

ENVIRONMENTAL PRODUCT DECLARATION

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

Hydro-Brake® Optimum
Hydro International



EPD HUB, HUB-2505
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Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Hydro International
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Contact details	enquiries@hydro-int.com
Website	https://hydro-int.com/en

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
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Harvey Farrington-Thorne, Hydro International
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Sarah Curpen, 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	Hydro-Brake® Optimum
Additional labels	-
Product reference	HBO
Place of production	United Kingdom
Period for data	09/2023-09/2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	1 %

ENVIRONMENTAL DATA SUMMARY

Declared unit	kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	5.43E+00
GWP-total, A1-A3 ($kgCO_2e$)	4.48E+00
Secondary material, inputs (%)	59.2
Secondary material, outputs (%)	94.5
Total energy use, A1-A3 (kWh)	24.9
Net freshwater use, A1-A3 (m^3)	0.1

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Hydro International Ltd, a CRH company, provides advanced products, services and expertise to help municipal, industrial and construction customers to improve their water management processes, increase operational performance and reduce environmental impact.

With over 40 years of experience and a reputation for engineering excellence, businesses and public organisations all over the world rely on Hydro International products and services to reduce flood risk, improve water treatment and protect the environment from water pollution.

Headquartered in Clevedon, UK, Hydro International has a network of over 80 distribution partners and serves customers in more than 40 countries.

PRODUCT DESCRIPTION

Inspired by nature and designed to deliver the perfect curve, the Hydro-Brake® Optimum is the most advanced vortex flow control available. It is engineered for sustainable water management, offering precise regulation of stormwater and wastewater flows without the need for external power. Made for use in Sustainable Urban Drainage Systems (SuDS), flood mitigation, and sewer systems, the device reduces peak flows and protects downstream infrastructure.

In the context of an Environmental product Declaration (EPD), the Hydro-Brake® Optimum exemplifies resource efficiency through its durable construction, minimal maintenance requirements, and reliance on natural hydraulic principles rather than energy consumption. Its innovative and unique design optimises hydraulic efficiency, providing an unmatched performance that reduces storage requirements, ultimately serving the goal of limiting environmental and cost impacts across projects.

The EPD covers the size variations within this product, ranging from units designed for low flows at approximately 100mm in width, to larger units spanning up to 2m for very high flows. It also considers the two types of this product, the C-type designed for foul and combined flows, and the S-type, designed for stormwater applications. All variations share the same manufacturing process.

Further information can be found at https://hydro-int.com/en.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	95-98	EU/Global
Minerals	0	-
Fossil materials	2-5	EU/Global
Bio-based materials	0	-

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	0.26

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	kg
Mass per declared unit VP-012	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	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 and other ancillary materials. 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. Hydro-brake® Optimums are manufactured from stainless steel. The primary production process begins with plasma cutting the sheets followed by bending and rolling into multiple components. TIG welding is carried out to join these components before it is post-processed, and the accessories are assembled and packaged. The majority of units are protected with plywood and shrink wrap, and larger ones require a pallet for safe transport.

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 assumed as a sales weighted average to all sites (A4). The installation scenario assumes a conservative estimate for electricity for a drill, and accounts for the impacts of moving the unit on site. As the product is bespoke the installation losses are considered negligible. The installation waste of the packaging is considered as conservative waste scenarios. All A5 scenarios are considered as the EU average for the respective materials.

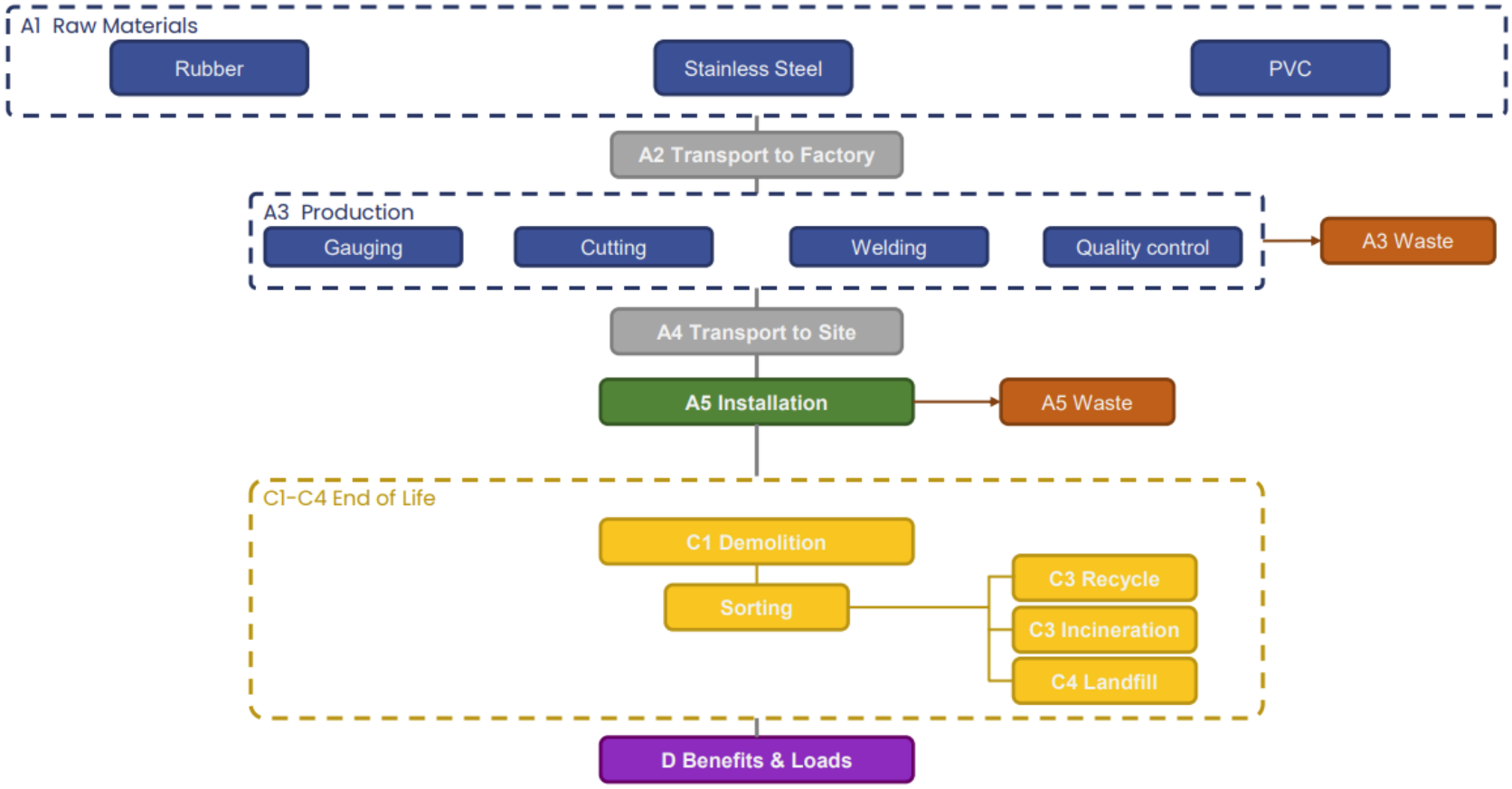
PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase is not relevant in this EPD.
Air, soil, and water impacts during the use phase have not been studied.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

For the removal of the Hydro-brake® Optimum from the structure a conservative estimate for electricity is assumed for the use of a drill and transport on site is considered. Transportation distance to waste facilities is assumed to be 50 km. At the end of life, the stainless steel body and accessories are assumed to be 95% recycled and 5% landfilled (British Stainless Steel Association, 2024). All other End of Life scenarios are considered as the EU average for the respective materials.

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	Partly allocated by revenue
Packaging material	Allocated by revenue
Ancillary materials	Allocated by revenue
Manufacturing energy and waste	Allocated by revenue

AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Averaged by shares of total revenue
Variation in GWP-fossil for A1-A3	1 %

This average EPD was done based on the weighted average approach according to the production volumes of the included products.

All products included in this average EPD are primarily made steel, with only minor components of rubber and PVC. The only differences between the products are their sizes, shapes and weights.

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[1)]	kg CO_2e	3.73E+00	2.42E-01	5.15E-01	4.48E+00	9.94E-02	1.03E+00	MND	MND	MND	MND	MND	MND	MND	3.47E-03	8.29E-03	6.66E-02	8.22E-04	-3.27E-01
GWP – fossil	kg CO_2e	3.72E+00	2.42E-01	1.46E+00	5.43E+00	9.93E-02	7.55E-02	MND	MND	MND	MND	MND	MND	MND	3.47E-03	8.29E-03	6.66E-02	8.21E-04	-3.27E-01
GWP – biogenic	kg CO_2e	0.00E+00	0.00E+00	-9.50E-01	-9.50E-01	0.00E+00	9.50E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
GWP – LULUC	kg CO_2e	3.75E-03	9.22E-05	2.51E-03	6.35E-03	2.09E-05	1.10E-05	MND	MND	MND	MND	MND	MND	MND	7.05E-07	3.25E-06	2.70E-05	2.86E-07	-4.26E-04
Ozone depletion pot.	kg CFC_{-11}e	9.79E-06	5.54E-08	1.09E-07	9.95E-06	2.28E-08	2.67E-09	MND	MND	MND	MND	MND	MND	MND	7.16E-10	1.92E-09	2.62E-09	1.17E-10	-2.34E-08
Acidification potential	mol H^+e	1.96E-02	1.13E-03	2.01E-01	2.21E-01	4.67E-04	1.23E-04	MND	MND	MND	MND	MND	MND	MND	3.53E-05	3.36E-05	2.65E-04	2.77E-06	-1.72E-03
EP-freshwater[2)]	kg Pe	3.38E-04	1.92E-06	4.03E-05	3.80E-04	3.97E-07	3.47E-07	MND	MND	MND	MND	MND	MND	MND	2.80E-08	5.82E-08	1.10E-06	3.37E-09	-1.60E-05
EP-marine	kg Ne	3.31E-03	3.29E-04	1.04E-01	1.08E-01	1.59E-04	5.50E-05	MND	MND	MND	MND	MND	MND	MND	1.53E-05	1.00E-05	5.72E-05	1.05E-06	-3.02E-04
EP-terrestrial	mol Ne	3.73E-02	3.63E-03	1.14E+00	1.18E+00	1.75E-03	5.16E-04	MND	MND	MND	MND	MND	MND	MND	1.68E-04	1.11E-04	6.60E-04	1.05E-05	-3.41E-03
POCP ("smog")[3)]	kg NMVOCe	1.21E-02	1.13E-03	2.68E-01	2.81E-01	4.79E-04	1.46E-04	MND	MND	MND	MND	MND	MND	MND	4.63E-05	3.39E-05	1.81E-04	3.18E-06	-1.34E-03
ADP-minerals & metals[4)]	kg Sbe	9.72E-05	6.29E-07	6.16E-06	1.04E-04	1.74E-07	4.87E-08	MND	MND	MND	MND	MND	MND	MND	3.15E-09	2.94E-08	2.75E-06	7.31E-10	-6.94E-07
ADP-fossil resources	MJ	4.11E+01	3.60E+00	3.40E+01	7.88E+01	1.41E+00	2.31E-01	MND	MND	MND	MND	MND	MND	MND	4.79E-02	1.23E-01	2.83E-01	8.01E-03	-5.53E+00
Water use[5)]	m^3e depr.	1.33E+00	1.61E-02	6.31E-01	1.98E+00	4.15E-03	1.71E-02	MND	MND	MND	MND	MND	MND	MND	2.10E-04	5.69E-04	6.63E-03	2.81E-05	-2.79E-01

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	2.45E-07	2.59E-08	4.64E-07	7.35E-07	4.48E-09	2.28E-09	MND	MND	MND	MND	MND	MND	MND	9.25E-10	7.15E-10	3.42E-09	5.58E-11	-1.94E-08
Ionizing radiation[6]	kBq U235e	2.19E-01	1.74E-02	9.00E-01	1.14E+00	6.88E-03	1.84E-03	MND	MND	MND	MND	MND	MND	MND	2.96E-04	6.44E-04	3.11E-03	3.65E-05	-6.54E-02
Ecotoxicity (freshwater)	CTUe	1.07E+02	3.19E+00	2.00E+01	1.30E+02	9.66E-01	2.41E-01	MND	MND	MND	MND	MND	MND	MND	2.91E-02	1.02E-01	1.32E+00	5.62E-03	-5.42E+00
Human toxicity, cancer	CTUh	1.03E-07	8.40E-11	1.60E-09	1.05E-07	2.23E-11	1.94E-11	MND	MND	MND	MND	MND	MND	MND	1.10E-12	3.16E-12	3.91E-11	1.46E-13	-6.46E-10
Human tox. non-cancer	CTUh	8.71E-08	3.15E-09	1.43E-08	1.04E-07	1.21E-09	6.73E-10	MND	MND	MND	MND	MND	MND	MND	2.18E-11	1.04E-10	1.74E-09	3.61E-12	-3.93E-09
SQP[7]	-	1.67E+01	3.73E+00	7.94E+01	9.98E+01	5.69E-01	2.44E-01	MND	MND	MND	MND	MND	MND	MND	6.40E-03	8.62E-02	5.58E-01	1.74E-02	-1.44E+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[8]	MJ	7.56E+00	4.23E-02	1.03E+01	1.79E+01	1.18E-02	9.83E-03	MND	MND	MND	MND	MND	MND	MND	9.29E-04	1.76E-03	4.93E-02	7.89E-05	-5.34E-01
Renew. PER as material	MJ	1.55E-03	0.00E+00	7.92E+00	7.92E+00	0.00E+00	-7.92E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	-1.16E-03	-3.87E-04	0.00E+00
Total use of renew. PER	MJ	7.56E+00	4.23E-02	1.83E+01	2.59E+01	1.18E-02	-7.91E+00	MND	MND	MND	MND	MND	MND	MND	9.29E-04	1.76E-03	4.81E-02	-3.08E-04	-5.34E-01
Non-re. PER as energy	MJ	3.62E+01	3.60E+00	3.16E+01	7.14E+01	1.41E+00	2.31E-01	MND	MND	MND	MND	MND	MND	MND	4.79E-02	1.23E-01	2.83E-01	8.01E-03	-4.87E+00
Non-re. PER as material	MJ	7.44E-01	0.00E+00	2.18E+00	2.93E+00	0.00E+00	-2.44E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	-3.91E-01	-1.00E-01	0.00E+00
Total use of non-re. PER	MJ	3.70E+01	3.60E+00	3.38E+01	7.44E+01	1.41E+00	-2.20E+00	MND	MND	MND	MND	MND	MND	MND	4.79E-02	1.23E-01	-1.08E-01	-9.22E-02	-4.87E+00
Secondary materials	kg	5.92E-01	1.06E-03	3.06E-02	6.23E-01	2.60E-04	1.88E-04	MND	MND	MND	MND	MND	MND	MND	1.78E-05	4.12E-05	3.15E-04	1.82E-06	8.72E-03
Renew. secondary fuels	MJ	1.19E-03	1.09E-05	2.45E-01	2.47E-01	2.95E-06	1.67E-06	MND	MND	MND	MND	MND	MND	MND	5.98E-08	4.54E-07	1.62E-05	5.17E-08	-6.86E-06
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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^3	8.47E-02	4.59E-04	1.52E-02	1.00E-01	1.12E-04	7.75E-05	MND	MND	MND	MND	MND	MND	MND	5.57E-06	1.55E-05	2.19E-04	8.75E-06	-7.27E-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	2.97E+00	4.69E-03	8.19E-02	3.06E+00	9.84E-04	4.30E-04	MND	MND	MND	MND	MND	MND	MND	7.18E-05	1.38E-04	1.88E-03	0.00E+00	-4.74E-02
Non-hazardous waste	kg	5.26E+00	7.72E-02	1.44E+00	6.78E+00	1.64E-02	4.89E-01	MND	MND	MND	MND	MND	MND	MND	1.20E-03	2.45E-03	7.46E-02	5.28E-02	-7.99E-01
Radioactive waste	kg	1.09E-04	2.42E-05	2.34E-04	3.67E-04	1.00E-05	9.32E-07	MND	MND	MND	MND	MND	MND	MND	3.38E-07	8.47E-07	1.62E-06	0.00E+00	-2.21E-05

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	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	1.67E-04	0.00E+00	2.86E-01	2.87E-01	0.00E+00	2.16E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	9.31E-01	0.00E+00	0.00E+00
Materials for energy rec	kg	2.91E-08	0.00E+00	9.70E-03	9.70E-03	0.00E+00	2.20E-01	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	1.47E-02	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.37E+00	MND	MND	MND	MND	MND	MND	MND	0.00E+00	0.00E+00	1.55E-01	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_2e	3.02E+00	2.39E-01	1.44E+00	4.70E+00	9.87E-02	9.08E-02	MND	MND	MND	MND	MND	MND	MND	3.43E-03	8.21E-03	6.63E-02	7.10E-04	-3.18E-01
Ozone depletion Pot.	kg CFC_{-11}e	1.36E-07	4.39E-08	9.40E-08	2.74E-07	1.80E-08	2.14E-09	MND	MND	MND	MND	MND	MND	MND	5.67E-10	1.52E-09	2.12E-09	9.23E-11	-1.99E-08
Acidification	kg SO_2e	1.46E-02	8.82E-04	1.36E-01	1.52E-01	3.54E-04	9.05E-05	MND	MND	MND	MND	MND	MND	MND	2.53E-05	2.61E-05	2.14E-04	2.10E-06	-1.43E-03
Eutrophication	kg PO_4^3e	4.93E-03	1.88E-04	3.60E-02	4.11E-02	7.34E-05	8.23E-04	MND	MND	MND	MND	MND	MND	MND	6.28E-06	5.93E-06	7.31E-05	2.16E-05	-6.24E-04
POCP (“smog”)	kg C_2H_4e	7.31E-04	3.33E-05	3.13E-04	1.08E-03	1.01E-05	6.71E-06	MND	MND	MND	MND	MND	MND	MND	5.68E-07	1.07E-06	8.04E-06	1.60E-07	-8.80E-05
ADP-elements	kg Sbe	8.01E-05	6.11E-07	6.11E-06	8.68E-05	1.70E-07	4.67E-08	MND	MND	MND	MND	MND	MND	MND	3.13E-09	2.87E-08	2.74E-06	7.18E-10	-6.81E-07
ADP-fossil	MJ	3.55E+01	3.60E+00	3.40E+01	7.31E+01	1.41E+00	2.31E-01	MND	MND	MND	MND	MND	MND	MND	4.79E-02	1.23E-01	2.83E-01	8.01E-03	-5.52E+00

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG[9)]	kg CO_2e	3.73E+00	2.42E-01	1.47E+00	5.43E+00	9.94E-02	7.55E-02	MND	MND	MND	MND	MND	MND	MND	3.47E-03	8.29E-03	6.66E-02	8.22E-04	-3.27E-01

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

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.

Sarah Curpen, as an authorized verifier acting for EPD Hub Limited.
28.03.2025

