

# ENVIRONMENTAL PRODUCT DECLARATION

## IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Undertagsmembran PF 2300 SBS Split  
Phønix Tag Materialer A/S



**EPD HUB, HUB-2240**

Published on 10.01.2025, last updated on 10.01.2025, valid until 09.01.2030

## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Phønix Tag Materialer A/S
Address	Vester Alle 1, DK-6600 Vejen, Denmark
Contact details	info@phonixtagmaterialer.dk
Website	https://www.phonixtagmaterialer.dk/

### EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.1, 5 Dec 2023
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Henrik Brogaard
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	Imane Uald Lamkaddam as an authorized verifier for EPD Hub

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if

they do not comply with EN 15804 and if they are not compared in a building context.

### PRODUCT

Product name	Undertagsmembran PF 2300 SBS Split
Additional labels	
Product reference	1294
Place of production	Vester Allé 1, DK-6600 Vejen, Denmark
Period for data	Calendar year 2023
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m <sup>2</sup>
Declared unit mass	2.1 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	1,01E+00
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	8,65E-01
Secondary material, inputs (%)	3.69
Secondary material, outputs (%)	100
Total energy use, A1-A3 (kWh)	6.66
Net freshwater use, A1-A3 (m <sup>3</sup> )	0

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Phønix Tag Materials A/S is one of Denmark's leading producers of bitumen roofing felt for residential, commercial and public buildings. The products' ease of use, energy and environmental optimization are a significant part of our offer to the market. We work with Denmark's leading roofing contractors, and our products are market leaders in bitumen-based roofing felt and related products.

### PRODUCT DESCRIPTION

Bitumen underlay with self-adhesive overlaps for pitched roofs are CE labelled according to EN 13859-1. The membrane is manually installed onto a wooden substrate and nailed to the deck, then counter battens and battens and finally tiles on top.

Regarding the reference service life. No Product Category Rules exist for this type of product. Bitumen membrane on solid deck is considered to have parallel lifetime with the tiles, i.e. 60 years. For more information on RSL see <https://www.phonixtagmaterialer.dk/>.

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	20-25	EU
Fossil materials	80-75	EU
Bio-based materials	-	-

### BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.04

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m <sup>2</sup>
Mass per declared unit	2.1 kg
Functional unit	-
Reference service life	60

### SUBSTANCES, REACH - VERY HIGH CONCERN

Substances of very high concern	EC	CAS
-	-	-

# PRODUCT LIFE-CYCLE

## SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = MND. Modules not relevant = MNR

## MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

The manufacturing is done by heating the raw materials (bitumen and polymers) to a specific temperature and mixing them. The bitumen is generally delivered hot from the petroleum refinery to the manufacturing site, where it's heated further. After this the mix is applied to the reinforcing structure (polyester reinforcement). The resulting sheet is cooled and then faced with mineral granules, sand and release foil on top and bottom sidelaps. The resulting sheet is then rolled and cut to desired length. Eventually the product is loaded onto trucks and transported to a construction site, where it is manually installed onto a wooden substrate.

## TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. Average distance of transportation from production plant to building site is assumed as 170 km in average in DK, and the transportation method is by lorry. Transportation does not cause losses as products are packaged properly.

Packaging treatment was considered in module A5, with scenarios for wood and plastics as per Eurostat.

### PRODUCT USE AND MAINTENANCE (B1-B7)

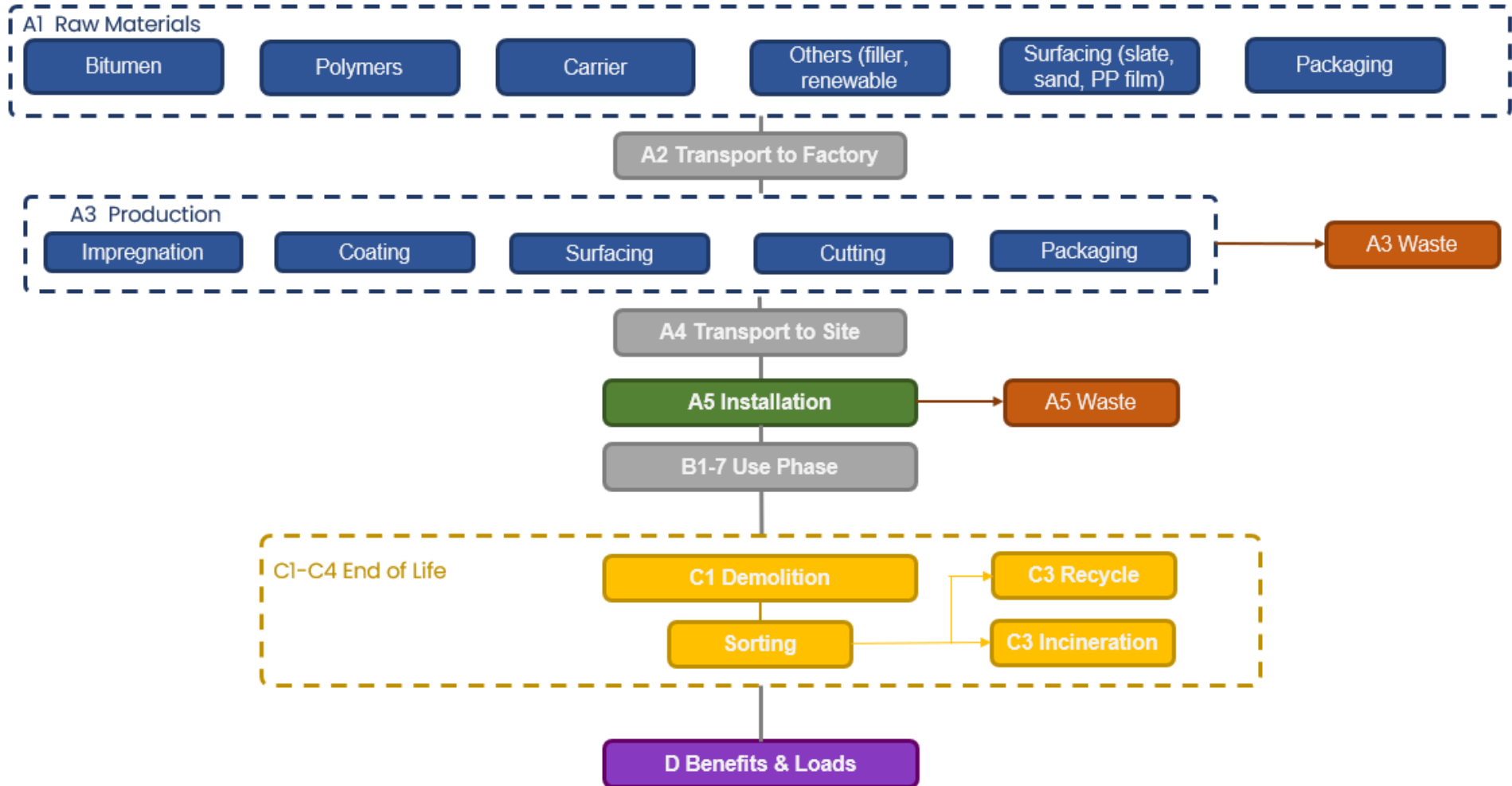
This EPD does not cover the use phase.

Air, soil, and water impacts during the use phase have not been studied.

### PRODUCT END OF LIFE (C1-C4, D)

At the end-of-life, in the demolition phase 100% of the waste is assumed to be collected as separate waste for recycling in asphalt mix for roads. Regarding deconstruction at the end-of-life, given the lack of specific data, a generic scenario of 0.01 kWh/kg of material was assumed based on the deconstruction study by Bozdağ, Ö & Seçer, M (2007); as a conservative approach considering its likely removed by hand (C1). The bitumen roofing is delivered to the nearest construction waste treatment plant (C2). At the treatment plant the waste is considered to be 100% recycled for the asphalt sector, which is an established process in Denmark (C3-C4). Due to the recycling potential of bitumen underlays, it can be used as rawmaterial for asphalt mix. Recycling of bitumen roofing avoids the use of virgin raw material (D).

# LCA DIAGRAM



## LIFE-CYCLE ASSESSMENT

### CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

### ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

### AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	- %

This EPD is product and factory specific and does not contain average calculations.

### LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

# ENVIRONMENTAL IMPACT DATA

## CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total <sup>1)</sup>	kg CO <sub>2</sub> e	8,73E-01	6,30E-02	-7,11E-02	8,65E-01	3,35E-02	2,66E-01	MND	MND	MND	MND	MND	MND	MND	7,36E-03	4,24E-02	0,00E+00	0,00E+00	-7,00E-01
GWP – fossil	kg CO <sub>2</sub> e	8,71E-01	6,30E-02	7,28E-02	1,01E+00	3,35E-02	1,15E-01	MND	MND	MND	MND	MND	MND	MND	7,36E-03	4,23E-02	0,00E+00	0,00E+00	-6,99E-01
GWP – biogenic	kg CO <sub>2</sub> e	0,00E+00	0,00E+00	-1,44E-01	-1,44E-01	0,00E+00	1,51E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-5,36E-04
GWP – LULUC	kg CO <sub>2</sub> e	2,55E-03	2,58E-05	1,64E-04	2,74E-03	1,30E-05	2,76E-04	MND	MND	MND	MND	MND	MND	MND	1,98E-06	1,65E-05	0,00E+00	0,00E+00	-1,99E-04
Ozone depletion pot.	kg CFC-11e	8,23E-08	1,40E-08	6,08E-09	1,02E-07	7,88E-09	1,13E-08	MND	MND	MND	MND	MND	MND	MND	1,48E-09	9,96E-09	0,00E+00	0,00E+00	-1,05E-06
Acidification potential	mol H <sup>+</sup> e	4,66E-03	1,92E-04	4,74E-04	5,32E-03	1,09E-04	5,59E-04	MND	MND	MND	MND	MND	MND	MND	9,89E-05	1,38E-04	0,00E+00	0,00E+00	-7,37E-03
EP-freshwater <sup>2)</sup>	kg Pe	1,71E-04	5,34E-07	3,32E-06	1,75E-04	2,84E-07	1,76E-05	MND	MND	MND	MND	MND	MND	MND	4,46E-08	3,59E-07	0,00E+00	0,00E+00	-6,22E-06
EP-marine	kg Ne	5,87E-03	3,97E-05	1,16E-04	6,02E-03	2,40E-05	6,12E-04	MND	MND	MND	MND	MND	MND	MND	4,27E-05	3,03E-05	0,00E+00	0,00E+00	-9,03E-04
EP-terrestrial	mol Ne	5,83E-03	4,41E-04	1,41E-03	7,68E-03	2,66E-04	8,65E-04	MND	MND	MND	MND	MND	MND	MND	4,68E-04	3,36E-04	0,00E+00	0,00E+00	-9,87E-03
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	5,36E-03	1,68E-04	4,23E-04	5,95E-03	1,03E-04	6,26E-04	MND	MND	MND	MND	MND	MND	MND	1,23E-04	1,30E-04	0,00E+00	0,00E+00	-6,08E-03
ADP-minerals & metals <sup>4)</sup>	kg Sbe	2,05E-06	2,00E-07	5,23E-07	2,77E-06	8,15E-08	2,92E-07	MND	MND	MND	MND	MND	MND	MND	4,20E-08	1,03E-07	0,00E+00	0,00E+00	-2,17E-06
ADP-fossil resources	MJ	8,28E+01	9,38E-01	1,23E+00	8,50E+01	5,25E-01	8,57E+00	MND	MND	MND	MND	MND	MND	MND	9,53E-02	6,63E-01	0,00E+00	0,00E+00	-6,27E+01
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	4,07E-01	4,16E-03	6,39E-02	4,75E-01	2,34E-03	4,88E-02	MND	MND	MND	MND	MND	MND	MND	3,52E-04	2,96E-03	0,00E+00	0,00E+00	-8,13E-02

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO4e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.



## ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	3,49E+00	5,73E-09	5,27E-09	3,49E+00	3,81E-09	3,49E-01	MND	MND	MND	MND	MND	MND	MND	1,79E-10	4,82E-09	0,00E+00	0,00E+00	-3,99E-08
Ionizing radiation <sup>6)</sup>	kBq U235e	3,66E-01	4,42E-03	5,89E-03	3,76E-01	2,51E-03	3,81E-02	MND	MND	MND	MND	MND	MND	MND	4,36E-04	3,18E-03	0,00E+00	0,00E+00	-2,80E-01
Ecotoxicity (freshwater)	CTUe	3,15E+00	8,51E-01	1,41E+00	5,41E+00	4,67E-01	6,17E-01	MND	MND	MND	MND	MND	MND	MND	8,27E-02	5,90E-01	0,00E+00	0,00E+00	-3,28E+01
Human toxicity, cancer	CTUh	8,71E-09	2,29E-11	2,46E-10	8,97E-09	1,14E-11	9,08E-10	MND	MND	MND	MND	MND	MND	MND	2,33E-12	1,44E-11	0,00E+00	0,00E+00	-3,14E-10
Human tox. non-cancer	CTUh	4,17E-01	7,88E-10	2,46E-09	4,17E-01	4,49E-10	4,17E-02	MND	MND	MND	MND	MND	MND	MND	1,02E-10	5,68E-10	0,00E+00	0,00E+00	-8,27E-09
SQP <sup>7)</sup>	-	3,20E-01	8,04E-01	1,23E+01	1,34E+01	6,03E-01	1,44E+00	MND	MND	MND	MND	MND	MND	MND	1,35E-02	7,63E-01	0,00E+00	0,00E+00	-8,02E+00

6) EN 15804+A2 disclaimer for Ionizing radiation, human health. 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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator; 7) SQP = Land use related impacts/soil quality.

## USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy <sup>8)</sup>	MJ	9,07E-01	1,09E-02	1,60E+00	2,51E+00	5,90E-03	2,53E-01	MND	MND	MND	MND	MND	MND	MND	1,04E-03	7,46E-03	0,00E+00	0,00E+00	-4,24E-01
Renew. PER as material	MJ	7,24E-03	0,00E+00	1,32E+00	1,33E+00	0,00E+00	-1,32E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-7,12E-03	0,00E+00	1,31E-04
Total use of renew. PER	MJ	9,15E-01	1,09E-02	2,92E+00	3,84E+00	5,90E-03	-1,07E+00	MND	MND	MND	MND	MND	MND	MND	1,04E-03	7,46E-03	-7,12E-03	0,00E+00	-4,24E-01
Non-re. PER as energy	MJ	1,87E+01	9,38E-01	8,42E-01	2,05E+01	5,25E-01	2,13E+00	MND	MND	MND	MND	MND	MND	MND	9,53E-02	6,63E-01	0,00E+00	0,00E+00	-2,92E+01
Non-re. PER as material	MJ	6,39E+01	0,00E+00	-7,44E-01	6,32E+01	0,00E+00	-3,87E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-6,28E+01	0,00E+00	9,96E-02
Total use of non-re. PER	MJ	8,26E+01	9,38E-01	9,83E-02	8,37E+01	5,25E-01	1,74E+00	MND	MND	MND	MND	MND	MND	MND	9,53E-02	6,63E-01	-6,28E+01	0,00E+00	-2,91E+01
Secondary materials	kg	7,75E-02	2,95E-04	5,32E-03	8,31E-02	1,45E-04	8,35E-03	MND	MND	MND	MND	MND	MND	MND	2,73E-05	1,84E-04	0,00E+00	0,00E+00	-2,31E-04
Renew. secondary fuels	MJ	1,21E-01	3,56E-06	4,48E-02	1,66E-01	1,47E-06	1,66E-02	MND	MND	MND	MND	MND	MND	MND	1,91E-07	1,86E-06	0,00E+00	0,00E+00	-2,01E-05
Non-ren. secondary fuels	MJ	7,89E-01	0,00E+00	0,00E+00	7,89E-01	0,00E+00	7,89E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m <sup>3</sup>	2,76E-03	1,15E-04	9,91E-04	3,86E-03	6,77E-05	4,22E-04	MND	MND	MND	MND	MND	MND	MND	8,06E-06	8,56E-05	0,00E+00	0,00E+00	-1,80E-03

8) PER = Primary energy resources.

## END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1,35E-03	1,31E-03	1,91E-02	2,18E-02	6,91E-04	2,30E-03	MND	MND	MND	MND	MND	MND	MND	1,80E-04	8,74E-04	0,00E+00	0,00E+00	-1,74E-02
Non-hazardous waste	kg	6,96E-02	2,12E-02	1,43E-01	2,34E-01	1,13E-02	9,09E-02	MND	MND	MND	MND	MND	MND	MND	1,68E-03	1,43E-02	0,00E+00	0,00E+00	-2,56E-01
Radioactive waste	kg	6,82E-04	6,27E-06	2,75E-06	6,91E-04	3,53E-06	6,96E-05	MND	MND	MND	MND	MND	MND	MND	6,56E-07	4,47E-06	0,00E+00	0,00E+00	-4,44E-04

## END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	2,39E-04	0,00E+00	0,00E+00	2,39E-04	0,00E+00	2,39E-05	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	3,90E-04	0,00E+00	7,60E-02	7,64E-02	0,00E+00	3,69E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	4,71E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	3,83E-04	0,00E+00	0,00E+00	3,83E-04	0,00E+00	3,00E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,31E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

## ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO <sub>2</sub> e	8,45E-01	6,24E-02	7,47E-02	9,82E-01	3,32E-02	1,15E-01	MND	MND	MND	MND	MND	MND	MND	7,22E-03	4,19E-02	0,00E+00	0,00E+00	-6,81E-01
Ozone depletion Pot.	kg CFC-11e	1,01E-06	1,11E-08	5,17E-09	1,03E-06	6,24E-09	1,04E-07	MND	MND	MND	MND	MND	MND	MND	1,17E-09	7,89E-09	0,00E+00	0,00E+00	-8,30E-07
Acidification	kg SO <sub>2</sub> e	3,62E-03	1,57E-04	3,63E-04	4,14E-03	8,85E-05	4,34E-04	MND	MND	MND	MND	MND	MND	MND	7,10E-05	1,12E-04	0,00E+00	0,00E+00	-6,33E-03
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	1,45E-03	3,45E-05	5,19E-04	2,00E-03	1,93E-05	3,18E-04	MND	MND	MND	MND	MND	MND	MND	1,63E-05	2,45E-05	0,00E+00	0,00E+00	-8,01E-04
POCP (“smog”)	kg C <sub>2</sub> H <sub>4</sub> e	4,92E-04	7,59E-06	4,05E-05	5,40E-04	4,08E-06	5,54E-05	MND	MND	MND	MND	MND	MND	MND	2,24E-06	5,16E-06	0,00E+00	0,00E+00	-2,63E-04
ADP-elements	kg Sbe	4,26E-06	1,95E-07	5,03E-07	4,95E-06	7,92E-08	5,10E-07	MND	MND	MND	MND	MND	MND	MND	4,18E-08	1,00E-07	0,00E+00	0,00E+00	-2,16E-06
ADP-fossil	MJ	7,60E+01	9,38E-01	1,23E+00	7,81E+01	5,25E-01	7,89E+00	MND	MND	MND	MND	MND	MND	MND	9,53E-02	6,63E-01	0,00E+00	0,00E+00	-6,27E+01

## VERIFICATION STATEMENT

### VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? Read more online

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

### THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited  
10.01.2025

