

**Environmental  
Product  
Declaration**



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

# Original Paper Covering Plywood for One Side of Board

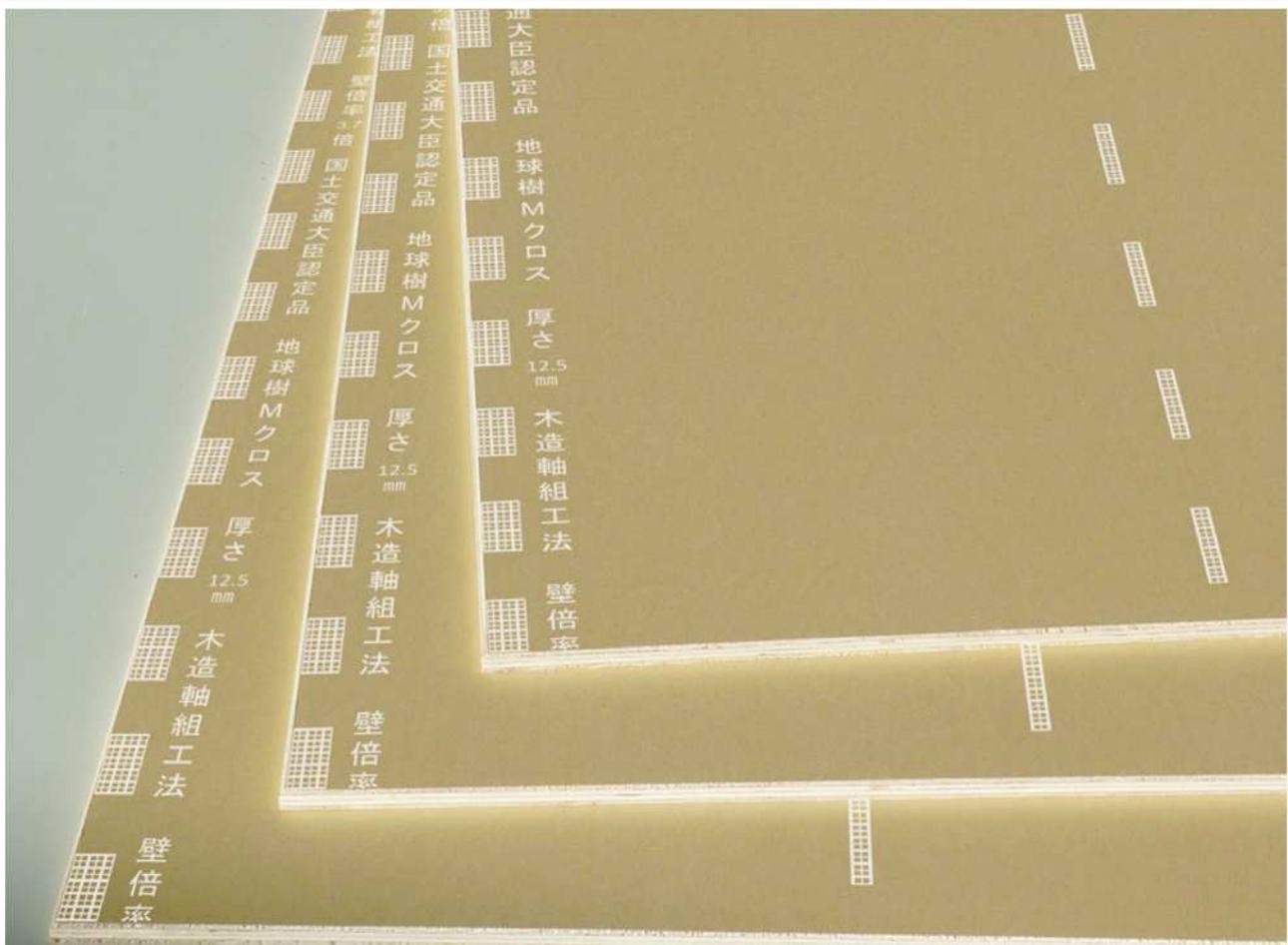
Multiple-product EPD based on the representative product  
from

## ITOCHU KENZAI CORPORATION



Programme:	The International EPD System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
Type of EPD:	Multiple-product EPD based on the representative product
EPD registration number:	EPD-IES-0027824:001
Version date:	2026-01-05
Validity date:	2031-01-05

*An EPD may be updated or republished if conditions change. To find the latest version of the EPD and to confirm its validity, see [www.environdec.com](http://www.environdec.com)*



## GENERAL INFORMATION

Programme Information	
<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
<b>E-mail:</b>	<a href="mailto:support@environdec.com">support@environdec.com</a>

Product Category Rules (PCR)
<b>CEN standard EN 15804 serves as the Core Product Category Rules (PCR)</b>
<b>Product Category Rules (PCR): PCR 2019:14 Construction Products, Version 2.0.1 UN CPC Code:31420</b>
<b>PCR review was conducted by: The Technical Committee of the International EPD System. A full list of members is available on <a href="http://www.environdec.com">www.environdec.com</a>. The review panel may be contacted via e-mail (<a href="mailto:support@environdec.com">support@environdec.com</a>)</b>
<b>c-PCR, if applicable: c-PCR-006 Wood and wood - based products for use in Construction (EN 16485:2014)</b>

Third-party Verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:
<input checked="" type="checkbox"/> <b>Individual EPD verification without a pre-verified LCA/EPD tool</b> Third-party verifier: Mamoru Yanagisawa, EPA Corporation

Approved by: International EPD System Procedure for follow-up of data during EPD validity involves third party verifier:
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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:

ITOCHU KENZAI CORPORATION

Website: <https://www.ick.co.jp/>

Address: 8F NOMURA FUDOSAN NIHONBASHI-ODENMACHO BLDG.,  
1-4 Nihonbash-odenmacho, Chuo-ku, Tokyo 103-8419, Japan

### Contact:

Wood Based Panel DIV. Administration Section

TEL : 81-3-3661-1404 Mobile: 81-90-6108-2891

FAX : 81-3-3661-6721

E-mail: [kazutaka.ishimoto@ick.co.jp](mailto:kazutaka.ishimoto@ick.co.jp), [tatsunori.teranishi@ick.co.jp](mailto:tatsunori.teranishi@ick.co.jp)

### LCA practitioner commissioned by the EPD owner:

MARUTAMA Plywood Co., Ltd. Ibaraki plant

Website: <http://www.marutama-ind.com/>

Address: 2256 Kamitamari, Omitama City, Ibaraki 311-3498, Japan

Applicable: Quality Control section

TEL : 81-299-26-5141

FAX : 81-299-36-3257

E-mail: [info@marutama-s.co.jp](mailto:info@marutama-s.co.jp)

### Description of the organisation:

#### Owner of EPD:

ITOCHU KENZAI CORPORATION promotes the original brand, **Chikyugi** as environmentally friendly products, especially construction material.

We have overseas business points, and branch in Indonesia, Malaysia, China, and the UK.

We aim to develop a global network between international sellers and buyers.

#### LCA practitioner:

MARUTAMA Plywood Co., Ltd. provides the product as original equipment manufacturer [OEM] for ITOCHU KENZAI CORPORATION.

#### Manufacturing sites related to this product

Tsubetsu Plant (Manufacturer of plywood for base panels)

First Product Division Address:

162 Tatsumi, Tsubetsucho, Abashiri-gun, Hokkaido 092-0203, Japan

Second Product Division Address:

179 Tatsumi, Tsubetsucho, Abashiri-gun, Hokkaido 092-0203, Japan

Ibaraki Plant (Secondary processing of the final products)

Address: 2256 Kamitamari, Omitama City, Ibaraki 311-3498, Japan

Maizuru Plant (Secondary processing of the final products)

Address: 1157 Aza-Taira, Maizuru City, Kyoto, 625-0133, Japan

The Tsubetsu Plant is located adjacent to the plantation area for raw materials, and effectively utilizes wood residues and bark generated from production as biomass energy for in-house electricity generation and fuel for dryers. The plant also contributes to the local community through several

forest-related funds, and promotes the recycling and effective use of wood resources to help reduce carbon emissions.

Product-related or management system-related certifications:

ISO 9001 Certified – Design, Development, and Manufacturing of Plywood and Laminated Veneer Lumber

SGEC Chain-of-Custody Certification – JAFTA-SGEC-COC-133

## PRODUCT INFORMATION

Product name: Original Paper Covering Plywood for One Side of Board

Product identification: Thickness 9.5/12.5mm, Width 910/1000mm, Length 1820/2440mm

Visual representation of the product:



UN CPC code: 31420

Product description:

Plywood for cross lining with a pulp-based liner paper on one surface. The base panel is made of 100% coniferous wood from plantation and managed forests in Hokkaido.

Production started in October 2010.

Certifications and approvals:

Year 2018; The wall magnification 3.7 times for wooden frame construction as Ministerial certification

Year 2025; The earthquake resistance improvement evaluation by committee for policy planning on disaster management, Nagoya City Government.

SGEC CoC (equivalent to PEFC CoC).

Name and location of production sites:

Tsubetsu Plant

First Product Division Address:

162 Tatsumi, Tsubetsucho, Abashiri-gun, Hokkaido 092-0203, Japan

Second Product Division Address:

179 Tatsumi, Tsubetsucho, Abashiri-gun, Hokkaido 092-0203, Japan

Ibaraki Plant

Address: 2256 Kamitamari, Omitama City, Ibaraki 311-3498, Japan

Maizuru Plant

Address: 1157 Aza-Taira, Maizuru City, Kyoto 625-0133, Japan

Name of manufacturer: MARUTAMA Plywood Co, Ltd.

References to any relevant websites for more information (Japanese only):  
<https://www.ick.co.jp/chikyugi/>

## CONTENT DECLARATION

The weight of one unit of a product, as purchased or per declared unit: 443.5kg/m<sup>3</sup>

Content of the product:

Product content	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material, kg C/m <sup>3</sup> product
plywood	426.0	0.0%	81.2%	191.4
Glues	3.9	0.0%	0.0%	0.0
Liner paper (pulp-based)	13.6	3.1%	3.1%	5.2
Total	443.5 <sup>*1</sup>	3.1%	84.2%	196.6

\*1 is the average weight of all products.

Biogenic carbon content: 196.6kg C per m<sup>3</sup> product.

The mass and the content of distribution and/or consumer packaging:

Packaging materials	Mass, kg	Mass-% (versus the product)	Biogenic material, kg C/m <sup>3</sup> product
PP	0.07	0.02%	0.00
Product name display	0.49	0.11%	0.02
Total	0.56	0.13%	0.02

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

This product does not contain any substances listed in the Candidate List of Substances of Very High Concern (SVHC) above 0.1 wt% according to Regulation (EC) No 1907/2006 (REACH). No other hazardous or toxic substances requiring declaration under the PCR are present above their respective thresholds.

In addition to not containing any SVHC substances above 0.1% (w/w) under the REACH regulation, the product also complies with Japanese indoor air quality regulations, including the 4-VOC emission limits and the F☆☆☆☆ formaldehyde emission standard.

## LCA INFORMATION

Declared unit: 1m<sup>3</sup> of Plywood for cross lining

This EPD is a cradle-to-gate with options EPD for a construction product, and the declared unit is 1 m<sup>3</sup> of original paper-covered plywood for one-side board use.

Product size: Thickness 9.5/12.5mm, Width 910/1000mm, Length 1820/2440mm

This EPD is issued as a multiple-product EPD, and the representative product is the size 12.5 mm × 910 mm × 1820 mm with the highest production volume. Since material composition and manufacturing processes are identical across all sizes, the environmental impacts per declared unit (1 m<sup>3</sup>) are representative for all listed product sizes.

Conversion factor to mass per declared unit: 443kg/m<sup>3</sup>

Reference service life:

Not applicable (product is component material).

Time representativeness:

The calculations are based on data collected from April 2024 to March 2025.

Geographical scope: Japan

Database(s) and LCA software used:

SimaPro v10.2.0.3 was used as the LCA software with Ecoinvent 3.11 database Cut-off system model.

In this study, cut-offs were made for processes for which data collection was presumed to be difficult, or for those processes whose contribution to the life cycle impacts assessment results was considered small. The cut-off items are listed below.

- Sub-materials that are not directly related to the production of the product, such as gloves, masks, uniforms, products for cleaning, etc., but are used universally in the factory.
- Construction of production facilities such as factories, transportation facilities such as cars, ships, trains, and roads, and capital goods used for multiple years
- Disposal of raw material packaging

It was verified that the life cycle inventory for each module covers at least 95% of the total mass and energy inflows, in accordance with EN 15804.

Description of system boundaries:

Cradle to gate, A1 - A3 and A5. The life cycle inventory includes:

- Upstream manufacturing of raw material steel, other sub-materials, chemical products, packaging materials/parts,
- Cultivation and processing of raw logs
- Inbound transports on sea, rail, and road
- Internal transport
- Energy (electricity, steam, kerosene, gasoline) and heat consumption, water consumption, emissions to water, waste treatment

- Downstream handling of waste
- Construction installation  
A5 includes the disposal of packaging materials and on-site handling.  
No additional materials, energy use, or emissions beyond packaging disposal are associated with installation.

#### Module C – End-of-Life Stage (C1–C4)

Deconstruction is assumed to be performed manually using light electric tools. A small amount of breakage may occur; however, in accordance with the PCR 2019:14 default scenario, all removed materials are modelled as proceeding to Modules C2–C4.

End-of-life treatment (recycling, energy recovery, disposal) is modelled using the national average waste treatment distribution defined in PCR 2019:14 Table 4. These flows form the basis for the benefits and loads calculated in Module D.

Modules C1–C4 are modelled according to PCR 2019:14 Table 4 default parameters:

- C1: 1.1 kWh/t diesel for demolition
- C2: 130 km transport to waste treatment
- C3: 2.2 kWh/t electricity for sorting
- C4: 6 kWh/t diesel for chipping

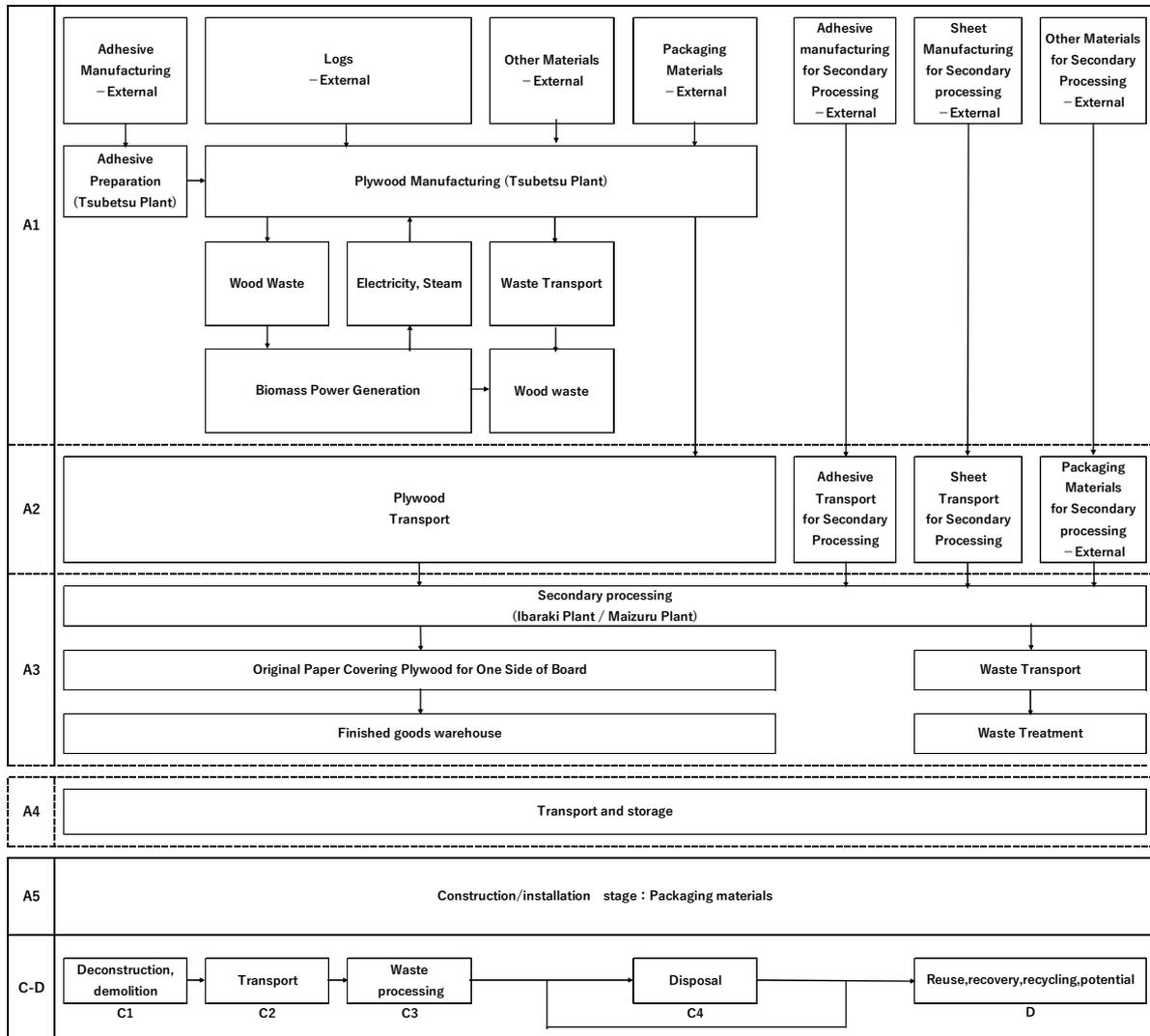
#### Module D – Benefits and Loads Beyond the System Boundary

Module D reports the potential benefits and loads from exported secondary materials and fuels. At end-of-life, 88% of the wood is assumed to be recovered: 64% is used as biomass fuel and 36% for material recycling. The energy recovered from biomass fuel is modelled as substituting the average Japanese electricity and heat mix, following the substitution approach required by EN 15804+A2.

Module D declares both potential benefits and potential loads. Benefits arise from the avoided production of conventional energy or materials, while loads arise from processing recovered materials and fuels.

Process flow diagram:

System boundary: Cradle to gate with options including modules A1–A3, A5, C1–C4, and module D



More information:

Results of the environmental performance indicators:

For each indicator, the average results of the included products are declared.

The LCA results are calculated as the average environmental impacts of the included products.

The allocation between production sites is set to 50% for the Ibaraki Plant and 50% for the Maizuru Plant.

Cut-off rules:

Data collection includes major raw materials and energy consumption.

All inputs and outputs of the unit processes, for which data is available, are included in the calculation.

No single unit process representing more than 1% of the total mass or energy flows has been neglected

The module-specific total of neglected input and output flows does not exceed 5% of the total energy use or mass.

Allocation rules:

Allocation is based on physical relationships (e.g., mass, volume) in accordance with EN 15804.

Product characteristic:

1. Manufacturing process:

Rotary cutting: Veneers are produced from plantation-grown species such as Sakhalin fir sourced in Hokkaido.

Layup and hot pressing: The base panel is formed by applying adhesive to multiple veneers and hot pressing them.

Finishing: Edges are trimmed, and both faces are sanded to obtain a smooth surface.

Laminating: Producing paper-lined plywood by overlaying the surface with pulp-based liner paper.

2. Usage

Used in interior walls, closet linings, storage components, curtain boxes, and load-bearing walls in post-and-beam wooden constructions.

3. Performance

Nail holding power is equivalent to that of JAS structural plywood.

The product is lightweight, easy to process, and suitable for home renovation.

No original impact assessment method was implemented; therefore, the calculation can be reproduced. The following impact assessment methods were used for this assessment:

ID	Impact Category	Unit	Model
1	Climate change - Total	kg CO2 eq	EN 15804 + A2 (adapted) V1.03 / EF 3.1 normalization and weighting set
2	Climate change - Biogenic	kg CO2 eq	
3	Climate change - Fossil	kg CO2 eq	
4	Climate change - Land use and LU change	kg CO2 eq	
5	Ozone depletion	kg CFC11 eq	
6	Acidification	mol H <sup>+</sup> eq	
7	Eutrophication, freshwater	kg P eq	
8	Eutrophication, marine	kg N eq	
9	Eutrophication, terrestrial	mol N eq	
10	Photochemical ozone formation	kg NMVOC eq	
11	Depletion of abiotic resources - minerals and metals	kg Sb eq	
12	Depletion of abiotic resources - fossil fuels	MJ	
13	Water use	m <sup>3</sup> depriv.	

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	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	JP	JP	JP	-	GLO	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Share of primary data	44.7%*			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	< 10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	< 10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

\*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 the comparability between EPDs. Note that indicator does not capture all relevant aspects of data quality and is not comparable across product categories. See also data quality for more information.

Process	Source type	source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Manufacturing of product, inclusive generation of electricity used in manufacturing of product	Collected data	EPD owner	2024-2025	Primary data	13.2%
Transport of materials & packaging to manufacturing site	Database	EPD owner	2024-2025	Primary data	31.5%
Production of ingoing materials and packaging	Collected data	EPD owner	2024-2025	Primary data	0%
Total share of primary data, of GWP-GHG results for A1-A3					44.7%

## ENVIRONMENTAL PERFORMANCE

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

#### Mandatory impact category indicators according to EN 15804

Results per functional declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	-1.30E+03	1.07E+00	1.77E-01	2.34E+01	1.61E+03	1.49E+00	-3.47E+01
GWP-fossil	kg CO <sub>2</sub> eq.	2.98E+02	8.72E-01	1.77E-01	2.33E+01	1.87E+00	1.83E-01	4.00E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	-1.60E+03	1.88E-01	3.58E-05	7.41E-03	1.61E+03	1.30E+00	-3.88E+01
GWP-luluc	kg CO <sub>2</sub> eq.	8.51E-01	9.78E-03	1.81E-05	1.05E-02	1.88E-04	1.10E-04	6.64E-02
ODP	kg CFC 11 eq.	1.75E-05	1.02E-06	2.63E-09	2.96E-07	2.87E-08	4.66E-09	1.27E-06
AP	mol H <sup>+</sup> eq.	3.75E+00	3.58E-03	1.58E-03	7.97E-02	1.41E-02	1.28E-03	2.46E-03
EP-freshwater	kg P eq.	8.35E-02	4.20E-04	5.70E-06	2.56E-03	3.73E-04	1.45E-04	2.10E-04
EP-marine	kg N eq.	7.05E-01	1.43E-03	7.36E-04	2.53E-02	5.78E-03	5.98E-03	6.13E-02
EP-terrestrial	mol N eq.	7.34E+00	9.49E-03	8.06E-03	2.74E-01	6.27E-02	5.36E-03	1.69E-01
POCP	kg NMVOC eq.	2.34E+00	3.72E-03	2.41E-03	1.08E-01	1.88E-02	2.21E-03	2.41E-01
ADP-minerals&metals*	kg Sb eq.	1.70E-03	3.83E-06	6.32E-08	7.65E-05	1.06E-06	3.38E-07	8.24E-06
ADP-fossil*	MJ	4.61E+03	1.21E+01	2.30E+00	3.23E+02	2.50E+01	4.09E+00	3.52E+01
WDP*	m <sup>3</sup>	8.68E+01	2.83E-01	4.92E-03	1.50E+00	1.06E-01	-2.69E+00	9.89E+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: The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

Disclaimer: 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.

## ENVIRONMENTAL PERFORMANCE (Explanation of indicator)

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

For construction services, the total value of A1-A3 shall be replaced with the total value of A1-A5.

#### Mandatory impact category indicators according to EN 15804

Results per functional or declared unit			
Indicator	Unit	A1-A3	Acronyms
GWP-total	kg CO <sub>2</sub> eq.	-1.30E+03	Global Warming Potential total
GWP-fossil	kg CO <sub>2</sub> eq.	2.98E+02	Global Warming Potential fossil fuels
GWP-biogenic	kg CO <sub>2</sub> eq.	-1.60E+03	Global Warming Potential biogenic
GWP-land use	kg CO <sub>2</sub> eq.	8.51E-01	Global Warming Potential land use and land use change
ODP	kg CFC 11 eq.	1.75E-05	Depletion potential of the stratospheric ozone layer
AP	mol H <sup>+</sup> eq.	3.75E+00	Acidification potential, Accumulated Exceedance
EP-freshwater	kg P eq.	8.35E-02	Eutrophication potential, fraction of nutrients reaching freshwater end compartment
EP-marine	kg N eq.	7.05E-01	Eutrophication potential, fraction of nutrients reaching marine end compartment
EP-terrestrial	mol N eq.	7.34E+00	Eutrophication potential, Accumulated Exceedance
POCP	kg NMVOC eq.	2.34E+00	Formation potential of tropospheric ozone
ADP-minerals&metals*	kg Sb eq.	1.70E-03	Abiotic depletion potential for non-fossil resources;
ADP-fossil*	MJ	4.61E+03	Abiotic depletion for fossil resources potential
WDP*	m <sup>3</sup>	8.68E+01	Water (user) deprivation potential, deprivation-weighted water consumption

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

Disclaimer: 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.

### Additional mandatory and voluntary impact category indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	3.00E+02	9.65E-01	1.77E-01	2.34E+01	1.87E+00	1.22E+00	-3.30E+00
<i>Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017</i>								

### Resource use indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
PERE	MJ	2.77E+02	-5.78E+00	1.41E-02	4.32E+00	9.25E-01	-2.86E+02	3.01E+03
PERM	MJ	9.14E+03	7.67E+00	0	0	0	2.86E+02	-9.02E+02
PERT	MJ	9.41E+03	1.89E+00	1.41E-02	4.32E+00	9.25E-01	5.26E-02	2.11E+03
PENRE	MJ	3.59E+03	7.59E+00	5.47E-01	3.23E+02	1.25E+01	4.09E+00	3.52E+01
PENRM	MJ	1.02E+03	4.54E+00	1.76E+00	0	1.25E+01	0	0
PENRT	MJ	4.61E+03	1.21E+01	2.30E+00	3.23E+02	2.50E+01	4.09E+00	3.52E+01
SM	kg	0	0	0	0	0	0	0
RSF	MJ	0	0	0	0	0	0	0
NRSF	MJ	0	0	0	0	0	0	0
FW	m <sup>3</sup>	2.54E+00	8.83E-03	1.63E-04	4.46E-02	3.15E-03	-6.25E-02	2.31E-01
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 used as raw materials; 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							

## Additional mandatory and voluntary impact category indicators (Explanation of indicator)

Results per functional or declared unit			
Indicator	Unit	A1-A3	Comment
GWP-GHG <sup>1</sup>	kg CO <sub>2</sub> eq.	3.00E+02	Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017

## Resource use indicators (Explanation of indicator)

Results per functional or declared unit			
Indicator	Unit	A1-A3	Acronyms
PERE	MJ	2.77E+02	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	MJ	9.14E+03	Use of renewable primary energy resources used as raw materials
PERT	MJ	9.41E+03	Total use of renewable primary energy resources
PENRE	MJ	3.59E+03	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
PENRM	MJ	1.02E+03	Use of non-renewable primary energy resources used as raw materials
PENRT	MJ	4.61E+03	Total use of non-renewable primary energy re-sources
SM	kg	0	Use of secondary material
RSF	MJ	0	Use of renewable secondary fuels
NRSF	MJ	0	Use of non-renewable secondary fuels
FW	m <sup>3</sup>	2.54E+00	Use of net fresh water

<sup>1</sup> 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<sub>2</sub> is set to zero.

## Waste indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
Hazardous waste disposed	kg	1.86E-01	3.32E-03	1.56E-03	1.50E+01	2.14E-02	1.69E+01	-7.29E+01
Non-hazardous waste disposed	kg	6.16E+01	1.06E-01	1.56E-03	1.50E+01	2.12E-02	1.69E+01	-7.34E+01
Radioactive waste disposed	kg	2.51E-03	1.02E-05	2.41E-07	6.38E-05	2.00E-05	8.07E-07	-2.38E-05

## Output flow indicators

Results per declared unit								
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
Components for re-use	kg	0	0	0	0	0	0	0
Material for recycling	kg	0	0	0	0	0	0	0
Materials for energy recovery	kg	0	0	0	0	0	0	0
Exported energy, electricity	MJ	6.85E+00	2.65E-01	0	0	0	0	0
Exported energy, thermal	MJ	1.34E+01	5.31E-01	0	0	0	0	0

### Waste indicators (Explanation of indicator)

Results per functional or declared unit		
Indicator	Unit	A1-A3
Hazardous waste disposed	kg	1.86E-01
Non-hazardous waste disposed	kg	6.16E+01
Radioactive waste disposed	kg	2.51E-03

### Output flow indicators (Explanation of indicator)

Results per functional or declared unit		
Indicator	Unit	A1-A3
Components for re-use	kg	0
Material for recycling	kg	0
Materials for energy recovery	kg	0
Exported energy, electricity	MJ	6.85E+00
Exported energy, thermal	MJ	1.34E+01

## Additional LCA results (other environmental performance results) of the product(s)

Alternative end-of-life (EOL) scenarios have been developed to represent cases providing minimum and maximum benefits, as illustrated by the LCA results below. Recycling all components of the product delivers the highest benefit to the subsequent product system. Conversely, treating all components of the product in landfill without any recovery provides no contribution to the subsequent product system.

		100%landfill Results per functional declared unit						
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	-1.30E+03	1.07E+00	1.77E-01	1.44E+01	0	3.91E+01	0
GWP-fossil	kg CO <sub>2</sub> eq.	2.98E+02	8.72E-01	1.77E-01	1.44E+01	0	4.82E+00	0
GWP-biogenic	kg CO <sub>2</sub> eq.	-1.60E+03	1.88E-01	3.58E-05	4.56E-03	0	3.43E+01	0
GWP-luluc	kg CO <sub>2</sub> eq.	8.51E-01	9.78E-03	1.81E-05	6.43E-03	0	2.89E-03	0
ODP	kg CFC 11 eq.	1.75E-05	1.02E-06	2.63E-09	1.82E-07	0	1.23E-07	0
AP	mol H <sup>+</sup> eq.	3.75E+00	3.58E-03	1.58E-03	4.90E-02	0	3.37E-02	0
EP-freshwater	kg P eq.	8.35E-02	4.20E-04	5.70E-06	1.58E-03	0	3.82E-03	0
EP-marine	kg N eq.	7.05E-01	1.43E-03	7.36E-04	1.55E-02	0	1.57E-01	0
EP-terrestrial	mol N eq.	7.34E+00	9.49E-03	8.06E-03	1.69E-01	0	1.41E-01	0
POCP	kg NMVOC eq.	2.34E+00	3.72E-03	2.41E-03	6.64E-02	0	5.83E-02	0
ADP-minerals&metals	kg Sb eq.	1.70E-03	3.83E-06	6.32E-08	4.71E-05	0	8.91E-06	0
ADP-fossil	MJ	4.61E+03	1.21E+01	2.30E+00	1.99E+02	0	1.08E+02	0
WDP	m <sup>3</sup>	8.68E+01	2.83E-01	4.92E-03	9.24E-01	0	-7.07E+01	0

		100% recycling Results per functional declared unit						
Indicator	Unit	A1-A3	A5	C1	C2	C3	C4	D
GWP-total	kg CO <sub>2</sub> eq.	-1.30E+03	1.07E+00	1.77E-01	2.34E+01	1.61E+03	0	-3.41E+01
GWP-fossil	kg CO <sub>2</sub> eq.	2.98E+02	8.72E-01	1.77E-01	2.33E+01	1.87E+00	0	5.20E+00
GWP-biogenic	kg CO <sub>2</sub> eq.	-1.60E+03	1.88E-01	3.58E-05	7.41E-03	1.61E+03	0	-3.94E+01
GWP-luluc	kg CO <sub>2</sub> eq.	8.51E-01	9.78E-03	1.81E-05	1.05E-02	1.88E-04	0	7.59E-02
ODP	kg CFC 11 eq.	1.75E-05	1.02E-06	2.63E-09	2.96E-07	2.87E-08	0	1.46E-06
AP	mol H <sup>+</sup> eq.	3.75E+00	3.58E-03	1.58E-03	7.97E-02	1.41E-02	0	7.39E-03
EP-freshwater	kg P eq.	8.35E-02	4.20E-04	5.70E-06	2.56E-03	3.73E-04	0	7.59E-04
EP-marine	kg N eq.	7.05E-01	1.43E-03	7.36E-04	2.53E-02	5.78E-03	0	9.11E-02
EP-terrestrial	mol N eq.	7.34E+00	9.49E-03	8.06E-03	2.74E-01	6.27E-02	0	2.11E-01
POCP	kg NMVOC eq.	2.34E+00	3.72E-03	2.41E-03	1.08E-01	1.88E-02	0	2.82E-01
ADP-minerals&metals	kg Sb eq.	1.70E-03	3.83E-06	6.32E-08	7.65E-05	1.06E-06	0	1.06E-05
ADP-fossil	MJ	4.61E+03	1.21E+01	2.30E+00	3.23E+02	2.50E+01	0	5.46E+01
WDP	m <sup>3</sup>	8.68E+01	2.83E-01	4.92E-03	1.50E+00	1.06E-01	0	1.60E+00

## THE LIST OF PRODUCTS

Product Number	Size (mm)	Volume (m <sup>3</sup> )	Weight (kg)
1	9.5 × 910 × 1820	1.57E-02	6.97E+00
2	9.5 × 910 × 2440	2.11E-02	9.36E+00
3	12.5 × 910 × 1820	2.07E-02	9.19E+00
4	12.5 × 910 × 2440	2.78E-02	1.23E+01
5	12.5 × 1000 × 2000	2.50E-02	1.11E+01

## VERSION HISTORY

Original version of the EPD, 2026-01-05

## REFERENCES

- General Programme Instructions of the International EPD® System. Version 5.0.1
- PCR 2019:14 Construction products (EN 15804: A2) (version 2.0.1)
- c-PCR-006 Wood and wood - based products for use in Construction (EN 16485:2014)
- ISO 14020:2000 Environmental labels and declarations - General principles.
- ISO 14040:2006 Environmental management - Life Cycle Assessment - Principles and framework.
- ISO 14044:2006 Environmental management - Life Cycle Assessment - Requirements and guidelines.

