

## ENVIRONMENTAL PRODUCT DECLARATION

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

**Double wall polyethylene rainwater and drainage pipes**

Meltex Oy Plastics



**EPD HUB, HUB-1061**

Published on 01.02.2024, last updated on 01.02.2024, valid until 01.02.2029.



## GENERAL INFORMATION

### MANUFACTURER

Manufacturer	Meltex Oy Plastics
Address	Puuppolantie 111, 40270 Jyväskylä, Finland
Contact details	meltex@meltex.fi
Website	www.meltex.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 options, A4-A5, and modules C1-C4, D
EPD author	Johannes Hakala, Meltex Oy Plastics
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal certification <input checked="" type="checkbox"/> External verification
EPD verifier	Elma Avdyli, 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	Double wall polyethylene rainwater and drainage pipes
Additional labels	
Product reference	Double wall polyethylene rainwater and drainage pipes, 110–900 mm external diameter, and in accordance with the SFS 3453 standard
Place of production	Jyväskylä, Finland and Kuhmoinen, Finland
Period for data	1.11.2022-31.10.2023
Averaging in EPD	Multiple products and multiple factories
Variation in GWP-fossil for A1-A3	<10 %

### ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of pipe
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)	2,40E+00
GWP-total, A1-A3 (kgCO <sub>2</sub> e)	2,26E+00
Secondary material, inputs (%)	0.304
Secondary material, outputs (%)	2.49
Total energy use, A1-A3 (kWh)	9.36
Total water use, A1-A3 (m <sup>3</sup> e)	2,25E-02

## PRODUCT AND MANUFACTURER

### ABOUT THE MANUFACTURER

Established in 1993, Meltex is a Finnish manufacturer, importer and retailer of plastic products for the construction industry. Meltex offers a wide range of products and special expertise in the building materials sector, and fast deliveries throughout Finland. We are a specialist in civil engineering and HVAC supplies, especially pipes, drains and chambers.

### PRODUCT DESCRIPTION

This EPD represents many durable double wall polyethylene (PE) pipe products used for rainwater and drainage. The pipes are manufactured in Finland and have a corrugated outer surface and a smooth inner surface. Some characteristics vary between the products: the range of outer diameters is from 110 mm to 900 mm, the length of the pipe is either 6 or 8 meters, the stiffness of the material is either SN4 or SN8, the product may include a socket and/or a synthetic rubber gasket, and some pipes have perforations. Product numbers covered by this EPD:

**Rainwater pipes, SN4:** 100005, 100010, 100015, 100020, 100025, 100030, 100035, 100040, 100045, 100050 and 100055.

**Rainwater pipes, SN8:** 100105, 100110, 100115, 100120, 100125, 100150, 100155, 100160, 100165, 100170, 100175, 100245, 100250, 100255, 100260, 100265, 100270, 100275, 100280 and 100285.

**Drainage pipes, SN4:** 100225, 100230, 100235, 100240, 100310, 100315, 100320, 100340, 100345, 100350, 100355, 100360, 100365, 100370 and 100515.

**Drainage pipes, SN8:** 100385, 100390, 100395, 100400, 100420, 100425, 100430, 100435, 100520 and 100525.

Further information can be found at [www.meltex.fi](http://www.meltex.fi).

### PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	-	-
Minerals	7	EU
Fossil materials	93	World
Bio-based materials	-	-

### BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	0.03

### FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of pipe
Mass per declared unit	1 kg
Functional unit	
Reference service life	100

### 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	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 manufacturing process begins with the melting of the raw materials: polyethylene granules, additives and pigments. These are extruded into a double wall corrugated pipe, which is cooled by water in a closed loop system. Product and batch specific information is printed on the pipe. Perforations are made in some products, the pipe is then cut to the required length, and on some products, a socket is formed at the end. A

synthetic rubber seal is applied to some of the products. The finished pipes are loaded onto a wooden frame and bundled with plastic or steel strapping, except for the 900 mm diameter pipes, which do not require any packaging. All electricity used in pipe production is generated by hydroelectric power.

### 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.

A4: The average transportation distance from the two manufacturing sites to the construction site is based on sales data, 240 km by lorry. Vehicle capacity is assumed to be utilized in full, as full transports are preferred and return transport is typically utilized. There is assumed to be no loss during transport.

A5: The product is typically installed in an excavated ditch, and the environmental impact of fuel used by machinery during installation is included. There is assumed to be no loss when installing the product. Waste packaging material handling, transport, recycling and incineration are included. Release of biogenic carbon dioxide from the wood used for packaging is also considered.

### 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)

C1: The product is typically excavated from the ground, and the environmental impact of fuel used by machinery during this demolition process is included. Based on data from The European Plastic Pipes and Fittings Association (TEPPFA), it is assumed that 95 % of the product is left inert underground, and 5 % is excavated and collected at the site.



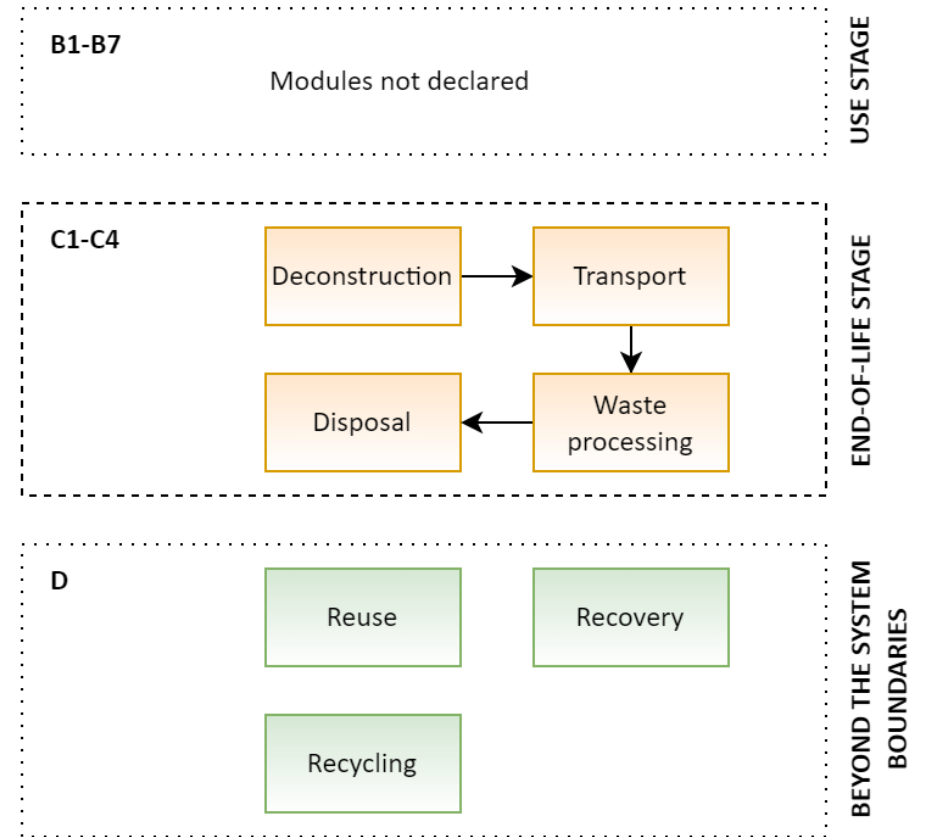
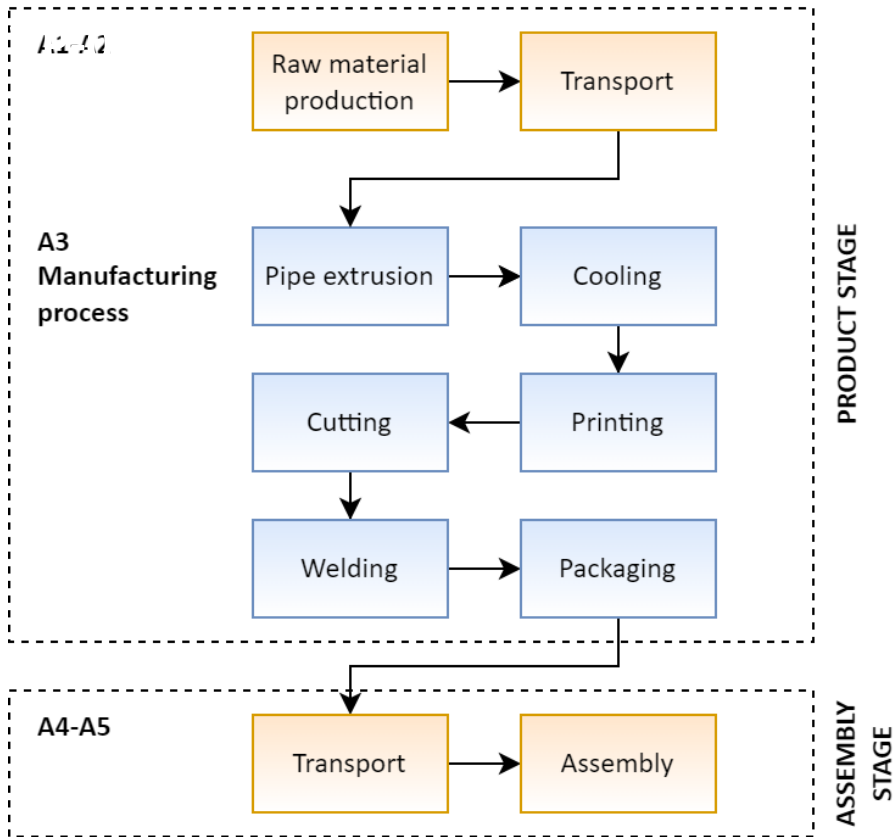
C2: The end-of-life product is assumed to be transported by lorry to the nearest facility, which is assumed to be 50 km away.

C3-C4: Based on data from TEPPFA, it is assumed that 95 % of the product is left inert underground, 2,5 % is recycled, and 2,5 % is incinerated.

D: The benefits and loads of the end-of-life product and its packaging are considered, including conversion to recycled plastic and the heat and energy produced by the incineration of waste.



# 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 and multiple factories
Averaging method	Averaged by shares of total mass
Variation in GWP-fossil for A1-A3	<10 %

Primary data represents two different manufacturing sites, but only one product was manufactured in both facilities. Products with an external diameter of 110–400 mm are manufactured in Jyväskylä, Finland, and products with an external diameter of 450–900 mm (and one 400 mm pipe) are manufactured in Kuhmoinen, Finland. Data from both facilities was of similar quality, and identical allocation methods were used for both. This EPD represents a large group of products, but the variability in their environmental impact is small. The pipes are very similar or almost identical in terms of raw materials, packaging and manufacturing process used. This EPD represents an average of the products by production mass.

### 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 v3.8 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 <sup>1)</sup>	kg CO <sub>2</sub> e	2,23E+00	1,55E-01	-1,24E-01	2,26E+00	2,35E-02	1,40E-01	MND	MND	MND	MND	MND	MND	MND	1,66E-05	3,25E-04	8,00E-02	2,24E-01	-2,56E-01
GWP – fossil	kg CO <sub>2</sub> e	2,23E+00	1,55E-01	1,32E-02	2,40E+00	2,35E-02	2,71E-03	MND	MND	MND	MND	MND	MND	MND	1,65E-05	3,25E-04	8,00E-02	2,24E-01	-2,55E-01
GWP – biogenic	kg CO <sub>2</sub> e	0,00E+00	0,00E+00	-1,37E-01	-1,37E-01	0,00E+00	1,37E-01	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,72E-04
GWP – LULUC	kg CO <sub>2</sub> e	8,53E-04	1,04E-04	1,49E-04	1,11E-03	8,43E-06	2,29E-06	MND	MND	MND	MND	MND	MND	MND	1,65E-09	1,25E-07	2,79E-06	4,23E-07	-2,06E-04
Ozone depletion pot.	kg CFC <sub>11</sub> e	4,22E-08	3,16E-08	1,77E-09	7,56E-08	5,60E-09	4,75E-10	MND	MND	MND	MND	MND	MND	MND	3,54E-12	7,50E-11	1,47E-10	9,06E-10	-7,87E-09
Acidification potential	mol H <sup>+</sup> e	8,94E-03	4,15E-03	6,80E-05	1,32E-02	9,79E-05	1,36E-05	MND	MND	MND	MND	MND	MND	MND	1,72E-07	1,34E-06	1,68E-05	4,48E-05	-1,21E-03
EP-freshwater <sup>2)</sup>	kg Pe	4,54E-05	6,94E-07	1,41E-06	4,75E-05	1,61E-07	8,04E-08	MND	MND	MND	MND	MND	MND	MND	5,48E-11	2,42E-09	6,26E-08	4,47E-08	-5,90E-06
EP-marine	kg Ne	1,57E-03	1,03E-03	1,98E-05	2,62E-03	2,96E-05	3,96E-06	MND	MND	MND	MND	MND	MND	MND	7,61E-08	3,99E-07	6,66E-06	3,02E-05	-1,58E-04
EP-terrestrial	mol Ne	1,73E-02	1,15E-02	2,11E-04	2,90E-02	3,27E-04	4,37E-05	MND	MND	MND	MND	MND	MND	MND	8,35E-07	4,40E-06	7,14E-05	2,14E-04	-1,85E-03
POCP (“smog”) <sup>3)</sup>	kg NMVOCe	7,41E-03	2,99E-03	9,81E-05	1,05E-02	1,05E-04	1,27E-05	MND	MND	MND	MND	MND	MND	MND	2,30E-07	1,37E-06	1,85E-05	1,17E-04	-5,81E-04
ADP-minerals & metals <sup>4)</sup>	kg Sbe	1,34E-05	2,48E-07	7,90E-08	1,38E-05	5,51E-08	1,15E-08	MND	MND	MND	MND	MND	MND	MND	8,39E-12	1,01E-09	2,70E-08	2,16E-09	-4,34E-07
ADP-fossil resources	MJ	6,76E+01	2,02E+00	1,86E-01	6,98E+01	3,59E-01	4,20E-02	MND	MND	MND	MND	MND	MND	MND	2,23E-04	4,84E-03	1,95E-02	5,70E-02	-3,37E+00
Water use <sup>5)</sup>	m <sup>3</sup> e depr.	8,83E-01	6,94E-03	5,78E-03	8,96E-01	1,66E-03	5,18E-04	MND	MND	MND	MND	MND	MND	MND	5,98E-07	2,21E-05	2,73E-03	1,54E-04	-4,84E-02

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 <sup>8)</sup>	MJ	8,94E-01	1,74E-02	2,54E+00	3,45E+00	4,65E-03	2,75E-03	MND	MND	MND	MND	MND	MND	MND	1,27E-06	6,40E-05	1,64E-03	3,27E-04	-3,60E-01
Renew. PER as material	MJ	1,21E-04	0,00E+00	1,10E+00	1,10E+00	0,00E+00	-1,10E+00	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-6,05E-06	-1,15E-04	0,00E+00
Total use of renew. PER	MJ	8,94E-01	1,74E-02	3,63E+00	4,54E+00	4,65E-03	-1,09E+00	MND	MND	MND	MND	MND	MND	MND	1,27E-06	6,40E-05	1,63E-03	2,12E-04	-3,60E-01
Non-re. PER as energy	MJ	2,80E+01	2,02E+00	1,81E-01	3,02E+01	3,59E-01	4,19E-02	MND	MND	MND	MND	MND	MND	MND	2,23E-04	4,84E-03	1,95E-02	5,70E-02	-2,29E+00
Non-re. PER as material	MJ	3,98E+01	0,00E+00	1,33E-02	3,99E+01	0,00E+00	-1,33E-02	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	-1,99E+00	-3,78E+01	1,05E+00
Total use of non-re. PER	MJ	6,79E+01	2,02E+00	1,95E-01	7,01E+01	3,59E-01	2,86E-02	MND	MND	MND	MND	MND	MND	MND	2,23E-04	4,84E-03	-1,97E+00	-3,78E+01	-1,24E+00
Secondary materials	kg	3,04E-03	8,67E-04	1,15E-03	5,05E-03	1,01E-04	1,87E-05	MND	MND	MND	MND	MND	MND	MND	8,71E-08	1,52E-06	9,35E-05	2,25E-05	2,74E-02
Renew. secondary fuels	MJ	6,15E-05	3,17E-06	2,39E-05	8,85E-05	8,93E-07	1,54E-07	MND	MND	MND	MND	MND	MND	MND	2,85E-10	1,63E-08	7,27E-07	7,30E-08	-1,08E-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 <sup>3</sup>	2,22E-02	1,65E-04	1,14E-04	2,25E-02	4,77E-05	1,48E-05	MND	MND	MND	MND	MND	MND	MND	1,35E-08	6,16E-07	2,08E-05	3,47E-06	-1,83E-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	9,73E-02	2,74E-03	1,85E-03	1,02E-01	3,85E-04	9,78E-05	MND	MND	MND	MND	MND	MND	MND	2,98E-07	5,79E-06	2,69E-04	0,00E+00	-1,19E-02
Non-hazardous waste	kg	1,80E+00	2,77E-02	2,02E-02	1,85E+00	6,70E-03	4,05E-03	MND	MND	MND	MND	MND	MND	MND	2,09E-06	9,97E-05	2,89E-02	9,50E-01	-5,39E-01
Radioactive waste	kg	2,22E-05	1,42E-05	1,06E-06	3,75E-05	2,48E-06	2,91E-07	MND	MND	MND	MND	MND	MND	MND	1,57E-09	3,30E-08	5,66E-08	0,00E+00	-9,63E-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	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	0,00E+00	0,00E+00	4,26E-03	4,26E-03	0,00E+00	1,08E-03	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	2,49E-02	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	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-2,49E-02
Exported energy	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	1,89E+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 <sub>2</sub> e	2,13E+00	1,54E-01	1,31E-02	2,29E+00	2,32E-02	2,68E-03	MND	MND	MND	MND	MND	MND	MND	1,64E-05	3,22E-04	7,99E-02	1,77E-01	-2,50E-01
Ozone depletion Pot.	kg CFC <sub>11</sub> e	3,56E-08	2,50E-08	1,46E-09	6,21E-08	4,44E-09	3,79E-10	MND	MND	MND	MND	MND	MND	MND	2,80E-12	5,94E-11	1,28E-10	7,17E-10	-6,46E-09
Acidification	kg SO <sub>2</sub> e	7,44E-03	3,32E-03	5,30E-05	1,08E-02	7,59E-05	1,06E-05	MND	MND	MND	MND	MND	MND	MND	1,23E-07	1,04E-06	1,23E-05	3,21E-05	-1,02E-03
Eutrophication	kg PO <sub>4</sub> <sup>3</sup> e	1,94E-03	3,83E-04	2,73E-05	2,35E-03	1,70E-05	4,39E-06	MND	MND	MND	MND	MND	MND	MND	2,84E-08	2,36E-07	2,01E-05	1,91E-02	-2,31E-04
POCP ("smog")	kg C <sub>2</sub> H <sub>4</sub> e	6,31E-04	8,67E-05	9,01E-06	7,27E-04	2,98E-06	4,07E-07	MND	MND	MND	MND	MND	MND	MND	2,68E-09	4,19E-08	5,36E-07	3,51E-05	-5,28E-05
ADP-elements	kg Sbe	1,34E-05	2,43E-07	7,69E-08	1,37E-05	5,36E-08	1,14E-08	MND	MND	MND	MND	MND	MND	MND	8,26E-12	9,85E-10	2,64E-08	2,12E-09	-4,31E-07
ADP-fossil	MJ	6,76E+01	2,02E+00	1,86E-01	6,98E+01	3,59E-01	4,19E-02	MND	MND	MND	MND	MND	MND	MND	2,23E-04	4,84E-03	1,95E-02	5,70E-02	-3,34E+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 compliance with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? [Read more online](#)

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

### THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Elma Avdyli, as an authorized verifier acting for EPD Hub Limited  
01.02.2024

