

ACO. we care for water

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Multitop cast iron-concrete Manhole Top

ACO Passavant Detego GmbH



EPD HUB, HUB-5946

Published on 09.04.2026

Last updated on 09.04.2026

Valid until 08.04.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub PCR version 1.2 (24 Mar 2025) and JRC characterization factors EF 3.1.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	ACO Passavant Detego GmbH
Address	Scheidertalstraße 3, 65326 Aarbergen, DE
Contact details	info@aco.com
Website	www.aco.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804:2012+A2:2019/AC:2021 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	HUB-5945
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Pratikkumar Parmar, ACO Passavant Detego GmbH
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Vera Durão, as an authorised verifier acting for EPD Hub Limited

This EPD is intended for business-to-business and/or business-to-consumer communication. 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	Multitop cast iron-concrete Manhole Top
Additional labels	see list of variants in Annex
Product reference	210510
Place(s) of raw material origin	EU
Place of production	Aarbergen, Germany
Place(s) of installation and use	EU
Period for data	01-2024 to 12-2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	23%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	17,5

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Multitop cast iron-concrete Manhole Top
Declared unit mass	1 kg
Mass of packaging	0,004 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	0,64
GWP-total, A1-A3 (kgCO ₂ e)	0,64
Secondary material, inputs (%)	64
Secondary material, outputs (%)	80
Total energy use, A1-A3 (kWh)	3,49
Net freshwater use, A1-A3 (m ³)	0,01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

ACO is one of the world's leading water technology companies, particularly for rainwater and wastewater management. Our mission is "ACO. we care for water." Care in this sense means to be protective and attentive and is deeply anchored in the ACO WaterCycle. This cycle describes the collection, transportation, purification, storage and finally the reuse of this vital resource. Using innovative separation and filter technologies, ACO prevents the contamination of water from fats, fuels, heavy metals and microplastics. We prioritize durability and reusability in our products and continuously work to minimize their carbon footprint. Founded in Schleswig-Holstein in 1946, ACO is represented in over 50 countries around the world and is known for proximity to regional markets and business partnerships.

The ACO Passavant Detego is the specialist within the ACO Group for manhole covers and technical covers, as well as for road and bridge drainage systems. With innovative solutions for industry and infrastructure, we offer a wide range of standard products as well as customized special solutions, particularly for emergency exits and heavy-duty areas. Our focus is on safe functionality and aesthetic integration into the environment.

In addition to product development, our full service also includes installation, maintenance, and repair. So you receive everything from a single source.

The ACO Passavant Detego GmbH production site is certified according to the ISO 50001 energy management system, ISO 14001 environmental management system and ISO 9001 quality management system.

PRODUCT DESCRIPTION

Multitop cast iron-concrete Manhole Top 210510, has been selected as the representative product for the declaration of the environmental performance of the Multitop cast iron-concrete Manhole Top product group.

This EPD covers the product group of Multitop cast iron-concrete Manhole Tops, the product group includes several variants with different nominal dimensions and total weights. All products within the group have the same functional application, technical design, applicable standards, and manufacturing processes. Differences in environmental impacts between individual products within the group result primarily from variations in total product mass and in the relative shares of cast iron and concrete. The reinforcement steel content is minor and remains comparable across all variants. Manufacturing technologies, material qualities, and functional characteristics are identical within the product group.

Multitop cast iron-concrete Manhole Top is in accordance with DIN EN 124-2.

- With four pockets for attaching a dirt trap in accordance with DIN 1221.
- Concrete-Cast Iron frame with large contact surface for shaft relief, can be pulled up.
- Attachment points for installation and transport of aids are located on the top of the frame.
- Cover made of EN-GJS cast iron with maintenance-free, screwless locking mechanism.
- The frame is suitable for covers in accordance with DIN 19584.
- Load class: D400

Key Features:

- Quiet: no rattling thanks to PEWEPREN insert in the frame and mechanically machined contact surfaces on the cover and frame.
- Slip-resistant: With built-in, slip-resistant surface that is independent of the direction of travel.
- Frame with integrated mount for access aid.
- Safe for traffic and easy to use thanks to covers with screwless, maintenance-free locking mechanisms made of highly wear-resistant plastic.

Further information can be found at:
www.aco.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	67	EU
Minerals	33	EU
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	0
Biogenic carbon content in packaging, kg C	0,00128

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Multitop cast iron-concrete Manhole Top
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	X	X	ND	ND	ND	ND	ND	ND	ND	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	Recycling Recovery Reuse		

ND = Modules not declared. MNR = Modules not relevant

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.

A market-based approach is used in modelling the electricity mix utilized in the factory.

The prefabricated cast iron product parts are manufactured from the supplier and production facilities is located in Germany. The prefabricated cast iron product is manufactured from steel scrap and pig iron which are melted in electric oven. In the

following process, the melted iron is poured into sand made molds where it's hardened to the final products. The production losses are assumed to be 5% and the electricity transmission losses are assumed to be 3% (A1).

The transport (A2) of all raw materials, prefabricated components, and packaging materials to the manufacturing site in Aarbergen, Germany is carried out mainly by road transport using lorry. Distances from the suppliers had been assigned based on actual supplier locations within the EU. For those raw materials where no transport data are available, general 'market' processes from Ecoinvent are used.

Incoming prefabricated cast-iron components undergo machining, and finishing, followed by assembly and quality inspection, at the ACO Passavant Detego

GmbH site(A3). The site operates with 100% renewable electricity under a contractual market-based supply, while other energy includes natural gas is used for space heating, or auxiliary heating and diesel for internal vehicle movements.

The manufacturing waste generated onsite is included in A3, Metal scrap from machining assumed to be 85% recycled, 15% landfilled based on EU cast-iron recycling rates. The concrete waste considered completely to be landfilled. The manufacturing waste is collected locally within a radius of 150 km and transported by lorry.

Packaging materials used at the site wooden pallets, PET straps, and paper are included in A3 based on average pallet distribution per product weight. The products are stacked on wooden pallets and secured with PET straps. Additionally, breakage and technical production waste are considered in environmental assessment.

The use of green energy in manufacturing is demonstrated through contractual instruments (GOs, RECs, etc.), and its use is ensured throughout the validity period of this EPD.

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 of the declared product from the manufacturing facility to the point of installation is 100km assumed to facilitate customer and project-specific scaling of module A4, with lorry transport as the primary mode. The product is robust and well-packaged, resulting in no material losses

during transport. A vehicle capacity utilization volume factor is assumed to be 1 which means full load. Although actual load factors may vary, this variability is considered negligible due to the relatively minor contribution of transport emissions to the overall environmental impact. To ensure a conservative approach, empty return trips are included in the assessment.

Installation of the product is carried out manually and does not require heavy machinery or additional material inputs. The only resource associated with installation is the small amount of energy used for manual handling and positioning of the product. No material flows, consumables, or auxiliary products are required during installation.

In Module A5, packaging materials are considered installation waste and assumed to be transported 50 km by lorry to a treatment facility. Based on statistical data, wood packaging is distributed as 32% recycled, 30% incinerated, and 38% landfilled, while plastic packaging is treated with 40% recycling, 37% incineration, and 23% landfill.

PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase.

PRODUCT END OF LIFE (C1-C4, D)

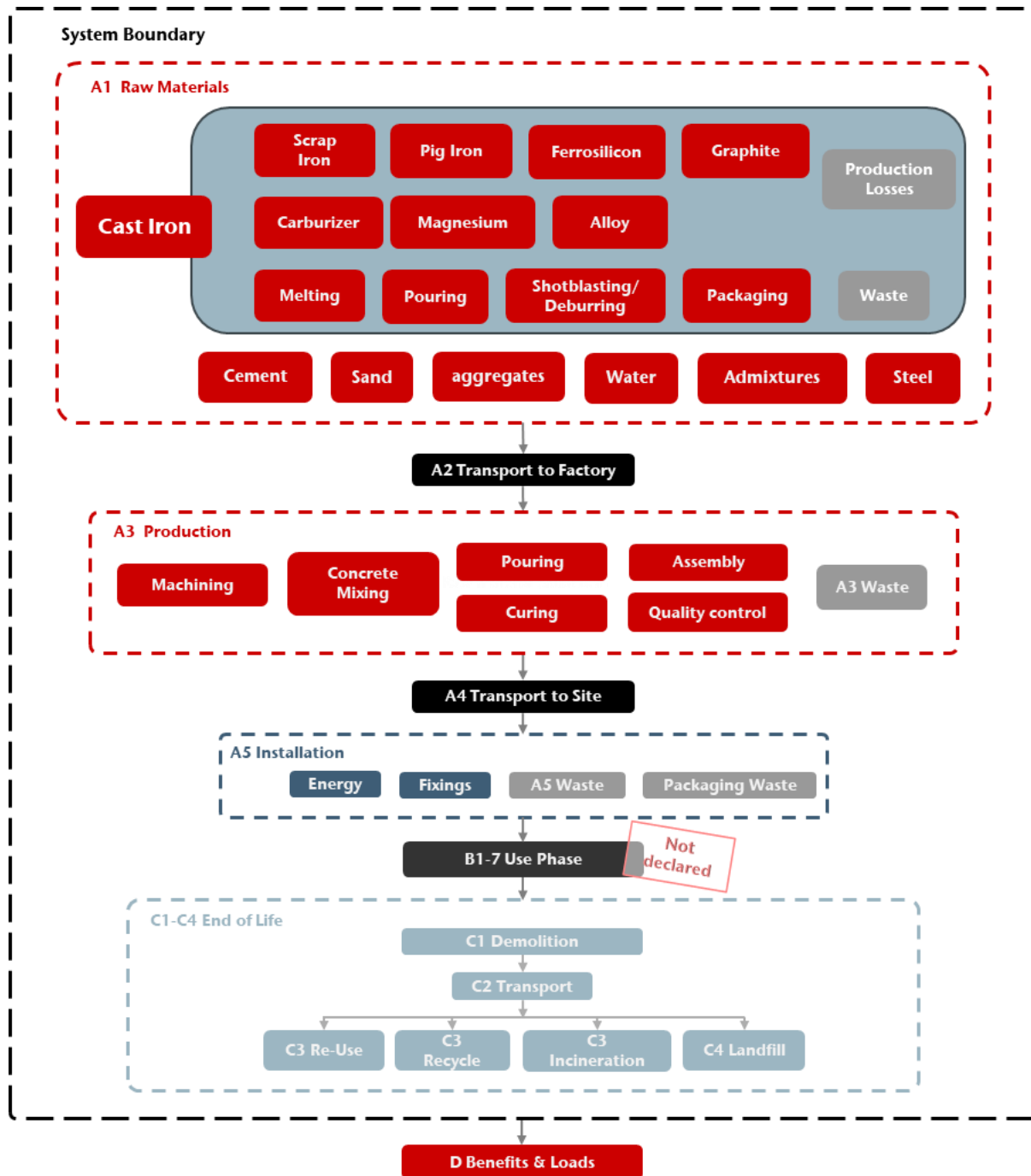
Module C1 covers the dismantling of the product. As with installation, the product is considered to be dismantled by a power tool and energy use is estimated to be the same as in installation. Module C2 represents the transportation to waste treatment. It is assumed that the steel waste is collected separately and transported to the waste treatment facility. Transportation distance to waste treatment plant is assumed between the range 50 km and 250 km and the transportation method is assumed to be

lorry. These distances reflect typical logistics within Germany and are consistent with conservative modeling practices in life cycle assessments. Module C3 maps the waste treatment for reuse, recovery and/or recycling. The assumption has been made that cast iron can be 85% recycled and 15% landfilled according to world steel data. Moreover, the concrete waste is assumed to be 70% recycled and 30% landfilled according to EUROSTAT.

Module D includes the benefits and loads from the recycling of cast iron and the energy recovery of packaging materials. For the recovered cast iron, the substituted process is the production of virgin pig iron European

primary cast iron production dataset, representing the avoided extraction and smelting of virgin material. For the benefits only primary materials are considered and no secondary materials were considered. Concrete waste is considered 70% recycled and electricity required for breaking has been considered as load. For energy recovery from wooden pallets and plastic packaging, the substituted processes are the German electricity grid mix and heat from natural-gas-fired boilers, reflecting regionally representative primary energy sources. Net flows in Module D are calculated as the difference between recovered outputs and the corresponding substituted primary processes.

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.

Elastomeric components have been excluded from the LCA because their contribution to the total product mass is extremely small and well below the EN 15804 cut-off criterion. Their inclusion would not influence any impact category in a meaningful way, and no environmentally relevant flows are associated with these components. All significant material and energy inputs are included, and the exclusion of these negligible elastomeric parts does not affect the completeness or representativeness of the study.

VALIDATION OF DATA

Data collection for production, transport, and packaging was conducted using time and site-specific information, as defined in the general information section on page 2. Upstream process calculations rely on generic data as defined in the Bibliography section. Manufacturer-provided specific and generic

data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

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

A conservative production loss of 5 % was assumed; although higher than the site-specific losses observed at the ACO facility, this assumption was applied to ensure conservative, consistent, and representative modelling within the EPD methodology.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on a representative product
Variation in GWP-fossil for A1-A3, %	23%

The declared unit 1kg of the Multitop cast iron-concrete Manhole Top is the representative product consisting of 0,67 kg metal, 0,33 concrete.

Annex 1 contains the detailed list of Multitop cast iron concrete Manhole Top variants covered by this EPD. The annex extends the information provided in the main document by presenting all article numbers, dimensions, and declared unit masses that form part of the product family. While the annex offers full supporting detail, the validity of this EPD extends to the entire Multitop cast iron concrete Manhole Top product family included but not limited to the annex.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.3. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11 environmental data sources follow the methodology 'allocation, Cut-off, EN 15804+A2'.

Module A3 (waste): World Stainless 2024, International Chromium Development Association (ICDA) 2023

Module A5 (Installation Energy): Industrial Energy Consumption Guide

Module A5(Packaging): EUROSTAT

Module C-D: World Stainless 2024, International Chromium Development Association (ICDA) 2023, EUROSTAT.

ENVIRONMENTAL IMPACT DATA

The estimated impact results are only relative statements which do not indicate the end points of the impact categories, exceeding threshold values, safety margins or risks.

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

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	5,74E-01	1,43E-02	5,60E-02	6,44E-01	1,04E-02	6,41E-03	ND	ND	ND	ND	ND	ND	ND	7,90E-04	3,11E-02	1,29E-02	1,24E-03	-4,29E-02
GWP – fossil	kg CO ₂ e	5,70E-01	1,43E-02	6,05E-02	6,44E-01	1,04E-02	1,70E-03	ND	ND	ND	ND	ND	ND	ND	7,86E-04	3,10E-02	1,29E-02	1,24E-03	-4,14E-02
GWP – biogenic	kg CO ₂ e	3,61E-03	3,20E-06	-4,44E-03	-8,21E-04	2,27E-06	4,71E-03	ND	ND	ND	ND	ND	ND	ND	1,76E-06	4,66E-05	-2,55E-05	7,64E-08	-1,44E-03
GWP – LULUC	kg CO ₂ e	9,10E-04	6,34E-06	1,21E-05	9,29E-04	4,04E-06	2,71E-06	ND	ND	ND	ND	ND	ND	ND	2,41E-06	9,85E-05	1,61E-05	7,08E-07	-7,90E-06
Ozone depletion pot.	kg CFC-11e	1,03E-08	2,17E-10	1,42E-09	1,19E-08	2,17E-10	1,61E-11	ND	ND	ND	ND	ND	ND	ND	1,45E-11	4,88E-10	1,74E-10	3,52E-11	-2,79E-10
Acidification potential	mol H ⁺ e	2,83E-03	4,77E-05	3,89E-04	3,27E-03	2,45E-05	5,04E-06	ND	ND	ND	ND	ND	ND	ND	4,62E-06	1,03E-04	1,54E-04	8,72E-06	-1,57E-04
EP-freshwater ²⁾	kg Pe	5,05E-04	1,11E-06	2,87E-06	5,09E-04	7,26E-07	7,80E-07	ND	ND	ND	ND	ND	ND	ND	7,31E-07	2,42E-06	8,35E-06	1,05E-07	-1,60E-05
EP-marine	kg Ne	6,10E-04	1,55E-05	1,77E-04	8,02E-04	6,43E-06	1,40E-06	ND	ND	ND	ND	ND	ND	ND	7,25E-07	3,43E-05	3,40E-05	3,34E-06	-3,83E-05
EP-terrestrial	mol Ne	6,31E-03	1,69E-04	1,90E-03	8,38E-03	6,95E-05	8,98E-06	ND	ND	ND	ND	ND	ND	ND	6,49E-06	3,65E-04	3,84E-04	3,64E-05	-4,19E-04
POCP (“smog”) ³⁾	kg NMVOCe	2,07E-03	7,10E-05	5,82E-04	2,73E-03	4,26E-05	2,93E-06	ND	ND	ND	ND	ND	ND	ND	2,14E-06	1,44E-04	1,14E-04	1,31E-05	-1,48E-04
ADP-minerals & metals ⁴⁾	kg Sbe	4,62E-06	4,00E-08	5,58E-08	4,72E-06	2,97E-08	1,11E-08	ND	ND	ND	ND	ND	ND	ND	1,06E-08	1,03E-07	9,13E-07	1,91E-09	-3,18E-08
ADP-fossil resources	MJ	1,07E+01	2,08E-01	8,40E-01	1,18E+01	1,56E-01	1,91E-02	ND	ND	ND	ND	ND	ND	ND	1,83E-02	4,36E-01	1,74E-01	3,03E-02	-4,85E-01
Water use ⁵⁾	m ³ e depr.	2,12E-01	1,03E-03	6,05E-02	2,73E-01	7,98E-04	5,86E-04	ND	ND	ND	ND	ND	ND	ND	4,98E-04	2,11E-03	3,14E-03	7,04E-04	-6,56E-03

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, EF 3.1

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	4,23E-08	1,43E-09	1,05E-08	5,43E-08	1,01E-09	3,65E-11	ND	ND	ND	ND	ND	ND	ND	1,65E-11	2,50E-09	2,08E-09	1,99E-10	-3,86E-09
Ionizing radiation ⁶⁾	kBq U235e	1,02E+00	1,86E-04	8,02E-04	1,02E+00	1,88E-04	4,90E-04	ND	ND	ND	ND	ND	ND	ND	5,05E-04	3,55E-04	1,50E-03	1,86E-05	-1,47E-04
Ecotoxicity (freshwater)	CTUe	4,37E+00	2,91E-02	6,66E-02	4,47E+00	1,84E-02	9,54E-03	ND	ND	ND	ND	ND	ND	ND	2,79E-03	1,02E-01	1,02E-01	1,13E-02	-1,27E+00
Human toxicity, cancer	CTUh	5,09E-09	2,36E-12	1,40E-11	5,10E-09	1,73E-12	4,05E-13	ND	ND	ND	ND	ND	ND	ND	2,65E-13	5,40E-12	1,15E-11	2,26E-13	-1,15E-10
Human tox. non-cancer	CTUh	1,16E-08	1,35E-10	1,46E-10	1,19E-08	1,01E-10	1,80E-11	ND	ND	ND	ND	ND	ND	ND	1,38E-11	2,77E-10	7,83E-10	5,14E-12	-9,85E-09
SQP ⁷⁾	-	3,24E+00	2,10E-01	6,95E-01	4,14E+00	1,57E-01	5,95E-03	ND	ND	ND	ND	ND	ND	ND	4,07E-03	2,75E-01	3,37E-01	5,97E-02	-1,18E-01

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	1,48E+00	2,89E-03	2,24E-01	1,71E+00	2,54E-03	-3,75E-02	ND	ND	ND	ND	ND	ND	ND	5,02E-03	6,23E-03	3,25E-02	2,88E-04	3,24E-03
Renew. PER as material	MJ	0,00E+00	0,00E+00	4,13E-02	4,13E-02	0,00E+00	-4,13E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,43E-02
Total use of renew. PER	MJ	1,48E+00	2,89E-03	2,66E-01	1,75E+00	2,54E-03	-7,88E-02	ND	ND	ND	ND	ND	ND	ND	5,02E-03	6,23E-03	3,25E-02	2,88E-04	1,76E-02
Non-re. PER as energy	MJ	9,66E+00	2,08E-01	8,09E-01	1,07E+01	1,56E-01	-9,19E-03	ND	ND	ND	ND	ND	ND	ND	1,83E-02	4,36E-01	1,74E-01	3,03E-02	-4,85E-01
Non-re. PER as material	MJ	1,00E+00	0,00E+00	-7,52E-03	9,93E-01	0,00E+00	-1,90E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-8,28E-01	-1,46E-01	1,30E-02
Total use of non-re. PER	MJ	1,07E+01	2,08E-01	8,02E-01	1,17E+01	1,56E-01	-2,82E-02	ND	ND	ND	ND	ND	ND	ND	1,83E-02	4,36E-01	-6,54E-01	-1,16E-01	-4,72E-01
Secondary materials	kg	6,40E-01	8,87E-05	1,30E-03	6,41E-01	6,74E-05	4,96E-06	ND	ND	ND	ND	ND	ND	ND	3,02E-06	1,97E-04	2,12E-04	7,59E-06	2,55E-02
Renew. secondary fuels	MJ	3,61E-02	1,13E-06	1,11E-03	3,72E-02	8,51E-07	4,28E-08	ND	ND	ND	ND	ND	ND	ND	2,41E-08	2,51E-06	9,80E-06	1,58E-07	-3,39E-07
Non-ren. secondary fuels	MJ	1,25E-01	0,00E+00	0,00E+00	1,25E-01	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m ³	6,26E-03	3,08E-05	1,42E-03	7,71E-03	2,30E-05	1,22E-05	ND	ND	ND	ND	ND	ND	ND	1,58E-05	6,18E-05	9,26E-05	3,15E-05	-1,29E-04

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	8,13E-02	3,49E-04	1,14E-03	8,28E-02	2,26E-04	5,83E-05	ND	ND	ND	ND	ND	ND	ND	4,62E-05	7,75E-04	1,13E-03	3,40E-05	2,08E-03
Non-hazardous waste	kg	3,14E+00	6,49E-03	1,38E-01	3,28E+00	4,52E-03	8,29E-03	ND	ND	ND	ND	ND	ND	ND	3,58E-03	1,43E-02	4,11E-02	7,82E-04	-8,85E-02
Radioactive waste	kg	4,08E-05	4,57E-08	2,01E-07	4,11E-05	4,65E-08	1,27E-07	ND	ND	ND	ND	ND	ND	ND	1,30E-07	8,68E-08	3,85E-07	4,54E-09	-2,78E-08

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	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	1,45E-01	1,45E-01	0,00E+00	1,23E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	8,00E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	3,00E-04	3,00E-04	0,00E+00	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	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	8,81E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Electricity	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	3,71E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy – Heat	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,11E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML

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	5,29E-01	1,42E-02	6,04E-02	6,04E-01	1,03E-02	1,77E-03	ND	ND	ND	ND	ND	ND	ND	7,86E-04	3,09E-02	1,29E-02	1,23E-03	-4,12E-02
Ozone depletion Pot.	kg CFC ₁₁ e	8,44E-09	1,73E-10	1,14E-09	9,76E-09	1,72E-10	1,34E-11	ND	ND	ND	ND	ND	ND	ND	1,21E-11	3,90E-10	1,43E-10	2,80E-11	-2,74E-10
Acidification	kg SO ₂ e	2,25E-03	3,65E-05	2,77E-04	2,57E-03	1,94E-05	4,22E-06	ND	ND	ND	ND	ND	ND	ND	3,94E-06	7,89E-05	1,23E-04	6,45E-06	-1,25E-04
Eutrophication	kg PO ₄ ³ e	1,28E-03	8,91E-06	9,46E-05	1,39E-03	4,85E-06	6,93E-07	ND	ND	ND	ND	ND	ND	ND	5,09E-07	2,44E-05	1,79E-05	2,09E-06	-2,71E-05
POCP (“smog”)	kg C ₂ H ₄ e	1,78E-04	3,28E-06	2,15E-05	2,03E-04	1,98E-06	2,69E-07	ND	ND	ND	ND	ND	ND	ND	2,14E-07	7,17E-06	7,32E-06	6,12E-07	-2,36E-05
ADP-elements	kg Sbe	4,42E-06	3,90E-08	5,19E-08	4,51E-06	2,90E-08	1,10E-08	ND	ND	ND	ND	ND	ND	ND	1,06E-08	1,01E-07	9,11E-07	1,87E-09	-3,17E-08
ADP-fossil	MJ	7,82E+00	2,05E-01	8,27E-01	8,85E+00	1,53E-01	1,05E-02	ND	ND	ND	ND	ND	ND	ND	9,38E-03	4,30E-01	1,48E-01	3,00E-02	-4,83E-01

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 ₂ e	5,71E-01	1,43E-02	6,05E-02	6,45E-01	1,04E-02	1,71E-03	ND	ND	ND	ND	ND	ND	ND	7,88E-04	3,11E-02	1,30E-02	1,24E-03	-4,14E-02

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.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Electricity production, hydro, reservoir, alpine region, Norway, Ecoinvent, 0.0065 kgCO_{2e}/kWh
2. Heat production, heavy fuel oil, at industrial furnace 1MW, Albania, Ecoinvent, 0.10 kgCO_{2e}/MJ
3. Heat production, natural gas, at boiler modulating >100kW, europeWithoutSwitzerland, Ecoinvent, 0.0735 kgCO_{2e}/MJ
4. Market for diesel, burned in building machine, World, Ecoinvent, 0.10 kgCO_{2e}/MJ

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO6, 100 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	100
Bulk density of transported products	1,67E+03
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation resources)

1. Market group for electricity, low voltage, Ecoinvent, 0.0024 kWh

Installation scenario documentation - A5 (Installation waste)

1. Exported Energy: Electricity, Ecoinvent, 0.0019 MJ
2. Exported Energy: Electricity, Ecoinvent, 0.0018 MJ
3. Exported Energy: Electricity, Ecoinvent, 5.4E-6 MJ
4. Exported Energy: Thermal, Ecoinvent, 0.0026 MJ
5. Exported Energy: Thermal, Ecoinvent, 0.0025 MJ
6. Exported Energy: Thermal, Ecoinvent, 7.5E-6 MJ
7. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling,

9.2E-4 kg

8. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 8.6E-4 kg
9. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.0011 kg
10. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 2.6E-4 kg
11. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 1.6E-4 kg
12. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 2.8E-4 kg
13. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 2.4E-6 kg
14. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 2.7E-6 kg
15. Treatment of waste paper, unsorted, sorting, Ecoinvent, Materials for recycling, 2.5E-5 kg

End-of-life scenario documentation - C1-C4 (Data source)

1. Market group for electricity, low voltage, Ecoinvent, 0.0024 kWh
2. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.57 kg
3. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.1 kg
4. Rock crushing, Ecoinvent, Materials for recycling, 0.23 kg
5. Treatment of waste concrete, inert material landfill, Ecoinvent, 0.098 kg

Scenario information	Value
Scenario assumptions e.g. transportation	Transportation of the product from the demolition site to the appropriate waste treatment facility is assumed to occur within a radius of 50km - 250 km by lorry.

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance are filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15802+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

[Verified tools](#)

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Vera Durão, as an authorised verifier acting for EPD Hub Limited

09.04.2026



ANNEX 1: OVERVIEW OF THE OTHER VARIANTS

This annex provides the variant-specific results for the Multitop cast iron-concrete Manhole Top product family. The reference product for this product family is article 210510, the Multitop cast iron-concrete Manhole Top, with a declared GWP A1-A3 (fossil) of 0.644 kgCO₂e per kg.

As this document represents a sister EPD to the parent EPD for Multitop cast iron Manhole Tops (Product 210520 with declared GWP A1-A3 fossil 0,795 kgCO₂e/kg), the methodology, modelling framework, and upstream supply chains are taken directly from the parent EPD to ensure consistency and full methodological alignment.

All variants included in this annex follow the same:

- Material Composition
- Casting and concrete composite manufacturing processes
- Upstream raw material supply chains
- Energy sources and transport assumptions

The resulting differences in GWP A1-A3 (fossil) among the variants stem solely from weight and dimensional differences and do not exceed the permitted derivation limits. The maximum deviation observed in this annex is approximately -23%.

Although this annex lists individual article numbers and their corresponding LCA results, the EPD applies to the entire Multitop cast iron-concrete manhole top product family and is not limited to the variants presented in the table below.

MULTITOP CAST IRON-CONCRETE VARIANTS

Product	Net Product Weight (kg)	Product Width (mm)	Product Length (mm)	Product Height (mm)	Load Class	GWP A1-A3 fossil /DU (kgCO ₂ e)	Product GWP A1-A3 fossil (kgCO ₂ e)
210510	107	600	600	125	D400	6,44E-01	69
210514	107	600	600	125	D400	6,44E-01	69
210512	107	600	600	125	D400	6,44E-01	69
210511	109	600	600	125	D400	6,53E-01	71
210513	109	600	600	125	D400	6,53E-01	71
210217	109	600	600	125	D400	6,53E-01	71
210530	157	785	785	125	D400	5,72E-01	90
210536	157	785	785	125	D400	5,72E-01	90
210532	157	785	785	125	D400	5,72E-01	90
210531	159	785	785	125	D400	5,80E-01	92
210533	159	785	785	125	D400	5,80E-01	92
210537	159	785	785	125	D400	5,80E-01	92
1208030	122,7	600	600	160	D400	6,30E-01	77
210540	102	600	600	125	D400	6,65E-01	68
1206935	102	600	600	125	D400	6,65E-01	68
1206937	102	600	600	125	D400	6,65E-01	68

Product	Net Product Weight (kg)	Product Width (mm)	Product Length (mm)	Product Height (mm)	Load Class	GWP A1-A3 fossil /DU (kgCO2e)	Product GWP A1-A3 fossil (kgCO2e)
210541	104	600	600	125	D400	6,44E-01	67
1206936	104	600	600	125	D400	6,44E-01	67
1206939	104	600	600	125	D400	6,44E-01	67
210570	116	600	600	160	D400	6,44E-01	75
1206940	116	600	600	160	D400	6,44E-01	75
1206942	116	600	600	160	D400	6,44E-01	75
210571	118	600	600	125	D400	6,44E-01	76
1206941	118	600	600	125	D400	6,44E-01	76
1206943	118	600	600	125	D400	6,44E-01	76
1206857	116	600	600	160	D400	6,21E-01	72
1206896	116	600	600	160	D400	6,21E-01	72
1206898	116	600	600	160	D400	6,21E-01	72
1206858	118	600	600	160	D400	6,30E-01	74
1206897	118	600	600	160	D400	6,30E-01	74
1206899	118	600	600	160	D400	6,30E-01	74
1206861	166	785	785	160	D400	6,94E-01	115
1204596	166	785	785	160	D400	6,94E-01	115
1204533	166	785	785	160	D400	6,94E-01	115
1206862	168	785	785	160	D400	6,97E-01	117
1204596	168	785	785	160	D400	6,97E-01	117
1204533	168	785	785	160	D400	6,97E-01	117
1204360	210	785	785	125	D400	5,60E-01	118
1206908	210	785	785	125	D400	5,60E-01	118
1206910	210	785	785	125	D400	5,60E-01	118
1206847	210	785	785	125	D400	5,04E-01	106
1206909	210	785	785	125	D400	5,04E-01	106
1206911	210	785	785	125	D400	5,04E-01	106
1208495	164	785	785	125	D400	5,80E-01	95

This approach ensures:

- Transparent allocation
- Replicable variant-level calculation
- Consistent representation of the entire product family within the parent EPD boundaries

This method allows the EPD to remain technology-representative, transparent, and auditable, supporting both programme operator verification and customer documentation requirements. This information allows users to refer to the exact product configuration relevant for their construction project or LCA use case.