

ENVIRONMENTAL PRODUCT DECLARATION

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

Halton AGC - Exhaust grille
Oy Halton Group



EPD HUB, HUB-1630

Publishing date 21 June 2024, last updated on 21 June 2024, valid until 21 June 2029.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Oy Halton Group
Address	12 Rue Saint Germain, 60800 Crépy en Valois, France
Contact details	kimmo.hytynen@halton.com
Website	https://www.halton.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 1.1, 5 Dec 2023
Sector	Manufactured product
Category of EPD	Third party verified EPD
Parent EPD number	
Scope of the EPD	Cradle to gate with options, A4-B7, and modules C1-C4, D
EPD author	Monika Kokko
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	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	Halton AGC - Exhaust grille
Additional labels	-
Product reference	AGC/N-500-300
Place of production	France, Crépy en Valois
Period for data	Calendar year, 2023
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3	-28/24,5%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	7,54E+00
GWP-total, A1-A3 (kgCO ₂ e)	7,20E+00
Secondary material, inputs (%)	33,1
Secondary material, outputs (%)	100
Total energy use, A1-A3 (kWh)	33,7
Net fresh water use, A1-A3 (m ³)	0,1

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Halton Group is a family-owned, global technology leader in indoor air solutions for demanding spaces. At Halton, our mission is to enable people's wellbeing in these environments.

We design, manufacture, and deliver indoor environment solutions for

- Commercial and public buildings
- Healthcare institutions and laboratories
- Professional kitchens and restaurants
- Energy production and heavy industry environments
- Marine vessels

We work in close cooperation with our customers and partners to meet their special needs and even exceed expectations. We enable safe, comfortable, and productive indoor environments that are energy-efficient and comply with sustainable principles.

PRODUCT DESCRIPTION

Halton AGC - Exhaust grille is quiet in use due to its low pressure and sound levels. It has a large free area and high airflow rates with minimal pressure drop. It has a detachable grille that enables cleaning of the grille and ductwork.

Further information can be found at <https://www.halton.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	-
Biogenic carbon content in packaging, kg C	0,1

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg
Mass per declared unit	1 kg
Functional unit	Halton AGC/N-500-300 sustaining airflow of 1450 m ³ /h throughout the Reference Service Life (RSL). Operational 24/7, 365 days a year.
Reference service life	25 years

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	X	X	X	X	X	X	X	X	X	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.

The AGC grille can be tailored to suit various customer needs. For example, different sizes and color options are available. The production stage (A3) on Haltons production sites covers the following manufacturing processes; raw material supply (metals, plastics, and sealants), metal cutting, painting, assembly, and packaging. After that, products will be transported to the client. The production processes of products are presented in the

figure below. The Grilles are manufactured in the Crépy en Valois factory in France.

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 installation of the product requires zero to minimal amount of electricity and doesn't need the use of heavy machinery. Installation loss is zero as the correct product size is selected when ordering. The average distance to the installation site is from the Crépy en Valois factory to Paris. The product is transported via truck. Additionally, the only waste generated during installation comes from the packaging. It is assumed that customers responsibly recycle 100% of this packaging waste. Additionally, the management of packaging waste entails transportation from the average customer, located in Paris, to the nearest recycling facility.

PRODUCT USE AND MAINTENANCE (B1-B7)

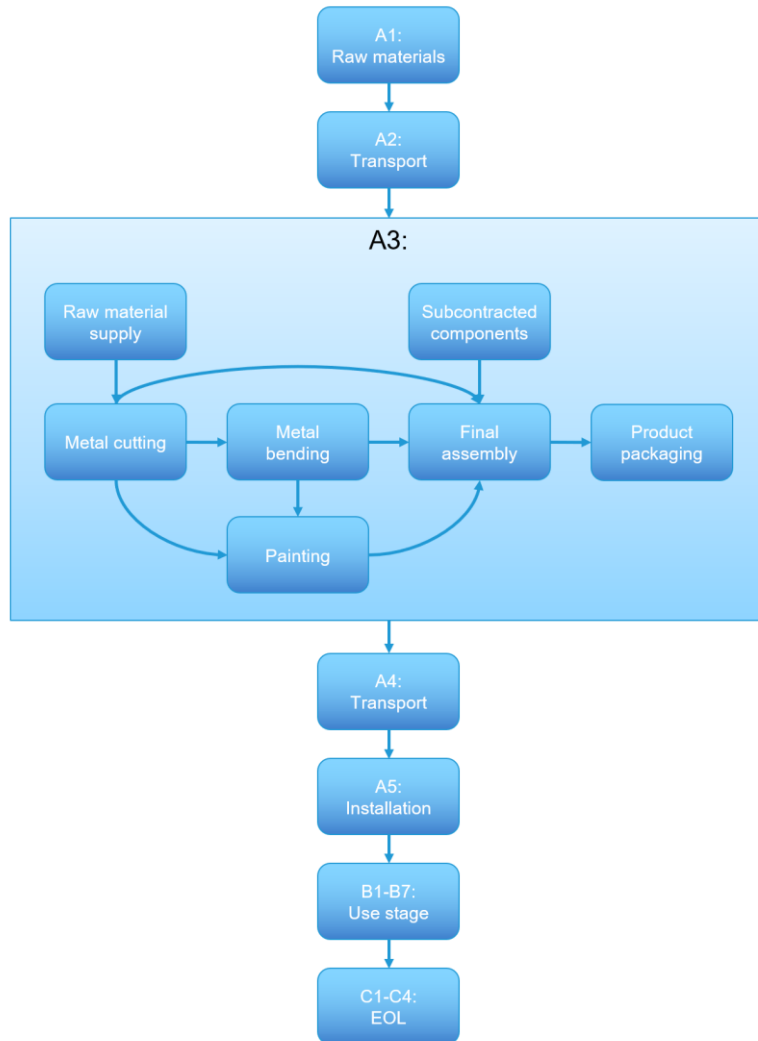
Our product is designed without wearing parts or needing consumables replacement. While the average refresh cycle for office buildings occurs approximately every 25 years, our product is assumed to have a reference service life (RSL) of 25 years, although it may last much longer. Operating without consuming energy during its RSL, it remains maintenance-free, with the option for simple cleaning using a damp cloth when necessary. Moreover, it seamlessly integrates with all energy sources, providing versatility and compatibility across various environments. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The product undergoes complete recycling at the end of its life within the EU area. In the EU area, 90% of steel is recycled. According to waste handling companies, HVAC products are collected separately for recycling in the end-of-life stage. It can be assumed that there are no significant environmental impacts caused by the demolition phase and hence it is not

declared. The study considers the advantages and environmental impacts of recycling as a benefit, replacing the use of virgin materials. Additionally, the study accounts for the benefits derived from the incineration of materials for energy generation. Transportation distance is 10 km by road, driving by lorry.

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	No allocation
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	Multiple products
Averaging method	Representative product
Variation in GWP-fossil for A1-A3	-28/24,5%

This EPD averages Halton AGC, which has varying sizes. The averaging was done by calculating the weighted average of a representative size of total units produced. The manufacturing procedure remains consistent across all sizes, utilizing identical materials and being conducted at the same location. The variation is due to some structural differences in the sizes.

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 ₂ e	7,14E+00	7,39E-02	-1,98E-02	7,20E+00	8,58E-03	3,86E-01	MND	8,01E-03	MND	MND	MND	MND	MND	MNR	9,39E-04	2,02E-02	0,00E+00	-8,42E-01
GWP – fossil	kg CO ₂ e	7,10E+00	7,39E-02	3,61E-01	7,54E+00	8,58E-03	4,87E-03	MND	7,99E-03	MND	MND	MND	MND	MND	MNR	9,38E-04	2,02E-02	0,00E+00	-8,07E-01
GWP – biogenic	kg CO ₂ e	0,00E+00	0,00E+00	-3,81E-01	-3,81E-01	0,00E+00	3,81E-01	MND	0,00E+00	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	-3,56E-02
GWP – LULUC	kg CO ₂ e	4,07E-02	2,72E-05	7,49E-04	4,15E-02	3,17E-06	1,94E-06	MND	1,44E-05	MND	MND	MND	MND	MND	MNR	3,46E-07	2,63E-05	0,00E+00	7,93E-04
Ozone depletion pot.	kg CFC ₁₁ e	4,12E-07	1,70E-08	4,17E-08	4,71E-07	1,97E-09	3,31E-10	MND	5,02E-10	MND	MND	MND	MND	MND	MNR	2,16E-10	2,65E-09	0,00E+00	-2,26E-08
Acidification potential	mol H ⁺ e	4,15E-02	3,12E-04	1,27E-03	4,30E-02	3,63E-05	4,19E-05	MND	5,63E-05	MND	MND	MND	MND	MND	MNR	3,97E-06	2,55E-04	0,00E+00	-3,05E-03
EP-freshwater ²⁾	kg Pe	2,29E-04	5,96E-07	9,51E-06	2,39E-04	7,03E-08	8,22E-08	MND	4,95E-06	MND	MND	MND	MND	MND	MNR	7,68E-09	1,06E-06	0,00E+00	-7,28E-06
EP-marine	kg Ne	6,45E-03	9,30E-05	2,99E-04	6,84E-03	1,08E-05	1,89E-05	MND	1,10E-04	MND	MND	MND	MND	MND	MNR	1,18E-06	5,46E-05	0,00E+00	2,04E-05
EP-terrestrial	mol Ne	6,95E-02	1,03E-03	3,12E-03	7,36E-02	1,19E-04	1,99E-04	MND	1,35E-04	MND	MND	MND	MND	MND	MNR	1,30E-05	6,30E-04	0,00E+00	-8,26E-03
POCP (“smog”) ³⁾	kg NMVOCe	2,26E-02	3,28E-04	9,80E-04	2,39E-02	3,81E-05	4,97E-05	MND	2,86E-05	MND	MND	MND	MND	MND	MNR	4,17E-06	1,74E-04	0,00E+00	-4,60E-03
ADP-minerals & metals ⁴⁾	kg Sbe	9,62E-05	1,73E-07	1,63E-06	9,80E-05	2,01E-08	2,59E-08	MND	7,67E-08	MND	MND	MND	MND	MND	MNR	2,20E-09	2,66E-06	0,00E+00	-2,52E-05
ADP-fossil resources	MJ	8,87E+01	1,11E+00	7,50E+00	9,73E+01	1,29E-01	4,09E-02	MND	9,97E-02	MND	MND	MND	MND	MND	MNR	1,41E-02	2,82E-01	0,00E+00	-6,89E+00
Water use ⁵⁾	m ³ e depr.	3,83E+00	4,99E-03	1,42E-01	3,98E+00	5,77E-04	1,53E-02	MND	2,52E-02	MND	MND	MND	MND	MND	MNR	6,31E-05	5,23E-03	0,00E+00	3,13E-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	4,88E-07	8,53E-09	2,31E-08	5,19E-07	9,89E-10	4,80E-10	MND	7,85E-10	MND	MND	MND	MND	MND	MNR	1,08E-10	3,37E-09	0,00E+00	-2,93E-08
Ionizing radiation ⁶⁾	kBq U235e	8,20E-01	5,33E-03	1,25E-01	9,50E-01	6,14E-04	1,93E-04	MND	1,00E-03	MND	MND	MND	MND	MND	MNR	6,71E-05	3,04E-03	0,00E+00	1,21E-03
Ecotoxicity (freshwater)	CTUe	1,71E+02	9,93E-01	5,81E+00	1,78E+02	1,16E-01	9,81E-02	MND	2,14E+00	MND	MND	MND	MND	MND	MNR	1,27E-02	1,22E+00	0,00E+00	-1,85E+01
Human toxicity, cancer	CTUh	7,00E-08	2,45E-11	6,18E-10	7,06E-08	2,85E-12	1,22E-11	MND	3,39E-11	MND	MND	MND	MND	MND	MNR	3,11E-13	3,73E-11	0,00E+00	8,33E-09
Human tox. non-cancer	CTUh	1,80E-07	9,88E-10	3,72E-09	1,85E-07	1,15E-10	5,00E-10	MND	7,18E-10	MND	MND	MND	MND	MND	MNR	1,25E-11	1,66E-09	0,00E+00	4,95E-08
SQP ⁷⁾	-	2,64E+01	1,28E+00	4,70E+01	7,47E+01	1,48E-01	1,92E-02	MND	5,17E-02	MND	MND	MND	MND	MND	MNR	1,62E-02	5,68E-01	0,00E+00	-4,99E+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	2,04E+01	1,27E-02	3,56E+00	2,40E+01	1,45E-03	1,73E-03	MND	9,94E-03	MND	MND	MND	MND	MND	MNR	1,59E-04	4,75E-02	0,00E+00	-1,07E+00
Renew. PER as material	MJ	0,00E+00	0,00E+00	3,32E+00	3,32E+00	0,00E+00	-3,32E+00	MND	0,00E+00	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	-2,96E-02
Total use of renew. PER	MJ	2,04E+01	1,27E-02	6,88E+00	2,73E+01	1,45E-03	-3,32E+00	MND	9,94E-03	MND	MND	MND	MND	MND	MNR	1,59E-04	4,75E-02	0,00E+00	-1,10E+00
Non-re. PER as energy	MJ	8,87E+01	1,11E+00	7,29E+00	9,71E+01	1,29E-01	4,09E-02	MND	9,97E-02	MND	MND	MND	MND	MND	MNR	1,41E-02	2,82E-01	0,00E+00	-6,88E+00
Non-re. PER as material	MJ	2,39E-04	0,00E+00	2,15E-01	2,15E-01	0,00E+00	-2,15E-01	MND	0,00E+00	MND	MND	MND	MND	MND	MNR	0,00E+00	-2,18E-04	0,00E+00	-1,67E-03
Total use of non-re. PER	MJ	8,87E+01	1,11E+00	7,51E+00	9,73E+01	1,29E-01	-1,74E-01	MND	9,97E-02	MND	MND	MND	MND	MND	MNR	1,41E-02	2,81E-01	0,00E+00	-6,88E+00
Secondary materials	kg	3,31E-01	3,09E-04	1,17E-02	3,43E-01	3,58E-05	9,52E-05	MND	2,94E-04	MND	MND	MND	MND	MND	MNR	3,91E-06	3,00E-04	0,00E+00	5,89E-01
Renew. secondary fuels	MJ	1,55E-03	3,08E-06	8,35E-02	8,50E-02	3,61E-07	2,78E-07	MND	3,87E-07	MND	MND	MND	MND	MND	MNR	3,95E-08	1,55E-05	0,00E+00	-3,33E-03
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	9,72E-02	1,44E-04	3,39E-03	1,01E-01	1,67E-05	-4,05E-05	MND	6,00E-04	MND	MND	MND	MND	MND	MNR	1,83E-06	1,72E-04	0,00E+00	-2,29E-02

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	3,28E+00	1,45E-03	1,40E-02	3,30E+00	1,71E-04	1,19E-04	MND	9,41E-04	MND	MND	MND	MND	MND	MNR	1,87E-05	1,82E-03	0,00E+00	-4,99E-01
Non-hazardous waste	kg	9,95E+00	2,39E-02	3,38E-01	1,03E+01	2,81E-03	2,27E-01	MND	1,63E-02	MND	MND	MND	MND	MND	MNR	3,07E-04	1,58E-01	0,00E+00	-1,69E+00
Radioactive waste	kg	2,13E-04	7,45E-06	3,85E-05	2,59E-04	8,62E-07	6,14E-08	MND	3,22E-07	MND	MND	MND	MND	MND	MNR	9,43E-08	1,57E-06	0,00E+00	-1,16E-06

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	0,00E+00	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	1,31E-01	1,31E-01	0,00E+00	4,50E-02	MND	0,00E+00	MND	MND	MND	MND	MND	MNR	0,00E+00	1,00E+00	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	0,00E+00	MND	MND	MND	MND	MND	MNR	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	0,00E+00	MND	0,00E+00	MND	MND	MND	MND	MND	MNR	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 ₂ e	5,84E+00	7,31E-02	3,53E-01	6,26E+00	8,49E-03	5,06E-03	MND	7,87E-03	MND	MND	MND	MND	MND	MNR	9,29E-04	1,99E-02	0,00E+00	-7,46E-01
Ozone depletion Pot.	kg CFC ₁₁ e	3,26E-07	1,35E-08	3,55E-08	3,75E-07	1,56E-09	2,82E-10	MND	1,81E-09	MND	MND	MND	MND	MND	MNR	1,71E-10	2,14E-09	0,00E+00	-3,29E-08
Acidification	kg SO ₂ e	2,91E-02	2,43E-04	1,03E-03	3,04E-02	2,82E-05	2,99E-05	MND	4,39E-05	MND	MND	MND	MND	MND	MNR	3,09E-06	2,06E-04	0,00E+00	-2,43E-03
Eutrophication	kg PO ₄ ³ e	9,99E-03	5,52E-05	5,24E-04	1,06E-02	6,43E-06	3,48E-05	MND	7,97E-05	MND	MND	MND	MND	MND	MNR	7,03E-07	6,76E-05	0,00E+00	-1,32E-03
POCP ("smog")	kg C ₂ H ₄ e	1,65E-03	9,48E-06	8,15E-05	1,74E-03	1,10E-06	1,31E-06	MND	2,08E-06	MND	MND	MND	MND	MND	MNR	1,21E-07	7,80E-06	0,00E+00	-6,07E-04
ADP-elements	kg Sbe	9,34E-05	1,68E-07	1,62E-06	9,52E-05	1,95E-08	2,47E-08	MND	6,82E-08	MND	MND	MND	MND	MND	MNR	2,13E-09	2,65E-06	0,00E+00	-2,52E-05
ADP-fossil	MJ	7,01E+01	1,11E+00	7,48E+00	7,87E+01	1,29E-01	4,09E-02	MND	9,97E-02	MND	MND	MND	MND	MND	MNR	1,41E-02	2,81E-01	0,00E+00	-6,88E+00

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

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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
21.06.2024

