ENVIRONMENTAL PRODUCT DECLARATION

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

DELTABEAM® Composite Beam, Painted
Peikko Group Corporation

EPD HUB, HUB-0034
Publishing date 11 May 2022, last updated date 11 May 2022, valid until 11 May 2027

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Peikko Group Corporation
Address	Bolintin-Deal Giurgiu County, 220 Ithaca Street, 087015, ROMANIA.
Contact details	jaakko.yrjola@peikko.com
Website	www.peikko.com

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 1.0, 1 Feb 2022
Sector	Construction product
Category of EPD	Sister EPD
Scope of the EPD	Cradle to gate with options A4, A5 & modules C1-C4 and D
EPD author	Patience Wanjala, Peikko Group Oy.
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ External verification
EPD verifier	Elma Avdyli, 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	DELTABEAM® Composite Beam, Painted
Place of production	Romania
Period for data	2020
Averaging in EPD	No Averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of DELTABEAM®, painted
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	1,93
GWP-total, A1-A3 (kgCO2e)	1,93
Secondary material, inputs (%)	39,2
Secondary material, outputs (%)	95,0
Total energy use, A1-A3 (kWh)	6,7
Total water use, A1-A3 (m3e)	1,58E-2

PRODUCT AND MANUFACTURER

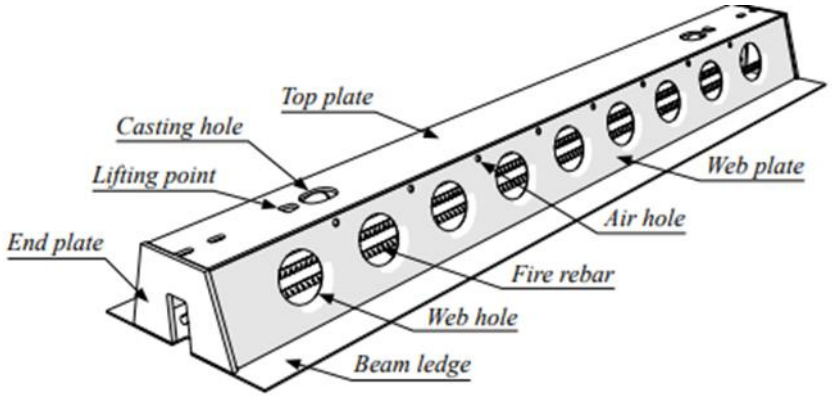
ABOUT THE MANUFACTURER

Further information can be found at www.peikko.com.

PRODUCT DESCRIPTION

This EPD represents painted DELTABEAM® Composite Beam produced at Peikko facility in Bolintin-Deal, Romania.
DELTABEAM® is a structural element which can be combined with all general concrete slabs and timber.

DELTABEAM® is designed to be used as a structural element combined with all general concrete slab types: hollow-core slab, filigran slabs, composite steel decking, trapezoidal steel decking slabs, cast-in-situ concrete slabs and wooden slabs. It enables the usage of shallow element structures and strengthens the frame structure inside the slab.



DELTABEAM® consists of steel plates welded together into a delta kind of shape. It is a steel structural element which can be combined with all general concrete slabs, steel decking and wooden slabs. It is integrated into the floor and filled with concrete on-site. The infill concrete and DELTABEAM® form a composite structure after the concrete has hardened. DELTABEAM® acts as a steel beam before the infill concrete has reached the required strength. The EPD calculations do not cover concrete used at the construction site.

DELTABEAM® products are ordered by clients as custom projects. The market area is mostly Central and Eastern Europe. Each DELTABEAM® is designed individually. Typical linear density of the product is 50 – 800 kg/m. This EPD is valid for an average DELTABEAM® project order with an average material composition (production based). As the materials in the product are scaled based on the products geometry, there is only a low variance. Peikko declares in the quotation the total amount of CO2-emission of DELTABEAM® in the appropriate project, according to this EPD. DELTABEAM® Composite Beam is CE marked through harmonized standard EN 1090-1

Detailed technical information can be found from manufacturers webpages at https://www.peikko.com/products/product/deltabeam-product-information/
Further information can be found at www.peikko.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	100	EU
Minerals	-	-
Fossil materials	-	-
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0.0
Biogenic carbon content in packaging, kg C	0.00045

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 Kg of DELTABEAM®, painted
Mass per declared unit	1 kg

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

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	Deconstr./demol.	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 and other ancillary 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.

A1

The environmental impacts of raw material supply (A1) include emissions generated when raw materials are taken from nature, transported to industrial units for processing and processed, along with waste handling from the various production processes. All major upstream processes are taken into consideration, including infrastructure. Loss of raw material and energy transmission losses are also taken into account. This stage includes all the aforementioned for the raw materials which end up in the final product (i.e. steel, welding filler and packaging) as well as the electricity and heat production which are consumed during the manufacturing at the plant.

A2

The considered transportation impacts (A2) include exhaust emissions resulting from the transport of all raw materials from suppliers to Romania, Peikko production plant as well as the environmental impacts of production of the used diesel. The manufacturing, maintenance and disposal of the vehicles as well as tire and road wear during transportation have also been included. The transportation distances and methods were provided mainly by Peikko Romania.

A3

The environmental impacts considered for the production stage (A3) cover the manufacturing of the production materials (welding gases and blasting steel shots) and fuels used by machines. Also handling of waste formed in the production processes at the production plant is covered. The environmental impacts of this stage have been calculated using the most recent data in regard to what applied in the factory. The data is from the year 2020. The study considers the losses of main raw materials occurring during the manufacturing process.

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.

A4

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. The transportation distance is defined according to PCR. DELTABEAM® transportation is taking place from Romania factory to Central & Eastern European countries. An average distance of 1560 km is assumed, and the transportation method is assumed to be lorry and the fill rate was assumed to be 100%. Transportation does not cause losses as product are packaged properly.

A5

Wood pallets used for transportation of products to client is accounted for in A5. It is assumed that the pallets are incinerated at the nearest municipal incineration plant for energy recovery. The distance is assumed as 50km and the transportation method assumed to be lorry. This is an average distance which considers the fact that the distance from the customer to recycling and landfill facilities is not very long, as customers are assumed to be located in capital regions of their respective countries.

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)

End of life stage includes deconstruction/demolition (C1), transport to waste processing (C2), waste processing for reuse, recovery and/or recycling (C3) and disposal (C4).

C1

Demolition is assumed to take 0.01 kWh/kg of element. It is assumed that 100% of waste is collected.

C2

Distance for transportation to treatment is assumed as 50 km and the transportation method is assumed to be lorry. This is an average distance which considers the fact that the distance from the customer (construction site) to recycling and landfill facilities is not very long, as customers are assumed to be located in capital regions.

C3

95% of steel is assumed to be recycled based on World Steel Association, 2020.

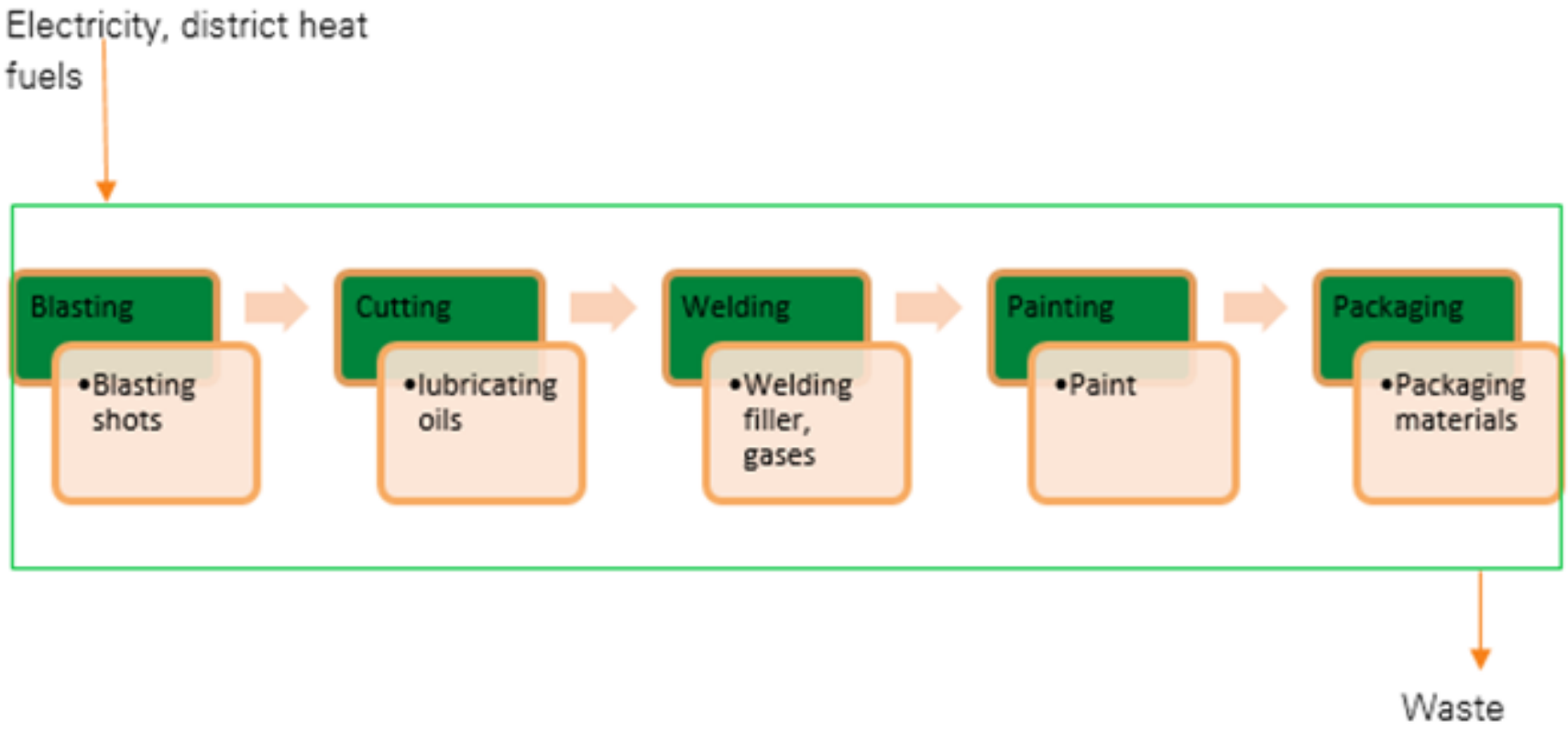
C4

It is assumed that 5% of steel is taken to landfill for final disposal.

D

Due to the recycling process the end-of-life product is converted into a recycled steel (D).

MANUFACTURING PROCESS



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.

The production of capital equipment, construction activities, and infrastructure, maintenance and operation of capital equipment, personnel-related activities, energy and water use related to company management and sales activities are excluded.
The study does not exclude any modules or processes which are stated mandatory in the the EN 15804+A2:2019 and PCR. The study does not exclude any hazardous materials or substances. Modules B1 – B7 have not been calculated nor included in the LCA calculations.

The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes for which data is available are included in the calculation. There is no neglected unit process more than 1% of total mass and energy flows. The total excluded input and output flows do not exceed 5% of energy usage or mass. The life cycle analysis includes all industrial processes from raw material acquisition to production, distribution, and end-of-life stages. Excluded chemicals, such as paints and thinners, do not contain any hazardous substances and can be thus left out from LCA analysis.

Processes excluded from the assessment and the related cut-off criteria are provided in table below:

The production of capital equipment, construction activities and infrastructure, maintenance and operation of capital equipment, personnel related activities, energy and water use related to company management and sales activities are also excluded

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. In this study, as per the reference standard, allocation is conducted in the following order;

1. Allocation should be avoided.
2. Allocation should be based on physical properties (e.g., mass, volume) when the difference in revenue is small.
3. Allocation should be based on economic values.

Since the plant produces more than one product type, it is impractical to collect raw material and energy consumption data separately for each product produced, data is therefore allocated. Allocation is based on annual production rate and is made with high accuracy and precision.
The values for 1 kg of the product, which is used within the study, are calculated by considering the total production output (kg) for the product per annual production output (kg) of the plant. Since the production processes of the products produced in the plant are similar, the annual production output percentages are taken into consideration for allocation. According to the ratio of the annual production output of the declared product to the total annual production output at the factory, the annual total energy consumption, packaging materials and the generated waste per the declared product are allocated. Subsequently, the product output fixed to 1 kg and the corresponding amount of product is used in calculations.

Allocation used in environmental data sources is aligned with the above.

AVERAGES AND VARIABILITY

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. Ecoinvent and One Click LCA databases were used 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	kg CO_2e	1,76E0	3,33E-2	1,36E-1	1,93E0	1,36E-1	1,73E-3	MND	MND	MND	MND	MND	MND	MND	3,3E-3	4,36E-3	5,45E-2	2,64E-4	-9,53E-1
GWP – fossil	kg CO_2e	1,76E0	3,33E-2	1,37E-1	1,93E0	1,37E-1	6,24E-5	MND	MND	MND	MND	MND	MND	MND	3,3E-3	4,35E-3	5,45E-2	2,63E-4	-9,6E-1
GWP – biogenic	kg CO_2e	-5,89E-3	2,52E-5	-1,19E-3	-7,06E-3	1,04E-4	1,66E-3	MND	MND	MND	MND	MND	MND	MND	9,17E-7	3,3E-6	1,51E-5	5,22E-7	7,12E-3
GWP – LULUC	kg CO_2e	7E-3	1,05E-5	3,49E-5	7,05E-3	4,31E-5	1,79E-8	MND	MND	MND	MND	MND	MND	MND	2,79E-7	1,37E-6	4,6E-6	7,82E-8	2,59E-5
Ozone depletion pot.	kg $CFC_{-11}e$	1,03E-7	8,17E-9	8,12E-9	1,19E-7	3,37E-8	1,29E-11	MND	MND	MND	MND	MND	MND	MND	7,12E-10	1,07E-9	1,18E-8	1,08E-10	-2,55E-8
Acidification potential	mol H^+e	7,79E-3	1,07E-4	7,64E-4	8,66E-3	4,41E-4	3,18E-7	MND	MND	MND	MND	MND	MND	MND	3,45E-5	1,4E-5	5,7E-4	2,5E-6	-3,71E-3
EP-freshwater[3)]	kg Pe	8,51E-5	2,83E-7	2,26E-5	1,08E-4	1,17E-6	6,01E-10	MND	MND	MND	MND	MND	MND	MND	1,33E-8	3,7E-8	2,2E-7	3,18E-9	-3,86E-5
EP-marine	kg Ne	1,52E-3	2,35E-5	7,7E-5	1,62E-3	9,7E-5	1,11E-7	MND	MND	MND	MND	MND	MND	MND	1,52E-5	3,08E-6	2,52E-4	8,61E-7	-7,3E-4
EP-terrestrial	mol Ne	1,65E-2	2,62E-4	8,49E-4	1,76E-2	1,08E-3	1,2E-6	MND	MND	MND	MND	MND	MND	MND	1,67E-4	3,43E-5	2,76E-3	9,48E-6	-7,73E-3
POCP (“smog”)	kg NMVOCe	8,52E-3	1,03E-4	2,52E-4	8,87E-3	4,24E-4	3,51E-7	MND	MND	MND	MND	MND	MND	MND	4,59E-5	1,34E-5	7,59E-4	2,75E-6	-5,04E-3
ADP-minerals & metals	kg Sbe	9,78E-6	5,93E-7	4,04E-7	1,08E-5	2,44E-6	1,04E-9	MND	MND	MND	MND	MND	MND	MND	5,03E-9	7,75E-8	8,32E-8	2,41E-9	-9,54E-7
ADP-fossil resources	MJ	1,94E1	5,41E-1	2,57E0	2,25E1	2,23E0	9,06E-4	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	7,49E-1	7,36E-3	-7,09E0
Water use[2)]	m^3e depr.	6,88E-1	2,01E-3	5,1E-2	7,41E-1	8,29E-3	-8,38E-6	MND	MND	MND	MND	MND	MND	MND	8,46E-5	2,63E-4	1,4E-3	3,4E-4	-1,37E-1

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	1,48E-7	2,92E-9	1,65E-9	1,52E-7	1,2E-8	5,91E-12	MND	MND	MND	MND	MND	MND	MND	9,14E-10	3,82E-10	1,51E-8	4,86E-11	-6,81E-8
Ionizing radiation[5)]	kBq U235e	4,66E-2	2,36E-3	4,31E-2	9,21E-2	9,74E-3	3,61E-6	MND	MND	MND	MND	MND	MND	MND	1,94E-4	3,09E-4	3,21E-3	3,02E-5	1,09E-2
Ecotoxicity (freshwater)	CTUe	4,84E1	4,13E-1	6,23E-1	4,94E1	1,7E0	8,2E-4	MND	MND	MND	MND	MND	MND	MND	2,66E-2	5,4E-2	4,4E-1	4,65E-3	-3,14E1
Human toxicity, cancer	CTUh	1,04E-8	1,04E-11	3,15E-11	1,04E-8	4,29E-11	5,51E-14	MND	MND	MND	MND	MND	MND	MND	9,53E-13	1,36E-12	1,58E-11	1,1E-13	-2,1E-10
Human tox. non-cancer	CTUh	1,29E-7	4,71E-10	1,68E-9	1,31E-7	1,94E-9	2,87E-12	MND	MND	MND	MND	MND	MND	MND	2,35E-11	6,17E-11	3,88E-10	3,39E-12	1,63E-7
SQP	-	3,61E0	8,15E-1	5,93E-2	4,48E0	3,36E0	1,21E-3	MND	MND	MND	MND	MND	MND	MND	1,16E-3	1,07E-1	1,92E-2	1,25E-2	-1,71E0

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	MJ	1,1E0	6,8E-3	5E-1	1,61E0	2,8E-2	1,27E-5	MND	MND	MND	MND	MND	MND	MND	2,45E-4	8,9E-4	4,05E-3	5,95E-5	7,84E-2
Renew. PER as material	MJ	0E0	0E0	1,6E-2	1,6E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of renew. PER	MJ	1,1E0	6,8E-3	5,16E-1	1,62E0	2,8E-2	1,27E-5	MND	MND	MND	MND	MND	MND	MND	2,45E-4	8,9E-4	4,05E-3	5,95E-5	7,84E-2
Non-re. PER as energy	MJ	1,94E1	5,41E-1	2,57E0	2,25E1	2,23E0	9,06E-4	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	7,49E-1	7,36E-3	-7,09E0
Non-re. PER as material	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	1,94E1	5,41E-1	2,57E0	2,25E1	2,23E0	9,06E-4	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	7,49E-1	7,36E-3	-7,09E0
Secondary materials	kg	3,92E-1	0E0	8,83E-5	3,92E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	4,49E-1
Renew. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	1,4E-2	1,12E-4	1,63E-3	1,58E-2	4,64E-4	4,17E-7	MND	MND	MND	MND	MND	MND	MND	4,01E-6	1,47E-5	6,62E-5	8,05E-6	-6,37E-3

6) 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	3,23E-1	5,25E-4	1,71E-3	3,26E-1	2,16E-3	6,19E-6	MND	MND	MND	MND	MND	MND	MND	4,88E-5	6,87E-5	0E0	6,87E-6	-1,15E-1
Non-hazardous waste	kg	3,33E0	5,81E-2	1,05E0	4,44E0	2,39E-1	1,08E-3	MND	MND	MND	MND	MND	MND	MND	5,22E-4	7,6E-3	0E0	5E-2	-1,3E0
Radioactive waste	kg	4,46E-5	3,71E-6	1,8E-5	6,63E-5	1,53E-5	5,62E-9	MND	MND	MND	MND	MND	MND	MND	3,18E-7	4,86E-7	0E0	4,87E-8	5,19E-6

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	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Materials for recycling	kg	0E0	0E0	0E0	0E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,5E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	2E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	1,15E-2	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0

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_2e	1,69E0	3,3E-2	1,36E-1	1,86E0	1,36E-1	6,17E-5	MND	MND	MND	MND	MND	MND	MND	3,27E-3	4,32E-3	5,41E-2	2,58E-4	-9,14E-1
Ozone depletion Pot.	kg CFC_{-11}e	9,33E-8	6,49E-9	6,62E-9	1,06E-7	2,68E-8	1,03E-11	MND	MND	MND	MND	MND	MND	MND	5,63E-10	8,5E-10	9,31E-9	8,59E-11	-2,26E-8
Acidification	kg SO_2e	6E-3	7,07E-5	6,76E-4	6,74E-3	2,92E-4	2,15E-7	MND	MND	MND	MND	MND	MND	MND	4,87E-6	9,25E-6	8,04E-5	1,04E-6	-2,91E-3
Eutrophication	kg PO_4^3e	3,38E-3	1,43E-5	7,04E-4	4,1E-3	5,89E-5	1,48E-7	MND	MND	MND	MND	MND	MND	MND	8,57E-7	1,87E-6	1,42E-5	2,02E-7	-1,61E-3
POCP (“smog”)	kg C_2H_4e	1,09E-3	4,07E-6	2,69E-5	1,12E-3	1,68E-5	8,22E-9	MND	MND	MND	MND	MND	MND	MND	5,01E-7	5,32E-7	8,28E-6	7,64E-8	-7,52E-4
ADP-elements	kg Sbe	9,78E-6	5,93E-7	4,04E-7	1,08E-5	2,44E-6	1,04E-9	MND	MND	MND	MND	MND	MND	MND	5,03E-9	7,75E-8	8,32E-8	2,41E-9	-9,54E-7
ADP-fossil	MJ	1,94E1	5,41E-1	2,57E0	2,25E1	2,23E0	9,06E-4	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	7,49E-1	7,36E-3	-7,09E0

ENVIRONMENTAL IMPACTS – TRACI 2.1. / 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_2e	1,66E0	3,29E-2	1,36E-1	1,83E0	1,36E-1	6,16E-5	MND	MND	MND	MND	MND	MND	MND	3,26E-3	4,31E-3	5,38E-2	2,57E-4	-8,86E-1
Ozone Depletion	kg CFC_{-11}e	1,26E-7	8,65E-9	8,95E-9	1,43E-7	3,57E-8	1,37E-11	MND	MND	MND	MND	MND	MND	MND	7,51E-10	1,13E-9	1,24E-8	1,15E-10	-3,28E-8
Acidification	kg SO_2e	6,51E-3	9,04E-5	6,15E-4	7,22E-3	3,73E-4	2,82E-7	MND	MND	MND	MND	MND	MND	MND	3,16E-5	1,18E-5	5,22E-4	2,22E-6	-3,09E-3
Eutrophication	kg Ne	9,89E-4	1,55E-5	1,76E-4	1,18E-3	6,41E-5	8,32E-8	MND	MND	MND	MND	MND	MND	MND	2,79E-6	2,03E-6	4,6E-5	2,65E-7	-4,62E-4
POCP (“smog”)	kg O_3e	8,9E-2	1,48E-3	4,9E-3	9,54E-2	6,12E-3	6,87E-6	MND	MND	MND	MND	MND	MND	MND	9,69E-4	1,94E-4	1,6E-2	5,47E-5	-4,18E-2
ADP-fossil	MJ	1,04E0	7,74E-2	1,38E-1	1,26E0	3,19E-1	1,28E-4	MND	MND	MND	MND	MND	MND	MND	6,71E-3	1,01E-2	1,11E-1	1,07E-3	-1,12E-1

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 ED 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.

Elma Avdyli, approved verifier by EPD Hub, 11.05.2022

VERIFIED ISO 14025