ENVIRONMENTAL PRODUCT DECLARATION

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

Purlins and Framing
voestalpine Metsec plc

EPD HUB, HUB-0024
Publishing date 20 April 2022, last updated date 10 February 2023, valid until 20 April 2027

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	voestalpine Metsec plc
Address	Broadwell Road Oldbury West Midlands B69 4HF
Contact details	alan.harris@voestalpine.com
Website	https://www.metsec.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	Third party verified EPD
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Alan Harris, voestalpine Metsec plc
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	Purlins and Framing
Additional labels	
Product reference	
Place of production	Oldbury West Midlands United Kingdom
Period for data	Calendar year 2021
Averaging in EPD	No averaging
Variation in GWP-fossil for A1-A3	- %

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	2,76E0
GWP-total, A1-A3 (kgCO2e)	2,76E0
Secondary material, inputs (%)	12.8
Secondary material, outputs (%)	95.0
Total energy use, A1-A3 (kWh)	8.7
Total water use, A1-A3 (m3e)	0.0202

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Metsec has been manufacturing from its site on Oldbury since 1931. In 1998 the company was acquired by voestalpine becoming voestalpine Metsec plc and the company went from strength to strength following inward investment in machinery and new facilities.

Metsec's parent company voestalpine AG is a leading European manufacturer with steel making facilities and headquarters in Austria.

The group has 500 locations in 50 countries on all 5 continents. Metsec is part of voestalpine's metal forming division (tubes and sections), a leading global provider of high quality metal processing solutions, particularly special tubes and sections, special strip steel and complex components for the automotive and many other industries.

We manufacture, design, train and deliver.
Here at voestalpine Metsec plc our core values are to provide solutions to suit a wide range of construction and manufacturing applications; with high quality, value added, technical experience and excellent customer service.

Our 5 Divisions include:

Custom Roll Forming
Dry Lining
Purlins
Framing (Metframe & SFS)
Cable Management
We understand the importance of working at the forefront of the industry and how being compliant with the latest standards is key. For this we are proud to have a large number of accreditations for sustainability, BIM and quality.

As well as section rolling we also offer a host of additional processing options including:

Folding
Welding
Punching
Profile Manipulation
In-Line Piercing
In-Line High Frequency Induction Welding
Drilling
Laser Profiling
We proactively invest in new technology to ensure the evolving expectations of our customers continue to be met or exceeded.

PRODUCT DESCRIPTION

Metsec's Building Products manufacture of Products for the construction industry including:
Purlins roof systems and side rails
SFS Framing - Infill walling, load bearing structures, continuous and high bay walling
Metframe - pre-panelised off-site framing system

Purlins Roof systems and side rails: The Metsec Zed purlin, Metsec Z and C section product range consists of a fully compatible range of profiles made from cold rolled steel in depths ranging from 142mm to 342mm deep. In addition, products come with a wide range of compatible accessories and can be supplied for the majority of cladding types and designs.

SFS Framing - Infill Walling: The most common application for Metsec SFS is infill walling. In this scenario the Metsec is constructed from the floor to soffit of the primary structural frame to 'infill' the external wall zone. This option is typically the most economical solution and allows the SFS to be installed from the inside of the building.

SFS Framing Load bearing structures: Load bearing structures make use of the axial capacity of the Metsec SFS studs, with studs designed as a series of columns to provide complete load bearing wall panels. Joists are provided to produce the floor and roof construction. These structures are typically 'stick built' on site, which ensures maximum flexibility of the structure to suit site requirements. This flexibility makes load bearing structures ideally suited to penthouses or high level inset structures where it is important to keep the loads to a minimum. They also benefit from reduced crane and transport costs, when compared to pre-panelized solutions.

SFS Continuous Walling: Continuous walling is where the SFS is designed so that it 'over-sails' the edge of the primary structure. This method is often used when a design team wants to maximize the amount of internal floor area or if they are using a cladding which cannot accommodate horizontal deflection joints at each floor level. Continuous walling is typically constructed from the outside of the building.

SFS High Bay Walling: High bay walls are similar to infill walls, except they are used internally to provide high separating walls for factory units or atriums. As they are often constructed within hot rolled steel portal frames, the amount of primary frame deflection that needs to be accommodated can be much greater than required for infill panels and bespoke details are typically provided to suit project requirements.

Metframe - pre-panelised off site framing system: The system uses studs in the same way as load bearing SFS, except they are bolted together off-site to form panels. The incorporation of heavier gauge studs and the bespoke designs allow structures to be constructed up to 15 storeys in height. Metframe structures can incorporate steel joisted or concrete floors, depending on the client's requirements. Joisted floors will offer a much lighter structure, but concrete floors generally provide a higher level of acoustic and fire protection. Pitched, dormer or flat roofs can be readily incorporated in Metframe structures as well as balconies, cantilevers, insets etc. The Metframe system can also be a solution for those needing light-gauge steel frames as they can be tailored to meet your requirements while utilizing cold-formed material to still make construction processes smoother

Fire Rating Classification = A1
Yield Strength:- 450N/mm^2 minimum
Tensile Strength:- 510 N/mm^2 minimum
Density 7.85 g/cm^3
Minimum Elongation A80(%) = 14%
Zinc Coating 275g/mm^2 and 600g/mm^2 as per customer requirements

Accessories
Fire Rating Classification = A1
Yield Strength:- 350N/mm^2 minimum
Tensile Strength:- 420 N/mm^2 minimum
Density 7.85 g/cm^3
Minimum Elongation A80(%) = 16%
Zinc Coating 275g/mm^2 and 600g/mm^2 as per customer requirements

For more information contact +44 (0) 121 601 6000
Customer support
Metsec Purlins and Side rail contact: metsec.Purlins@voestalpine.com
Metsec SFS contact: metsec.SFS@voestalpine.com
Metframe - pre-panelized off site framing system: metsec.metframe@voestalpine.com

Further information can be found at https://www.metsec.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	100	EU and Asia
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
Biogenic carbon content in packaging, kg C	0

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	
Reference service life	60 Years in a dry envelope (C1 environment)

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	MND	MND	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.

Roll Forming is the process of shaping strip metal by passing it through a series of specially designed shaped rolls, the process has high levels of repeatability and very tight tolerances. Profiles can be made from various metallic materials including Steel, Copper, Aluminium, Brass, Stainless Steel, coated Steels including Zinc, Paint and Plastic. The roll forming process can manufacture typical shaped profiles such as Channel, Angles, Boxes and Round Tube but is also able to form more complex profiles required for demanding technical solutions. The process is highly automated using modern control systems and can accommodate the piercing of holes and bespoke cut to length requirements of the customer. The process includes fully integrated automated and semi-automated packaging reducing handling. The finished product is stored in warehouse facilities prior to shipment to the customer. The manufacturing process requires electricity and fuels for product movement and loading as well as heating. All waste produced at Metsec is sold for recycling or is shipped to Energy Recovery Facilities. The loss of all material is considered. within this EPD

Steel and plastic strapping are used for packaging and is required to ensure safe delivery of product to the customer.

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.

The transportation distance is defined according to the PCR. Average distance of transportation from production plant to building site is assumed as 120.44 km and the transportation method is assumed to be lorry (Urban Curtain Sided vehicle and Articulated or rigid open backed vehicles - Euro 6+ compliant). Vehicle capacity utilization calculated by Metsec is 96% this is governed by the pack size and shape of product and is achieved by utilizing multiple deliveries on the same vehicle. No vehicle is dedicated to a single delivery unless the volume or quantity dictates. In reality, the vehicle utilization does vary but as role of transportation emissions in total results is small, the variety in load is assumed negligible. As the vehicles are dedicated for Metsec deliveries, the km figure calculated assumes the vehicle returns empty. Transportation does not cause losses as product are packaged to prevent damage. Module A5 is excluded in this scenario since voestalpine Metsec plc do not have knowledge of how the installation is executed.

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.

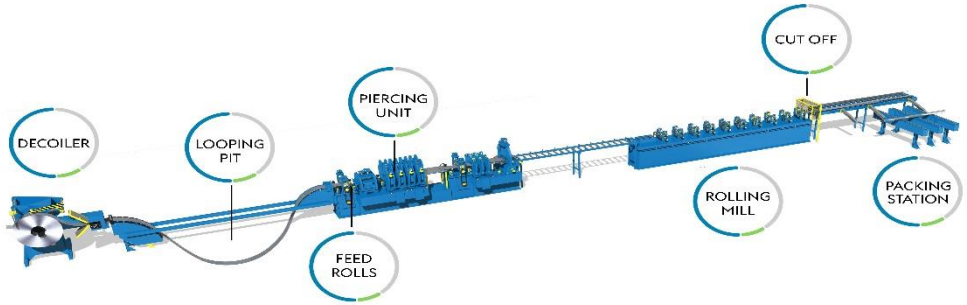
PRODUCT END OF LIFE (C1-C4, D)

Demolition is assumed to consume 0,01 kWh/kg of product. The source of energy is diesel fuel used by construction machines (C1). It is assumed that 100% of the waste is collected and transported to the waste treatment centre. Transportation distance to treatment is assumed as 50 km and the transportation method is assumed to be lorry (C2). Approximately 95% of steel is assumed to be recycled based on World Steel Association, 2020 (C3). It is assumed that the remaining 5 % of steel is taken to landfill for final disposal (C4). Due to the recycling process, the end-of-life product is converted into recycled steel (D).

MANUFACTURING PROCESS

Cold roll forming is a reliable, proven approach to metal shaping that is ideal for modern applications. This process uses a continuous bending operation where coiled steel is passed through consecutive sets of profiled rolls. Each set of rolls performs incremental parts of a bend to produce the desired cross-section profile. Unlike other types of metal forming, the roll forming process is inherently flexible. Secondary processes can be integrated into a single production line. Roll forming increases efficiency while reducing operational and capital costs by eliminating unnecessary handling and equipment.

Metsec Cold roll forming mills can accommodate material gauges ranging from 0.5 mm up to 0. 6.0 mm. The bend radius is largely determined by the ductility of the metal. However, 180-degree bends can be achieved with the right grade of material. Cold roll forming easily accommodates the integration of secondary operations such as welding, punching and precision laser cutting to optimize production efficiency.



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. 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.

In this study allocation could not be avoided for raw materials, packaging, ancillary material, energy consumption and waste production as the information was only measured on factory or production process level. The inputs were allocated to studied product based on annual production volume (mass).

The values for 1 kilogram of Purlins and Framing product are calculated by considering the total product weight per annual production. In the factory, several kinds of steel products are produced; since the production processes of these products are similar, the annual production percentages are taken into consideration for allocation. According to the ratio of the annual production of the declared product to the total annual production at the factory, the annual total raw materials, 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 the calculations.

This LCA study is conducted in accordance with all methodological considerations, such as performance, system boundaries, data quality, allocation procedures, and decision rules to evaluate inputs and outputs.

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

AVERAGES AND VARIABILITY

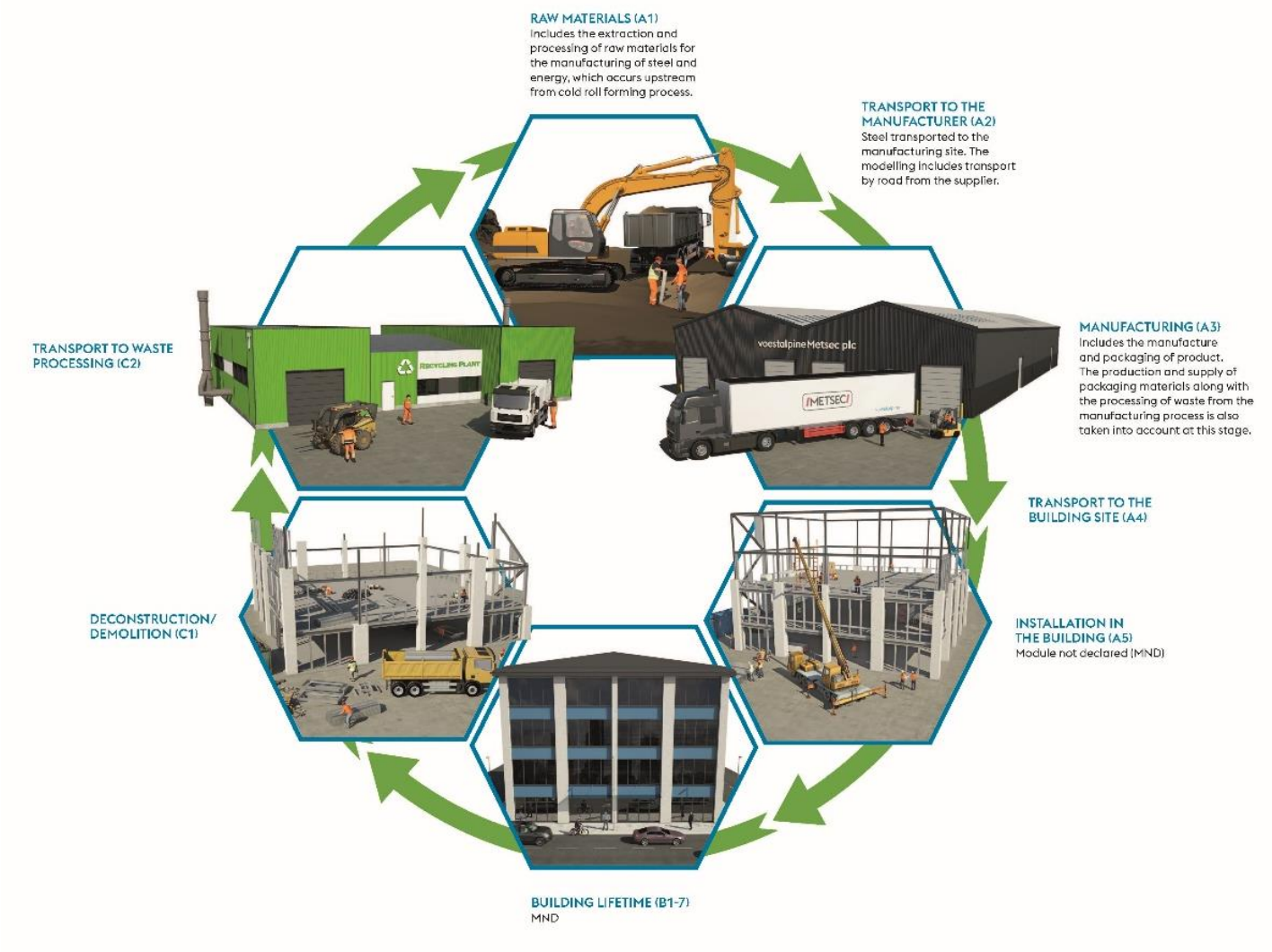
Type of average	No averaging
Averaging method	-
Variation in GWP-fossil for A1-A3	- %

There is no average result considered in this study since the EPD refers to 1 Kg of Purlins and Framing product produced in one production plant.

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.

PRODUCT LIFECYCLE DIAGRAM



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[1)]	kg CO_2e	2,57E0	1,31E-1	5,35E-2	2,76E0	1,95E-2	2,78E-2	MND	MND	MND	MND	MND	MND	MND	3,3E-3	4,55E-3	2,21E-2	2,64E-4	-1,18E0
GWP – fossil	kg CO_2e	2,57E0	1,31E-1	5,36E-2	2,76E0	1,97E-2	2,78E-2	MND	MND	MND	MND	MND	MND	MND	3,3E-3	4,54E-3	2,34E-2	2,63E-4	-1,18E0
GWP – biogenic	kg CO_2e	8,06E-4	2,73E-5	-6,28E-5	7,71E-4	1,06E-5	7,81E-6	MND	MND	MND	MND	MND	MND	MND	9,17E-7	3,3E-6	-1,34E-3	5,22E-7	8,79E-3
GWP – LULUC	kg CO_2e	4,33E-4	6,38E-5	1,91E-5	5,16E-4	7,11E-6	5,23E-6	MND	MND	MND	MND	MND	MND	MND	2,79E-7	1,37E-6	2,66E-5	7,82E-8	3,28E-5
Ozone depletion pot.	kg $CFC_{-11}e$	2,51E-14	2,84E-8	4,86E-9	3,33E-8	4,48E-9	3,78E-10	MND	MND	MND	MND	MND	MND	MND	7,12E-10	1,07E-9	3,37E-9	1,08E-10	-3,15E-8
Acidification potential	mol H^+e	5,94E-3	1,91E-3	3,49E-4	8,2E-3	5,65E-5	8,25E-5	MND	MND	MND	MND	MND	MND	MND	3,45E-5	1,91E-5	2,84E-4	2,5E-6	-4,57E-3
EP-freshwater[2)]	kg Pe	1,04E-6	9,06E-7	3E-6	4,95E-6	1,67E-7	5,11E-8	MND	MND	MND	MND	MND	MND	MND	1,33E-8	3,7E-8	1,62E-6	3,18E-9	-4,76E-5
EP-marine	kg Ne	1,29E-3	4,59E-4	4,79E-5	1,8E-3	1,12E-5	1,81E-5	MND	MND	MND	MND	MND	MND	MND	1,52E-5	5,75E-6	6,27E-5	8,61E-7	-8,99E-4
EP-terrestrial	mol Ne	1,36E-2	5,11E-3	5,32E-4	1,92E-2	1,25E-4	1,93E-4	MND	MND	MND	MND	MND	MND	MND	1,67E-4	6,35E-5	7,28E-4	9,48E-6	-9,52E-3
POCP ("smog")[3)]	kg NMVOCe	4,49E-3	1,39E-3	1,52E-4	6,02E-3	4,8E-5	6,07E-5	MND	MND	MND	MND	MND	MND	MND	4,59E-5	2,04E-5	1,99E-4	2,75E-6	-6,21E-3
ADP-minerals & metals[4)]	kg Sbe	1,42E-5	2,55E-6	1,09E-6	1,78E-5	5,43E-7	1,84E-7	MND	MND	MND	MND	MND	MND	MND	5,03E-9	7,75E-8	1,3E-6	2,41E-9	-1,18E-6
ADP-fossil resources	MJ	2,65E1	1,86E0	1,34E0	2,97E1	2,98E-1	3E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	3,25E-1	7,36E-3	-8,74E0
Water use[5)]	m^3e depr.	8,18E-1	5,33E-3	7,95E-3	8,31E-1	9,74E-4	8,32E-3	MND	MND	MND	MND	MND	MND	MND	8,46E-5	2,63E-4	4,61E-3	3,4E-4	-1,68E-1

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[8)]	MJ	9,02E-1	2,16E-2	7,37E-1	1,66E0	4,26E-3	1,66E-2	MND	MND	MND	MND	MND	MND	MND	2,45E-4	8,9E-4	5,1E-2	5,95E-5	1,16E-1
Renew. 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 renew. PER	MJ	9,02E-1	2,16E-2	7,37E-1	1,66E0	4,26E-3	1,66E-2	MND	MND	MND	MND	MND	MND	MND	2,45E-4	8,9E-4	5,1E-2	5,95E-5	1,16E-1
Non-re. PER as energy	MJ	2,65E1	1,86E0	1,34E0	2,97E1	2,98E-1	3E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	3,25E-1	7,36E-3	-8,74E0
Non-re. PER as material	MJ	0E0	0E0	6,65E-3	6,65E-3	0E0	6,65E-5	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Total use of non-re. PER	MJ	2,65E1	1,86E0	1,34E0	2,97E1	2,98E-1	3E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	3,25E-1	7,36E-3	-8,74E0
Secondary materials	kg	1,28E-1	0E0	1,08E-4	1,28E-1	0E0	1,28E-3	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	5,54E-1
Renew. secondary fuels	MJ	8,51E-23	0E0	0E0	8,51E-23	0E0	8,51E-25	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Non-ren. secondary fuels	MJ	1E-21	0E0	0E0	1E-21	0E0	1E-23	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Use of net fresh water	m^3	1,96E-2	2,7E-4	3,38E-4	0.0202	5,14E-5	2,03E-4	MND	MND	MND	MND	MND	MND	MND	4,01E-6	1,47E-5	1,33E-4	8,05E-6	-7,85E-3

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	3,12E-9	2E-3	8,71E-3	1,07E-2	3,06E-4	1,1E-4	MND	MND	MND	MND	MND	MND	MND	4,88E-5	6,87E-5	0E0	6,87E-6	-1,42E-1
Non-hazardous waste	kg	1,06E-1	9,58E-2	1,18E-1	3,21E-1	2,11E-2	3,42E-3	MND	MND	MND	MND	MND	MND	MND	5,22E-4	7,6E-3	0E0	5E-2	-1,6E0
Radioactive waste	kg	6,93E-7	1,28E-5	8,79E-6	2,23E-5	2,04E-6	2,44E-7	MND	MND	MND	MND	MND	MND	MND	3,18E-7	4,85E-7	0E0	4,87E-8	6,41E-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	5,84E-4	5,84E-4	0E0	5,84E-6	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,5E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	1,08E-4	1,08E-4	0E0	1,08E-6	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	0E0	0E0	0E0
Exported energy	MJ	0E0	0E0	0E0	0E0	0E0	0E0	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	2,5E0	1,3E-1	5,19E-2	2,68E0	1,95E-2	2,7E-2	MND	MND	MND	MND	MND	MND	MND	3,27E-3	4,5E-3	2,31E-2	2,58E-4	-1,13E0
Ozone depletion Pot.	kg $CFC_{-11}e$	2,51E-14	2,26E-8	6,59E-9	2,92E-8	3,56E-9	3,27E-10	MND	MND	MND	MND	MND	MND	MND	5,63E-10	8,49E-10	2,86E-9	8,59E-11	-2,79E-8
Acidification	kg SO_2e	4,93E-3	1,5E-3	3,07E-4	6,74E-3	3,97E-5	6,78E-5	MND	MND	MND	MND	MND	MND	MND	4,87E-6	9,25E-6	1,77E-4	1,04E-6	-3,59E-3
Eutrophication	kg PO_4^3e	4,44E-4	1,83E-4	9,55E-5	7,22E-4	8,21E-6	7,3E-6	MND	MND	MND	MND	MND	MND	MND	8,57E-7	1,87E-6	7,21E-5	2,02E-7	-1,98E-3
POCP (“smog”)	kg C_2H_4e	8,49E-4	4,46E-5	1,19E-5	9,05E-4	2,38E-6	9,08E-6	MND	MND	MND	MND	MND	MND	MND	5,01E-7	5,86E-7	8,28E-6	7,64E-8	-9,28E-4
ADP-elements	kg Sbe	1,42E-5	2,55E-6	1,09E-6	1,78E-5	5,43E-7	1,84E-7	MND	MND	MND	MND	MND	MND	MND	5,03E-9	7,75E-8	1,3E-6	2,41E-9	-1,18E-6
ADP-fossil	MJ	2,65E1	1,86E0	1,34E0	2,97E1	2,98E-1	3E-1	MND	MND	MND	MND	MND	MND	MND	4,54E-2	7,07E-2	3,25E-1	7,36E-3	-8,74E0

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.

Elma Avdyli, approved verifier by EPD Hub, 04.04.2022

VERIFIED ISO 14025