ENVIRONMENTAL PRODUCT DECLARATION

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

Galvanized steel

Procons Oy Ab

EPD HUB, HUB-0663

Publishing date 1 September 2023, last updated on 18 September 2023, valid until 1 September 2028.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Procons Oy Ab
Address	Teollisuustie 4, 66100 Maalahti, Finland
Contact details	sales@procons.fi
Website	https://www.procons.fi/

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	Hanna Kämäräinen, Greenstep Oy
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☐ External verification
EPD verifier	Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited

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	Galvanized steel
Additional labels	-
Product reference	-
Place of production	Maalahti, Finland
Period for data	01/01/2022–31/12/2022
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)	2,32E0
GWP-total, A1-A3 (kgCO2e)	2,21E0
Secondary material, inputs (%)	17.8
Secondary material, outputs (%)	99.3
Total energy use, A1-A3 (kWh)	9.88
Total water use, A1-A3 (m3e)	6,88E-2

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

We specialize in subcontracted roll forming of steel profiles. Our current customers are primarily in the mining industry, construction industry, furniture manufacturing, and logistics focused companies.

Our strength lies in meeting the industry's high demands through flexibility, quality, and short delivery times. Our employees possess high expertise, with many having over 20 years of experience in the field. Experience and continuous training ensure skilled and quality product manufacturing. We are a reliable and long-term partner for our customers.

PRODUCT DESCRIPTION

In roll forming, thin sheet metal is bent into its final shape between product-specific profiled rollers. The method allows for the precise manufacturing of strong and versatile steel components with complex cross-sections. Galvanized steel can be used for example in making lightweight steel purlins.

Further information can be found at https://www.procons.fi/.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	100	Finland
Minerals	0	-
Fossil materials	0	-
Bio-based materials	0	-

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	0.005

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

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	Decons tr./ 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.

The roll forming of galvanized steel takes place in Procons factory in Maalahti, Finland. The galvanized steel material is purchased from a supplier in Finland and is transported to Maalahti from Naantali, Finland. The galvanized steel is transported in a 16-32 metric tons lorry. The roll forming process uses only galvanized steel as a raw material. Some lubricating and hydraulic oil is used as an ancillary material in the process. Production losses from manufacturing process are considered in the calculations. The production losses are 8,6 %. This is measured information. The transportation distance of waste is measured distance to the nearest recycling facility. General Finnish district network electricity and heat are used in the manufacturing site. The finished products are packed into corrugated board boxes on wooden pallets and secured with packaging film for delivery.

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.

Transportation and installation (A4-A5) are excluded from the calculations. This product is an intermediate product and therefore assumptions for A4-A5 could not have been made.

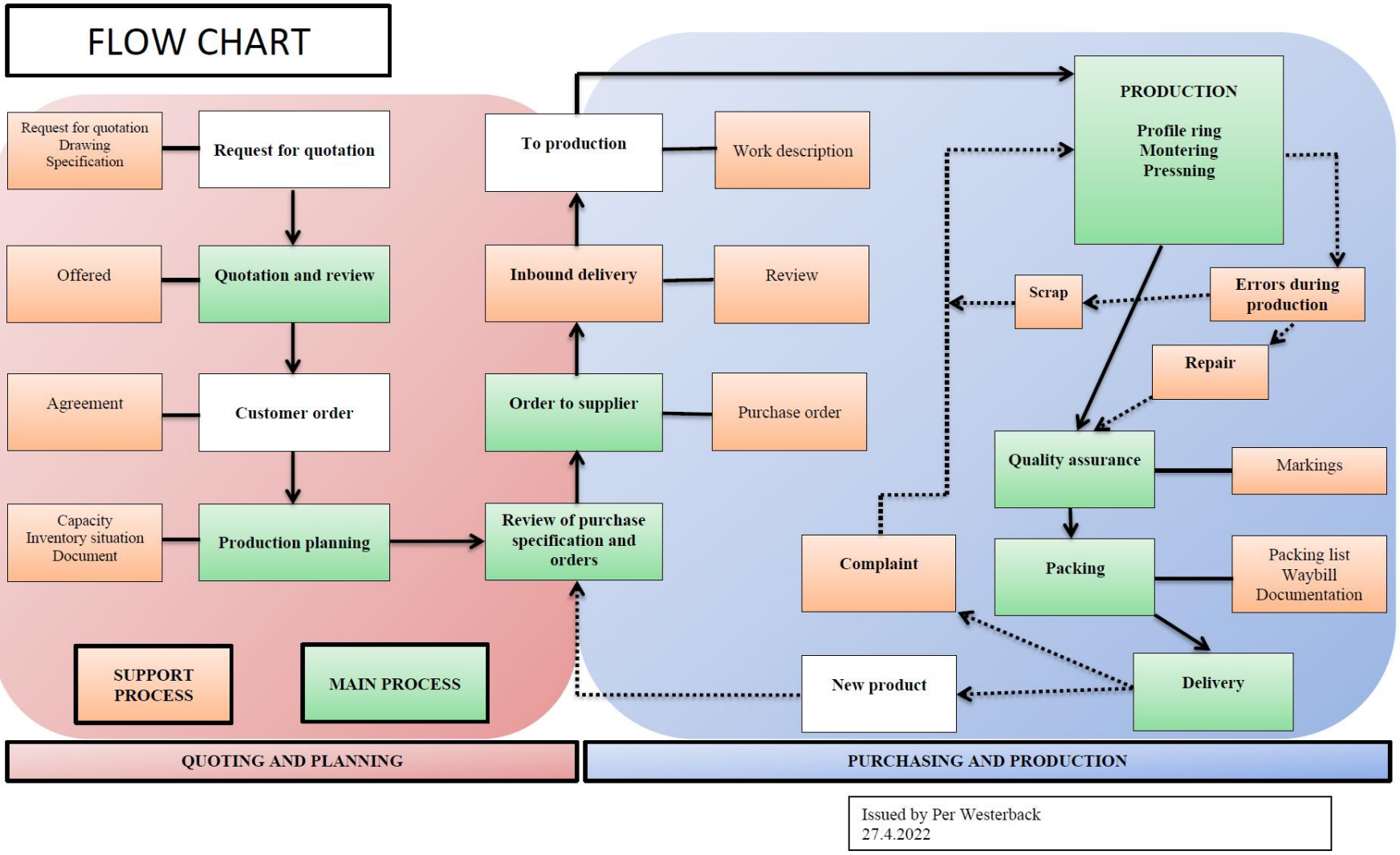
PRODUCT USE AND MAINTENANCE (B1-B7)

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)

The galvanized steel from Procons is assumed to be recycled after demolition. The average transportation distance to the nearest recycling facility is estimated to be 80 km.

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.

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 materials	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
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. Ecoinvent (3.8) 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[1)]	kg CO_2e	2,21E0	5,99E-2	-6,75E-2	2,21E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,4E-2	1,73E-1	-9,62E-4	-2,22E0
GWP – fossil	kg CO_2e	2,19E0	5,99E-2	6,51E-2	2,32E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,4E-2	5,33E-2	5,49E-4	-2,21E0
GWP – biogenic	kg CO_2e	1,51E-2	2,81E-7	-1,33E-1	-1,18E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	1,19E-1	-1,51E-3	-8,46E-3
GWP – LULUC	kg CO_2e	3,92E-3	2,51E-5	3,76E-4	4,32E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	5,63E-6	5,67E-6	4,97E-7	-2,32E-3
Ozone depletion pot.	kg CFC_{-11}e	1,81E-7	1,29E-8	6,94E-9	2,01E-7	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	3,09E-9	1,12E-8	2,13E-10	-8,99E-8
Acidification potential	mol H^+e	8,43E-2	1,77E-4	3,94E-4	8,49E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	5,79E-5	5,53E-4	4,96E-6	-1,56E-2
EP-freshwater[2)]	kg Pe	0E0	5,08E-7	2,86E-6	3,37E-6	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,17E-7	1,92E-7	5,52E-9	-7,71E-5
EP-marine	kg Ne	4,78E-3	3,57E-5	9,17E-5	4,91E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,69E-5	2,45E-4	1,72E-6	-1,87E-3
EP-terrestrial	mol Ne	3,49E-1	3,97E-4	1,13E-3	3,5E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,87E-4	2,69E-3	1,89E-5	-2,39E-2
POCP ("smog")[3)]	kg NMVOCe	1,04E-2	1,48E-4	3,32E-4	1,09E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	5,72E-5	7,37E-4	5,5E-6	-4,82E-3
ADP-minerals & metals[4)]	kg Sbe	0E0	2,11E-7	3,33E-7	5,45E-7	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	4,69E-8	3,09E-8	1,21E-9	-1,01E-4
ADP-fossil resources	MJ	0E0	8,69E-1	1,38E0	2,25E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,03E-1	7,09E-1	1,44E-2	-2,66E1
Water use[5)]	m^3e depr.	1,4E0	3,84E-3	4,58E-2	1,45E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,9E-4	7,98E-3	4,58E-5	-2,53E-1

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.

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	2,47E0	2,26E-2	1E0	3,49E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,37E-3	4,32E-3	1,25E-4	-9,86E0
Renew. PER as material	MJ	0E0	0E0	1,16E0	1,16E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-1,16E0	0E0	0E0
Total use of renew. PER	MJ	2,47E0	2,26E-2	2,17E0	4,66E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,37E-3	-1,16E0	1,25E-4	-9,86E0
Non-re. PER as energy	MJ	2,9E1	1,71E0	1,33E0	3,2E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,03E-1	7,09E-1	1,44E-2	-2,66E1
Non-re. PER as material	MJ	0E0	0E0	9,63E-2	9,63E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	-9,12E-2	-5,1E-3	0E0
Total use of non-re. PER	MJ	2,9E1	1,71E0	1,43E0	3,21E1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,03E-1	6,18E-1	9,35E-3	-2,66E1
Secondary materials	kg	1,78E-1	5,77E-4	5,7E-3	1,84E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	6,56E-5	3,03E-4	3,04E-6	-1,65E-1
Renew. secondary fuels	MJ	0E0	6,9E-6	3,88E-2	3,88E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	8,33E-7	9,72E-7	7,93E-8	-1,08E-3
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	6,73E-2	2,11E-4	1,25E-3	6,88E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,42E-5	2,34E-5	1,58E-5	-2,67E-2

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	3,93E-1	2,21E-3	4,08E-3	4E-1	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,89E-4	9,4E-4	0E0	-3,63E0
Non-hazardous waste	kg	9,33E0	3,71E-2	9,07E-2	9,46E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	4,64E-3	9,79E-2	1E-1	-4,15E0
Radioactive waste	kg	8,61E-5	1,16E-5	1,12E-5	1,09E-4	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,34E-6	4,91E-6	0E0	-8,75E-5

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	8,63E-2	8,63E-2	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	0E0	9,01E-1	0E0	0E0
Materials for energy rec	kg	0E0	0E0	0E0	0E0	0E0	0E0	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	2,6E0	5,69E-2	6,43E-2	2,72E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,38E-2	5,27E-2	5,33E-4	-2,19E0
Ozone depletion Pot.	kg CFC_{-11}e	3,61E-14	1,05E-8	5,78E-9	1,63E-8	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,45E-9	8,85E-9	1,69E-10	-6,9E-8
Acidification	kg SO_2e	5,61E-3	1,35E-4	3,04E-4	6,04E-3	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	4,51E-5	3,94E-4	3,75E-6	-1,32E-2
Eutrophication	kg PO_4^3e	6E-4	2,91E-5	1,23E-4	7,51E-4	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,03E-5	1,01E-4	2,93E-6	-3,33E-3
POCP (“smog”)	kg C_2H_4e	8,2E-4	6,77E-6	2,21E-5	8,49E-4	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	1,82E-6	8,76E-6	1,6E-7	-1,33E-4
ADP-elements	kg Sbe	1,23E-5	2,02E-7	3,37E-7	1,28E-5	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	4,57E-8	3,01E-8	1,19E-9	-1,01E-4
ADP-fossil	MJ	2,68E-2	8,54E-1	1,41E0	2,29E0	0E0	0E0	MND	MND	MND	MND	MND	MND	MND	0E0	2,03E-1	7,09E-1	1,44E-2	-2,66E1

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

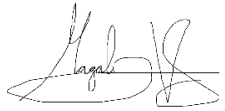
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried 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.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
Updated 18.09.2023



VERIFIED ISO 14025