ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

PVC-U pipes

Aliaxis Italy - LARETER Spa - FIP - ASTORE

EPD HUB, HUB-4006

Published on 22.09.2025, last updated on 25.11.2025, valid until 21.09.2030.

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.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	LARETER Spa - Aliaxis Italy
Address	Via Occhiobello 732 ; Fiesso Umbertiano (ROVIGO), Italy
Contact details	info.lareter@aliaxis.com
Website	www.aliaxis.it

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 1.2, 24 Mar 2025 EN 16904 Product Category Rules (PCR) for plastics piping systems inside buildings
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Elisa Lemonnier - Aliaxis
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Nikolay Minkov, 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	PVC-U pipes
Additional labels	-
Product reference	-
Place of production	Plant in Fiesso Umbertiano, Rovigo, ITALY
Place of Installation and Use	Europe
Period for data	01/01/2024 - 31/12/2024
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	2.84
GWP-total, A1-A3 ($kgCO_2e$)	2.82
Secondary material, inputs (%)	1.45
Secondary material, outputs (%)	32.4
Total energy use, A1-A3 (kWh)	12.3
Net freshwater use, A1-A3 (m^3)	0.02

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Aliaxis is a global leader in advanced plastic piping systems for industrial, building, infrastructure and agriculture applications. For each of these segments, we offer a comprehensive range of high-quality products and solutions that meet our customers' most demanding needs across the globe.

Aliaxis, with a global workforce of about 15,500 employees, is active through leading local brands and operates in over 40 countries, combining local solutions with global innovation and operational excellence.

Aliaxis supplies installers and technicians worldwide with products and solutions to get projects up and running in an easy and reliable way. We aim to add value for the end-users: people in their homes, farmers, industries, and governments. Whatever the challenges in terms of size, volume or height, whatever the constraints in industrial, infrastructure projects or with irrigation requirements on agricultural land, we always strive to offer the appropriate products and solutions.

PRODUCT DESCRIPTION

PVC-U (rigid polyvinyl chloride- unplasticized) is obtained through the polymerization of a vinyl chloride monomer. The presence of chlorine in the PVC-U molecule results in a high-performance resin, in terms of thermal stability and chemical and mechanical resistance, up to temperatures of 60 °C.

PVC-U represents one of the more economic solutions in the field of thermoplastic and metal materials for resolving problems in the transport of corrosive chemical fluids, and in the distribution and treatment of water in general.

The mains reasons for this preference are the unique characteristics of the resin, which include:

- Good chemical resistance: PVC-U resins have excellent chemical resistance to most acids and alkalis, paraffin/aliphatic hydrocarbons and saline solutions
- Good thermal stability: PVC-U resins have good thermal stability in the temperature range between 0°C and 60°C and a reduced thermal expansion coefficient
- Resistance to ageing: PVC-U resins have a high circumferential breaking strength (Minimum Required Strength MRS ≥ 25.0 MPa at 20°C) and allow long installation lifetimes

The PVC-U Lareter range includes pipes from Ø16 mm to Ø500 mm diameter with operating pressures of 6 - 10 – 12.5 -16 - 20 - 25 bar. The PVC-U pipe is available in 3 different versions for Industrial application: plain end, socket welding and FORSHEDA gasket and in 3 different brands: LARETER, FIP and ASTORE.

Further information can be found at www.aliaxis.it.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	5.3	Europe
Fossil materials	94.7	Europe
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	0.0073

FUNCTIONAL UNIT AND SERVICE LIFE

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

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	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	Deconstr./demol.	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

Modules not declared = ND. 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 raw materials used to produce PVC-U pipes are mixed, calcium carbonate ($CaCO_3$) and stabilizers are added to the formulation to improve the dimensional stability and the extrusion efficiency allowing for a faster and more uniform process. PVC-U pipes are produced using the extrusion process and for the forsheda version the gasket is injected. The gasket is an integral part of the thermoforming process, giving shape to the throat where the gasket is located, thus minimizing irregularities and tolerances.

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 from production to the building site corresponds to an average transport distance based on Aliaxis sales. The transportation method used is lorry. The packaging waste is taken into account in the installation section (A5).

PRODUCT USE AND MAINTENANCE (B1-B7)

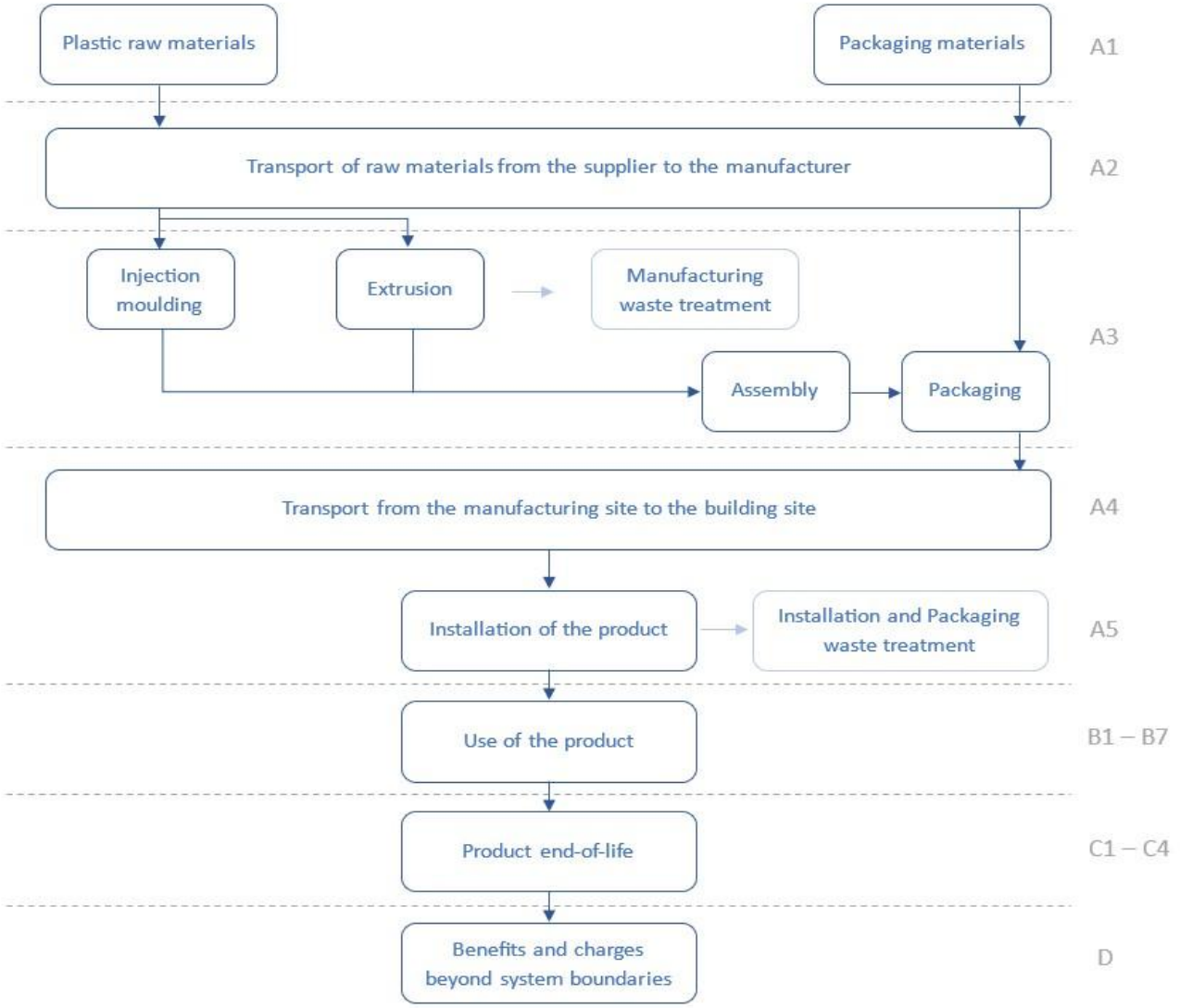
This EPD does not cover the use phase.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life product materials are transported by lorry to several facilities: a recycling facility 800 km from the demolition site, an incineration facility 150 km away and a landfill facility 50 km away (C2). The PVC-U is collected from the demolition site: 30.6 % is sent for incineration, 32.1 % is recycled and 37.3 % is landfilled. The EPDM is collected from the demolition site: 45 % is sent for incineration and 55 % is landfilled. The PP is collected from the demolition site: 36.8% is sent for incineration, 18.3 % is recycled and 44.9 % is landfilled (C3 - C4).

The benefits and loads of PVC-U and PP recycling are considered in module D. The energy and heat produced by the incineration of each material and of waste packaging materials are also taken into account in module D.

FLOW DIAGRAM



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

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable

This EPD is product and factory specific and does not contain average calculations.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology ‘allocation, Cutoff, EN 15804+A2.

ENVIRONMENTAL IMPACT DATA

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_2e	2,28E+00	1,29E-01	4,11E-01	2,82E+00	1,17E-01	5,69E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,45E-02	6,44E-01	2,55E-02	-1,09E+00
GWP – fossil	kg CO_2e	2,28E+00	1,29E-01	4,33E-01	2,84E+00	1,16E-01	3,53E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,45E-02	6,44E-01	2,55E-02	-9,02E-01
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-2,15E-02	-2,15E-02	0,00E+00	2,15E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	-1,86E-01
GWP – LULUC	kg CO_2e	1,92E-03	5,79E-05	6,06E-05	2,04E-03	5,21E-05	5,08E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,54E-05	8,00E-05	2,71E-06	-4,35E-04
Ozone depletion pot.	kg CFC-$_{11}$e	8,25E-07	1,91E-09	8,64E-09	8,35E-07	1,72E-09	1,86E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,09E-10	2,97E-09	1,09E-10	-2,75E-07
Acidification potential	mol H^+e	8,35E-03	4,41E-04	1,41E-03	1,02E-02	3,97E-04	3,29E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,18E-04	4,66E-04	3,08E-05	-3,74E-03
EP-freshwater[2)]	kg Pe	7,52E-04	1,01E-05	7,04E-05	8,33E-04	9,07E-06	1,73E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,68E-06	2,92E-05	5,20E-07	-2,65E-04
EP-marine	kg Ne	1,64E-03	1,45E-04	2,53E-04	2,04E-03	1,30E-04	1,95E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,86E-05	1,39E-04	1,46E-04	-6,47E-04
EP-terrestrial	mol Ne	1,56E-02	1,58E-03	2,70E-03	1,99E-02	1,42E-03	1,01E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,20E-04	1,28E-03	1,24E-04	-6,55E-03
POCP ("smog")[3)]	kg NMVOCe	9,32E-03	6,50E-04	1,15E-03	1,11E-02	5,85E-04	3,49E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,73E-04	4,12E-04	4,79E-05	-3,54E-03
ADP-minerals & metals[4)]	kg Sbe	3,85E-05	3,61E-07	4,41E-07	3,93E-05	3,25E-07	4,40E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,62E-08	7,54E-07	1,00E-08	-1,17E-05
ADP-fossil resources	MJ	5,51E+01	1,88E+00	6,13E+00	6,31E+01	1,69E+00	8,71E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,00E-01	1,03E+00	9,39E-02	-1,94E+01
Water use[5)]	m^3e depr.	6,57E-01	9,28E-03	3,33E-02	6,99E-01	8,35E-03	4,00E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,47E-03	7,93E-01	4,83E-04	-2,32E-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, 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	6,62E-08	1,30E-08	9,62E-09	8,88E-08	1,17E-08	4,61E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,45E-09	4,17E-09	6,76E-10	-3,07E-08
Ionizing radiation[6)]	kBq U235e	2,96E-01	1,64E-03	1,51E-02	3,12E-01	1,47E-03	2,32E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,36E-04	4,00E-03	9,19E-05	-7,46E-02
Ecotoxicity (freshwater)	CTUe	1,31E+01	2,66E-01	5,03E-01	1,39E+01	2,39E-01	3,34E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,08E-02	3,35E+01	3,24E+01	-4,13E+00
Human toxicity, cancer	CTUh	3,83E-09	2,14E-11	7,34E-11	3,93E-09	1,92E-11	1,03E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,69E-12	1,93E-10	1,80E-12	-1,27E-09
Human tox. non-cancer	CTUh	2,78E-08	1,22E-09	2,02E-09	3,11E-08	1,09E-09	1,90E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,24E-10	3,02E-09	1,65E-10	-9,09E-09
SQP[7)]	-	7,60E+00	1,89E+00	2,55E+00	1,20E+01	1,70E+00	6,86E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,04E-01	4,96E-01	2,16E-01	-3,45E+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	3,07E+00	2,57E-02	3,10E-01	3,41E+00	2,32E-02	-2,01E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,86E-03	9,72E-02	-7,64E-03	-1,54E+00
Renew. PER as material	MJ	1,73E-01	0,00E+00	1,89E-01	3,61E-01	0,00E+00	-1,89E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,08E-01	-6,44E-02	1,65E+00
Total use of renew. PER	MJ	3,25E+00	2,57E-02	4,98E-01	3,77E+00	2,32E-02	-3,90E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,86E-03	-1,10E-02	-7,20E-02	1,03E-01
Non-re. PER as energy	MJ	3,30E+01	1,88E+00	6,12E+00	4,10E+01	1,69E+00	-6,46E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,00E-01	-5,50E+00	-7,94E+00	-2,65E+01
Non-re. PER as material	MJ	2,21E+01	0,00E+00	1,25E-02	2,21E+01	0,00E+00	-1,25E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-1,39E+01	-8,27E+00	1,44E+01
Total use of non-re. PER	MJ	5,51E+01	1,88E+00	6,13E+00	6,31E+01	1,69E+00	-6,58E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,00E-01	-1,94E+01	-1,62E+01	-1,21E+01
Secondary materials	kg	1,45E-02	7,99E-04	1,47E-03	1,68E-02	7,19E-04	3,45E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,13E-04	3,67E-04	3,38E-05	3,55E-01
Renew. secondary fuels	MJ	1,55E-04	1,02E-05	6,36E-03	6,53E-03	9,14E-06	5,20E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,71E-06	9,99E-05	6,32E-07	-1,94E-03
Non-ren. secondary fuels	MJ	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
Use of net fresh water	m^3	1,74E-02	2,78E-04	3,10E-03	2,08E-02	2,50E-04	8,33E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	7,40E-05	1,84E-02	-1,38E-03	-7,08E-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	1,38E-01	3,18E-03	1,94E-02	1,61E-01	2,86E-03	9,37E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,48E-04	1,86E-01	1,66E-04	-5,57E-02
Non-hazardous waste	kg	6,94E+01	5,89E-02	3,65E-01	6,98E+01	5,30E-02	1,71E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,57E-02	7,28E-01	1,85E+00	-2,29E+01
Radioactive waste	kg	7,71E-05	4,00E-07	3,71E-06	8,12E-05	3,60E-07	5,90E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,07E-07	1,02E-06	2,25E-08	-1,96E-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	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	9,96E-02	9,96E-02	0,00E+00	4,24E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,41E-01	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	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	7,95E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	2,33E+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	2,53E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	6,77E-01	0,00E+00	0,00E+00
Exported energy –	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,42E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	1,66E+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_2e	2,26E+00	1,29E-01	4,30E-01	2,82E+00	1,16E-01	3,57E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,43E-02	6,44E-01	2,50E-02	-8,88E-01
Ozone depletion Pot.	kg CFC_{-11}e	8,20E-07	1,52E-09	7,06E-09	8,29E-07	1,37E-09	1,72E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,06E-10	2,84E-09	8,74E-11	-2,73E-07
Acidification	kg SO_2e	6,93E-03	3,37E-04	1,17E-03	8,44E-03	3,03E-04	2,57E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,98E-05	3,68E-04	2,29E-05	-3,13E-03
Eutrophication	kg PO_4^3e	2,31E-03	8,21E-05	2,88E-04	2,68E-03	7,39E-05	6,15E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,19E-05	7,07E-05	1,71E-05	-8,21E-04
POCP (“smog”)	kg C_2H_4e	6,77E-04	3,00E-05	8,44E-05	7,92E-04	2,70E-05	2,59E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,00E-06	3,42E-05	5,33E-06	-2,66E-04
ADP-elements	kg Sbe	3,11E-05	3,52E-07	4,24E-07	3,19E-05	3,17E-07	2,97E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,38E-08	4,71E-07	9,74E-09	-9,22E-06
ADP-fossil	MJ	4,99E+01	1,85E+00	5,88E+00	5,76E+01	1,67E+00	8,34E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,94E-01	9,65E-01	9,24E-02	-1,81E+01

ENVIRONMENTAL IMPACTS – FRENCH NATIONAL COMPLEMENTS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
ADP-elements	kg Sbe	3,11E-05	3,52E-07	4,24E-07	3,19E-05	3,17E-07	2,97E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,38E-08	4,71E-07	9,74E-09	-9,22E-06
Hazardous waste disposed	kg	1,38E-01	3,18E-03	1,94E-02	1,61E-01	2,86E-03	9,37E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,48E-04	1,86E-01	1,66E-04	-5,57E-02
Non-haz. waste disposed	kg	6,94E+01	5,89E-02	3,65E-01	6,98E+01	5,30E-02	1,71E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,57E-02	7,28E-01	1,85E+00	-2,29E+01
Air pollution	m^3	4,69E+02	3,12E+01	5,97E+01	5,59E+02	2,81E+01	2,11E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	8,31E+00	3,09E+01	9,98E-01	-2,01E+02
Water pollution	m^3	3,85E+01	8,63E-01	3,18E+00	4,25E+01	7,77E-01	4,07E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,30E-01	4,77E-01	4,94E-02	-1,23E+01

ENVIRONMENTAL IMPACTS – GWP-GHG

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	2,28E+00	1,29E-01	4,33E-01	2,85E+00	1,17E-01	3,53E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	3,45E-02	6,44E-01	2,55E-02	-9,02E-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.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Electricity, medium voltage, residual mix; Italy; Ecoinvent 3.10.1
Electricity CO2e / kWh	0,64
District heating data source and quality	-
District heating CO2e / kWh	-

Transport scenario documentation A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	Diesel truck
Average transport distance, km	1014
Capacity utilization (including empty return) %	50
Bulk density of transported products	-
Volume capacity utilization factor	-

Installation scenario documentation A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg or other units as appropriate	0
Water use / m^3	0
Other resource use / kg	0
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	0
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	0,067 kg
Output materials (specified by type) as result of waste processing at the building site e.g. collection for recycling, for energy recovery, disposal (specified by route) / kg	0
Direct emissions to ambient air, soil and water / kg	0

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	1 kg
Collection process – kg collected with mixed construction waste	-
Recovery process – kg for re-use	-
Recovery process – kg for recycling	0.32 kg
Recovery process – kg for energy recovery	0.31 kg
Disposal (total) – kg for final deposition	0.37 kg
Scenario assumptions e.g. transportation	PVC-U : 30.6% incineration, 32.1% recycling, 37.3% landfill EPDM : 45% incineration; 55% landfill PP : 36.8% incineration, 18.3% recycling, 44.9% landfill

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.

Nikolay Minkov, as an authorized verifier acting for EPD Hub Limited
22.09.2025