04
EP-marine	kg N eq.	4,88E-02	1,16E-05	4,24E-04	6,35E-05	1,69E-05	-7,84E-03
EP-terrestrial	mol N eq.	5,37E-01	1,27E-04	4,61E-03	6,95E-04	1,85E-04	-8,94E-02
POCP	kg NMVOC eq.	1,98E-01	3,62E-05	2,04E-03	1,97E-04	5,26E-05	-3,04E-02
ADP-minerals&metals*	kg Sb eq.	2,80E-02	2,61E-05	3,07E-04	1,42E-04	3,80E-05	-4,86E-03
ADP-fossil*	MJ	4,05E+02	5,31E-02	6,17E+00	2,89E-01	7,72E-02	-4,69E+01
WDP*	m^3	5,04E+00	1,74E-04	2,71E-02	9,51E-04	2,54E-04	-1,55E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

Disclaimer:
1. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.
2. Module C is included in this EPD, and care shall be taken to avoid using of the results of modules A1-A3 without considering the results of module C. .In other words, the EPD covers the end-of-life stage (modules C1–C4), the results of these modules shall be considered when using the results of the product stage (modules A1–A3)
*3. *The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
4. EN 15804 reference package was based on EF 3.1 version published in July 2022.
5. Infrastructure/capital goods are excluded from this study except the case that a generic LCI dataset includes infrastructure/capital goods, and it is not possible, within reasonable effort, to subtract the data on infrastructure/capital goods from this dataset.

Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	2,82E+01	3,92E-03	4,59E-01	2,14E-02	5,70E-03	-2,90E+00
PM	disease inc.	2,69E-06	4,21E-10	2,65E-08	2,30E-09	6,12E-10	-3,65E-07
IRP	kBq U-235 eq	1,32E+00	2,48E-04	1,20E-02	1,35E-03	3,60E-04	-2,55E-01
ETP-FW	CTUe	1,71E+02	4,98E-02	2,47E+00	2,72E-01	7,25E-02	-2,47E+01
HTP-c	CTUh	2,36E-07	1,84E-12	3,51E-09	1,01E-11	2,68E-12	-4,26E-08
HTP-nc	CTUh	3,33E-07	4,27E-11	4,94E-09	2,33E-10	6,22E-11	-3,82E-08
SQP	Pt	1,29E+04	8,01E-03	2,67E+00	4,37E-02	1,16E-02	-3,47E+03
Acronyms explanation	Global Warming Potential, Green House Gases Indicator (Total GWP-Biogenic GWP)=(GWP-GHG), Particulate matter (PM), Ionising radiation (IRP), Ecotoxicity, freshwater (ETP-FW), Human toxicity, cancer (HTP-c), Human toxicity, non-cancer (HTP-nc), Land use (SQP)						

The impact assessment methods' results are relative expressions and do not predict impacts on category end points, the exceeding of thresholds safety margins or risks.

Resource use indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	-2,42E+02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	-2,42E+02
PENRE	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	-5,53E+01
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	-5,53E+01
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

FW	m^3	1,36E+01	2,71E-06	4,45E-04	1,48E-05	3,94E-06	-2,16E-02
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,11E-02	6,98E-06	1,62E-04	3,81E-05	1,02E-05	-5,59E-03
Non-hazardous waste disposed	kg	1,92E+01	1,04E-04	1,96E-01	5,67E-04	1,51E-04	-4,16E-01
Radioactive waste disposed	kg	2,73E-04	3,47E-07	3,01E-06	1,90E-06	5,05E-07	-6,69E-05

Output flow indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Additional LCA results of the product

Since, the declared scenarios is a mix of end-of-life alternatives (recycling, incineration with energy recovery, landfill, etc.), also the corresponding 100% scenarios (100% recycling, 100% incineration with energy recovery, 100% landfill, etc.) are declared in this section.

Corresponding End-of-Life Scenario: 100% Recycling

LCA results of the product(s) - main environmental performance results

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	3,63E+00	3,92E-03	4,59E-01	1,88E+01	5,70E-03	6,27E+00
GWP-fossil	kg CO_2 eq.	2,82E+01	3,92E-03	4,58E-01	2,14E-02	5,70E-03	6,26E+00
GWP-biogenic	kg CO_2 eq.	-2,46E+01	1,02E-06	3,02E-04	1,88E+01	1,48E-06	0,00E+00
GWP-luluc	kg CO_2 eq.	2,12E-02	1,61E-06	1,76E-04	8,76E-06	2,33E-06	7,65E-03
ODP	kg CFC 11 eq.	6,09E-07	7,76E-10	9,05E-09	4,23E-09	1,13E-09	1,64E-07
AP	mol H^+ eq.	1,71E-01	2,94E-05	1,34E-03	1,60E-04	4,27E-05	6,51E-02
EP-freshwater	kg P eq.	4,27E-03	3,54E-07	3,66E-05	1,93E-06	5,15E-07	1,52E-03
EP-marine	kg N eq.	4,88E-02	1,16E-05	4,24E-04	6,35E-05	1,69E-05	1,70E-02
EP-terrestrial	mol N eq.	5,37E-01	1,27E-04	4,61E-03	6,95E-04	1,85E-04	1,94E-01
POCP	kg NMVOC eq.	1,98E-01	3,62E-05	2,04E-03	1,97E-04	5,26E-05	6,60E-02
ADP-minerals&metals*	kg Sb eq.	2,80E-02	2,61E-05	3,07E-04	1,42E-04	3,80E-05	1,05E-02
ADP-fossil*	MJ	4,05E+02	5,31E-02	6,17E+00	2,89E-01	7,72E-02	1,02E+02
WDP*	m^3	5,04E+00	1,74E-04	2,71E-02	9,51E-04	2,54E-04	3,36E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

Disclaimer:

1. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

2. Module C is included in this EPD, and care shall be taken to avoid using of the results of modules A1-A3 without considering the results of module C.

*3. *The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

4. EN 15804 reference package was based on EF 3.1 version published in July 2022.

5. Infrastructure/capital goods are excluded from this study except the case that a generic LCI dataset includes infrastructure/capital goods, and it is not possible, within reasonable effort, to subtract the data on infrastructure/capital goods from this dataset.

Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	2,82E+01	3,92E-03	4,59E-01	2,14E-02	5,70E-03	6,27E+00
PM	disease inc.	2,69E-06	4,21E-10	2,65E-08	2,30E-09	6,12E-10	7,94E-07
IRP	kBq U-235 eq	1,32E+00	2,48E-04	1,20E-02	1,35E-03	3,60E-04	5,55E-01
ETP-FW	CTUe	1,71E+02	4,98E-02	2,47E+00	2,72E-01	7,25E-02	5,37E+01
HTP-c	CTUh	2,36E-07	1,84E-12	3,51E-09	1,01E-11	2,68E-12	9,25E-08
HTP-nc	CTUh	3,33E-07	4,27E-11	4,94E-09	2,33E-10	6,22E-11	8,29E-08
SQP	Pt	1,29E+04	8,01E-03	2,67E+00	4,37E-02	1,16E-02	7,53E+03
Acronyms explanation	Global Warming Potential, Green House Gases Indicator (Total GWP-Biogenic GWP)=(GWP-GHG), Particulate matter (PM), Ionising radiation (IRP), Ecotoxicity, freshwater (ETP-FW), Human toxicity, cancer (HTP-c), Human toxicity, non-cancer (HTP-nc), Land use (SQP)						

The impact assessment methods' results are relative expressions and do not predict impacts on category end points, the exceeding of thresholds safety margins or risks.

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	5,25E+02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	5,25E+02
PENRE	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	1,20E+02
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	1,20E+02
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	7,78E-02	3,02E-06	4,45E-04	1,65E-05	4,40E-06	4,70E-02
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,11E-02	6,98E-06	1,62E-04	3,81E-05	1,02E-05	1,22E-02

Non-hazardous waste disposed	kg	1,92E+01	1,04E-04	1,96E-01	5,67E-04	1,51E-04	9,05E-01
Radioactive waste disposed	kg	2,73E-04	3,47E-07	3,01E-06	1,90E-06	5,05E-07	1,45E-04

Output flow indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Corresponding End-of-Life Scenario: 100% Incineration with energy recovery

LCA results of the product(s) - main environmental performance results

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	3,63E+00	3,92E-03	4,59E-01	1,88E+01	5,70E-03	0,00E+00
GWP-fossil	kg CO_2 eq.	2,82E+01	3,92E-03	4,58E-01	2,14E-02	5,70E-03	0,00E+00
GWP-biogenic	kg CO_2 eq.	-2,46E+01	1,02E-06	3,02E-04	1,88E+01	1,48E-06	0,00E+00
GWP-luluc	kg CO_2 eq.	2,12E-02	1,61E-06	1,76E-04	8,76E-06	2,33E-06	0,00E+00
ODP	kg CFC 11 eq.	6,09E-07	7,76E-10	9,05E-09	4,23E-09	1,13E-09	0,00E+00
AP	mol H^+ eq.	1,71E-01	2,94E-05	1,34E-03	1,60E-04	4,27E-05	0,00E+00
EP-freshwater	kg P eq.	4,27E-03	3,54E-07	3,66E-05	1,93E-06	5,15E-07	0,00E+00
EP-marine	kg N eq.	4,88E-02	1,16E-05	4,24E-04	6,35E-05	1,69E-05	0,00E+00
EP-terrestrial	mol N eq.	5,37E-01	1,27E-04	4,61E-03	6,95E-04	1,85E-04	0,00E+00
POCP	kg NMVOC eq.	1,98E-01	3,62E-05	2,04E-03	1,97E-04	5,26E-05	0,00E+00
ADP-minerals&metals*	kg Sb eq.	2,80E-02	2,61E-05	3,07E-04	1,42E-04	3,80E-05	0,00E+00
ADP-fossil*	MJ	4,05E+02	5,31E-02	6,17E+00	2,89E-01	7,72E-02	0,00E+00
WDP*	m^3	5,04E+00	1,74E-04	2,71E-02	9,51E-04	2,54E-04	0,00E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching						

	freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption

Disclaimer:
1. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.
2. Module C is included in this EPD, and care shall be taken to avoid using of the results of modules A1-A3 without considering the results of module C.
*3. *The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
4. EN 15804 reference package was based on EF 3.1 version published in July 2022.
5. Infrastructure/capital goods are excluded from this study except the case that a generic LCI dataset includes infrastructure/capital goods, and it is not possible, within reasonable effort, to subtract the data on infrastructure/capital goods from this dataset.

Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG[2]	kg CO_2 eq.	2,82E+01	3,92E-03	4,59E-01	2,14E-02	5,70E-03	0,00E+00
PM	disease inc.	2,69E-06	4,21E-10	2,65E-08	2,30E-09	6,12E-10	0,00E+00
IRP	kBq U-235 eq	1,32E+00	2,48E-04	1,20E-02	1,35E-03	3,60E-04	0,00E+00
ETP-FW	CTUe	1,71E+02	4,98E-02	2,47E+00	2,72E-01	7,25E-02	0,00E+00
HTP-c	CTUh	2,36E-07	1,84E-12	3,51E-09	1,01E-11	2,68E-12	0,00E+00
HTP-nc	CTUh	3,33E-07	4,27E-11	4,94E-09	2,33E-10	6,22E-11	0,00E+00
SQP	Pt	1,29E+04	8,01E-03	2,67E+00	4,37E-02	1,16E-02	0,00E+00
Acronyms explanation	Global Warming Potential, Green House Gases Indicator (Total GWP-Biogenic GWP)=(GWP-GHG), Particulate matter (PM), Ionising radiation (IRP), Ecotoxicity, freshwater (ETP-FW), Human toxicity, cancer (HTP-c), Human toxicity, non-cancer (HTP-nc), Land use (SQP)						

The impact assessment methods' results are relative expressions and do not predict impacts on category end points, the exceeding of thresholds safety margins or risks.

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

[2] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	0,00E+00
PENRE	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	0,00E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	0,00E+00
SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	1,36E+01	2,71E-06	4,45E-04	1,48E-05	3,94E-06	0,00E+00
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,11E-02	6,98E-06	1,62E-04	3,81E-05	1,02E-05	0,00E+00
Non-hazardous waste disposed	kg	1,92E+01	1,04E-04	1,96E-01	5,67E-04	1,51E-04	0,00E+00
Radioactive waste disposed	kg	2,73E-04	3,47E-07	3,01E-06	1,90E-06	5,05E-07	0,00E+00

Output flow indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

Corresponding End-of-Life Scenario: 100% Disposal in Sanitary Landfill

LCA results of the product(s) - main environmental performance results

Mandatory impact category indicators according to EN 15804

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	3,63E+00	3,92E-03	4,59E-01	1,88E+01	5,70E-03	-2,23E+00
GWP-fossil	kg CO_2 eq.	2,82E+01	3,92E-03	4,58E-01	2,14E-02	5,70E-03	-2,23E+00
GWP-biogenic	kg CO_2 eq.	-2,46E+01	1,02E-06	3,02E-04	1,88E+01	1,48E-06	0,00E+00
GWP-luluc	kg CO_2 eq.	2,12E-02	1,61E-06	1,76E-04	8,76E-06	2,33E-06	0,00E+00
ODP	kg CFC 11 eq.	6,09E-07	7,76E-10	9,05E-09	4,23E-09	1,13E-09	0,00E+00
AP	mol H^+ eq.	1,71E-01	2,94E-05	1,34E-03	1,60E-04	4,27E-05	-2,63E-03
EP-freshwater	kg P eq.	4,27E-03	3,54E-07	3,66E-05	1,93E-06	5,15E-07	0,00E+00
EP-marine	kg N eq.	4,88E-02	1,16E-05	4,24E-04	6,35E-05	1,69E-05	-6,13E-04
EP-terrestrial	mol N eq.	5,37E-01	1,27E-04	4,61E-03	6,95E-04	1,85E-04	-7,44E-03
POCP	kg NMVOC eq.	1,98E-01	3,62E-05	2,04E-03	1,97E-04	5,26E-05	-2,87E-03
ADP-minerals&metals*	kg Sb eq.	2,80E-02	2,61E-05	3,07E-04	1,42E-04	3,80E-05	-3,18E-03

ADP-fossil*	MJ	4,05E+02	5,31E-02	6,17E+00	2,89E-01	7,72E-02	-6,21E+00
WDP*	m^3	5,04E+00	1,74E-04	2,71E-02	9,51E-04	2,54E-04	0,00E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption						

Disclaimer:
1. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.
2. Module C is included in this EPD, and care shall be taken to avoid using of the results of modules A1-A3 without considering the results of module C.
*3. *The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*
4. EN 15804 reference package was based on EF 3.1 version published in July 2022.
5. Infrastructure/capital goods are excluded from this study except the case that a generic LCI dataset includes infrastructure/capital goods, and it is not possible, within reasonable effort, to subtract the data on infrastructure/capital goods from this dataset.

Additional mandatory and voluntary impact category indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG[1]	kg CO_2 eq.	2,82E+01	3,92E-03	4,59E-01	2,14E-02	5,70E-03	-2,23E+00
PM	disease inc.	2,69E-06	4,21E-10	2,65E-08	2,30E-09	6,12E-10	-1,17E-08
IRP	kBq U-235 eq	1,32E+00	2,48E-04	1,20E-02	1,35E-03	3,60E-04	0,00E+00
ETP-FW	CTUe	1,71E+02	4,98E-02	2,47E+00	2,72E-01	7,25E-02	-1,34E-02
HTP-c	CTUh	2,36E-07	1,84E-12	3,51E-09	1,01E-11	2,68E-12	0,00E+00
HTP-nc	CTUh	3,33E-07	4,27E-11	4,94E-09	2,33E-10	6,22E-11	-4,26E-11
SQP	Pt	1,29E+04	8,01E-03	2,67E+00	4,37E-02	1,16E-02	0,00E+00
Acronyms explanation	Global Warming Potential, Green House Gases Indicator (Total GWP-Biogenic GWP)=(GWP-GHG), Particulate matter (PM), Ionising radiation (IRP), Ecotoxicity, freshwater (ETP-FW), Human toxicity, cancer (HTP-c), Human toxicity, non-cancer (HTP-nc), Land use (SQP)						

The impact assessment methods' results are relative expressions and do not predict impacts on category end points, the exceeding of thresholds safety margins or risks.

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	8,64E+02	2,33E-04	3,52E-02	1,27E-03	3,39E-04	0,00E+00
PENRE	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	-6,69E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	4,52E+02	5,71E-02	6,78E+00	3,12E-01	8,31E-02	-6,69E+00

SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	7,78E-02	3,02E-06	4,45E-04	1,65E-05	4,40E-06	0,00E+00
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2,11E-02	6,98E-06	1,62E-04	3,81E-05	1,02E-05	0,00E+00
Non-hazardous waste disposed	kg	1,92E+01	1,04E-04	1,96E-01	5,67E-04	1,51E-04	0,00E+00
Radioactive waste disposed	kg	2,73E-04	3,47E-07	3,01E-06	1,90E-06	5,05E-07	0,00E+00

Output flow indicators

Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, thermal	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ABBREVIATIONS

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
SVHC	Substances of Very High Concern
ND	Not Declared
MDF	Medium Density Fibreboard
PCR	Product Category Rules
cPCR	Complementary Product Category Rules

REFERENCES

- 'ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO14040:2006.
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VERSION HISTORY

Original Version of the EPD, 2026-04-08

INTERNATIONAL EPD SYSTEM

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