ENVIRONMENTAL PRODUCT DECLARATION

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

LARETER VDA™ - VINYLIC DUCTILE ALLOY

LARETER Spa

VDA / Polyvinyl Chloride A

EPD HUB, HUB-1151

Publishing date 22 February 2024, last updated on 29 March 2024, valid until 22 February 2029.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	LARETER Spa
Address	Via Occhiobello 732; Fiesso Umbertiano (ROVIGO)
Contact details	Info@lareter.it
Website	www.lareter.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 1.0, 1 Feb 2022 EN 16904 Product Category Rules (PCR) for plastics piping systems inside buildings
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	Lemonnier Elisa
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal certification ☑ 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	LARETER VDA™ - VINYLIC DUCTILE ALLOY
Additional labels	-
Product reference	-
Place of production	PLANT in Fiesso Umbertiano Rovigo, ITALY
Period for data	01/01/2022 - 31/12/2022
Averaging in EPD	No averaging

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 (kgCO2e)	2.31E+00
GWP-total, A1-A3 (kgCO2e)	2.29E+00
Secondary material, inputs (%)	0.875
Secondary material, outputs (%)	32.3
Total energy use, A1-A3 (kWh)	11.2
Total water use, A1-A3 (m3e)	3.90E-02

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Lareter Spa, founded in 1961 operates for more than 50 years in the production of PVC Pipes and PVC and Polyethylene Fittings used for industrial applications, for water supply, drainage and wastewaters and in agriculture for irrigation.

Lareter Spa embraced the environmental cause in recent years and started a process to improve the production cycle of PVC pipes and fittings to reduce the environmental impact deriving from processes.

Thanks to the entrepreneurial vision and the regional and European contributions received over the years, Lareter carry out various energy efficiency projects of production lines and to reduce consumption, thus drastically reducing environmental impact, in line with the commitments made by the countries in the different International Protocols on climate change.

The seriousness and reliability of Lareter are furthermore confirmed by the wide Case History of application of products in different projects, coming from leading Companies both in Italy and foreign countries, working in the field of water treatment, constructions, cooling processes, biogas and drainage. Lareter currently distributes products in more than 50 countries all over the world.

PRODUCT DESCRIPTION

The new VDA™ combines the resistance of PVC-U with the ductility of Polyethylene, thus creating a product highly resistant to crack propagation, which is the major cause of breakage during installation and laying operations.

The Lareter VDA™ pipes had been designed to provide the best performance for the specific application of the transport of water and fluids under pressure.

The features of the Lareter VDA™ pipes are:
- High resistance to crack propagation during installation
- Significant impact resistance to concentrated loads, even at low temperatures
- Excellent tolerance to chemicals
- Lighter, if compared to traditional pipes in plastic materials of the same diameters

The VDA™ Lareter range includes VDA™ pipes from Ø50 mm to Ø500 mm diameter with operating pressures of 8 - 10 - 12,5 -16 - 20 bar.

The materials have been chosen and mixed carefully in order to obtain a pipe that could guarantee toughness and durability. The combination of these materials has produced a new generation polymer alloy, able to comply with the needs of the water industry. From the combination of the characteristics of ductility and tenacity of polyethylene chloride and the characteristics of high resistance of PVC-U, had been obtained a new product with higher performance at the same cost.
The characteristics of the material are such, that the high levels of breaking strength, even in presence of concentrated loads, combined with the high yield load (ductility), lead the Lareter VDA™ pipes to perform better than others plastic materials on the market.

The VDA™ pipe is designed with socket and gasket FORSHEDA. 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.

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

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass- %	Material origin
Metals	0	-
Minerals	2.7	Europe
Fossil materials	97.3	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	0.0013

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	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 raw materials used to produce VDA™ pipes are mixed. An impact modifier is added to the formulation to create a polymeric alloy capable of improving the tenacity and ductility of the material and the resistance to cracking. VDA™ pipes are produced using the extrusion process and 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 Lareter sales. The transportation method used is lorry. The packaging waste are taken into account in the installation section (A5).

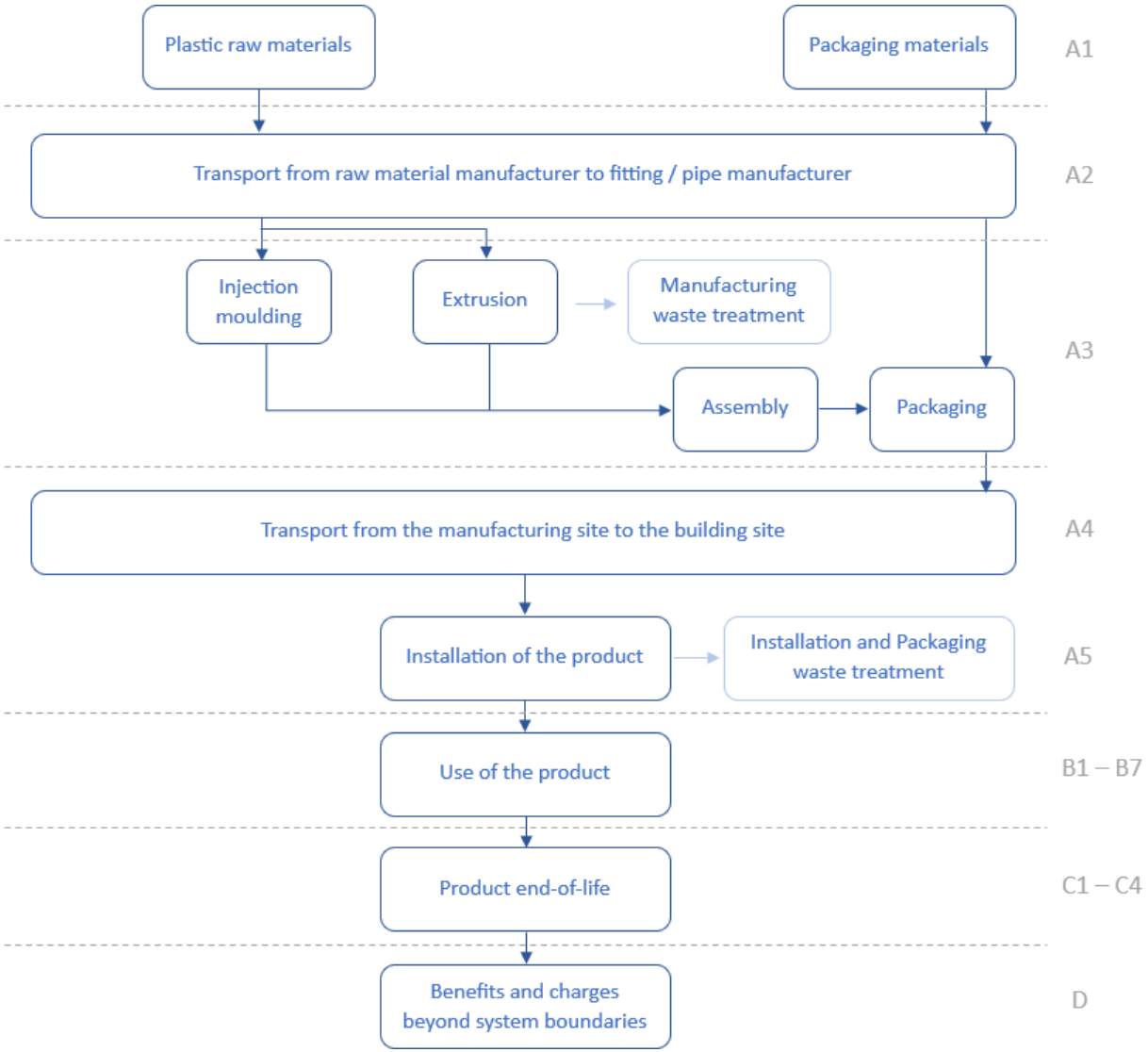
PRODUCT USE AND MAINTENANCE (B1-B7)

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 VDA™ 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 VDA™ 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.

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	No allocation
Manufacturing energy and waste	Allocation according to weight or volume

AVERAGES AND VARIABILITY

Type of average	No average
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 v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total[1)]	kg CO_2e	2,16E+00	1,11E-01	9,86E-03	2,29E+00	8,76E-02	5,73E-02	MND	MND	MND	MND	MND	MND	MND	MNR	3,01E-02	6,48E-01	3,15E-02	-7,56E-01
GWP – fossil	kg CO_2e	2,16E+00	1,11E-01	3,14E-02	2,31E+00	8,76E-02	3,57E-02	MND	MND	MND	MND	MND	MND	MND	MNR	3,01E-02	6,48E-01	3,15E-02	-7,70E-01
GWP – biogenic	kg CO_2e	0,00E+00	0,00E+00	-2,15E-02	-2,15E-02	0,00E+00	2,15E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	0,00E+00	0,00E+00	1,47E-02
GWP – LULUC	kg CO_2e	1,62E-03	4,10E-05	3,42E-05	1,70E-03	3,23E-05	5,43E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,11E-05	8,92E-05	4,13E-06	-2,74E-04
Ozone depletion pot.	kg CFC_{-11}e	1,15E-06	2,56E-08	3,94E-09	1,18E-06	2,01E-08	1,51E-09	MND	MND	MND	MND	MND	MND	MND	MNR	6,92E-09	2,03E-08	1,20E-09	-3,83E-07
Acidification potential	mol H^+e	1,01E-02	4,71E-04	1,58E-04	1,08E-02	3,71E-04	3,48E-05	MND	MND	MND	MND	MND	MND	MND	MNR	1,27E-04	4,79E-04	3,44E-05	-4,17E-03
EP-freshwater[2)]	kg Pe	8,97E-05	9,10E-07	9,52E-07	9,15E-05	7,17E-07	1,31E-07	MND	MND	MND	MND	MND	MND	MND	MNR	2,46E-07	2,20E-06	6,93E-08	-2,95E-05
EP-marine	kg Ne	1,63E-03	1,40E-04	3,28E-05	1,80E-03	1,10E-04	9,97E-06	MND	MND	MND	MND	MND	MND	MND	MNR	3,78E-05	1,18E-04	2,05E-05	-5,78E-04
EP-terrestrial	mol Ne	1,68E-02	1,54E-03	3,41E-04	1,87E-02	1,22E-03	1,02E-04	MND	MND	MND	MND	MND	MND	MND	MNR	4,17E-04	1,28E-03	1,26E-04	-6,24E-03
POCP ("smog")[3)]	kg NMVOCe	6,19E-03	4,94E-04	1,01E-04	6,78E-03	3,89E-04	2,98E-05	MND	MND	MND	MND	MND	MND	MND	MNR	1,34E-04	3,55E-04	4,30E-05	-2,18E-03
ADP-minerals & metals[4)]	kg Sbe	5,59E-05	2,61E-07	3,17E-07	5,64E-05	2,05E-07	5,35E-08	MND	MND	MND	MND	MND	MND	MND	MNR	7,05E-08	9,61E-07	1,35E-08	-1,35E-05
ADP-fossil resources	MJ	5,46E+01	1,67E+00	3,91E+00	6,02E+01	1,32E+00	8,27E-02	MND	MND	MND	MND	MND	MND	MND	MNR	4,52E-01	9,86E-01	9,17E-02	-2,03E+01
Water use[5)]	m^3e depr.	1,54E+00	7,47E-03	4,93E-02	1,60E+00	5,89E-03	3,62E-03	MND	MND	MND	MND	MND	MND	MND	MNR	2,02E-03	6,11E-02	5,47E-04	-5,10E-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	7,88E-08	1,28E-08	1,87E-09	9,34E-08	1,01E-08	4,50E-10	MND	MND	MND	MND	MND	MND	MND	MNR	3,47E-09	3,82E-09	6,78E-10	-5,32E-08
Ionizing radiation[6)]	kBq U235e	3,17E-01	7,95E-03	1,76E-01	5,01E-01	6,26E-03	4,95E-04	MND	MND	MND	MND	MND	MND	MND	MNR	2,15E-03	6,75E-03	4,41E-04	-2,42E-01
Ecotoxicity (freshwater)	CTUe	3,95E+01	1,50E+00	9,56E-01	4,20E+01	1,18E+00	1,90E+00	MND	MND	MND	MND	MND	MND	MND	MNR	4,06E-01	3,59E+01	1,44E+00	-1,69E+01
Human toxicity, cancer	CTUh	1,67E-09	3,69E-11	4,34E-11	1,75E-09	2,91E-11	7,47E-12	MND	MND	MND	MND	MND	MND	MND	MNR	9,98E-12	1,28E-10	3,21E-12	-5,34E-10
Human tox. non-cancer	CTUh	5,42E-08	1,49E-09	4,78E-10	5,61E-08	1,17E-09	5,56E-10	MND	MND	MND	MND	MND	MND	MND	MNR	4,02E-10	1,00E-08	2,80E-10	-1,58E-08
SQP[7)]	-	5,26E+00	1,92E+00	1,85E+00	9,03E+00	1,52E+00	7,42E-02	MND	MND	MND	MND	MND	MND	MND	MNR	5,20E-01	5,65E-01	2,21E-01	-2,91E+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	2,59E+00	1,88E-02	3,94E-01	3,00E+00	1,48E-02	5,00E-03	MND	MND	MND	MND	MND	MND	MND	MNR	5,09E-03	9,11E-02	1,68E-03	-1,13E+00
Renew. PER as material	MJ	2,30E-01	0,00E+00	1,89E-01	4,19E-01	0,00E+00	-1,89E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-1,44E-01	-8,58E-02	0,00E+00
Total use of renew. PER	MJ	2,82E+00	1,88E-02	5,83E-01	3,42E+00	1,48E-02	-1,84E-01	MND	MND	MND	MND	MND	MND	MND	MNR	5,09E-03	-5,32E-02	-8,42E-02	-1,13E+00
Non-re. PER as energy	MJ	3,17E+01	1,67E+00	3,89E+00	3,73E+01	1,32E+00	8,27E-02	MND	MND	MND	MND	MND	MND	MND	MNR	4,52E-01	9,86E-01	9,17E-02	-1,31E+01
Non-re. PER as material	MJ	2,29E+01	0,00E+00	2,23E-02	2,29E+01	0,00E+00	-2,23E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	-1,43E+01	-8,57E+00	1,43E+01
Total use of non-re. PER	MJ	5,46E+01	1,67E+00	3,91E+00	6,02E+01	1,32E+00	6,04E-02	MND	MND	MND	MND	MND	MND	MND	MNR	4,52E-01	-1,33E+01	-8,48E+00	1,15E+00
Secondary materials	kg	8,75E-03	4,64E-04	8,20E-04	1,00E-02	3,65E-04	2,74E-05	MND	MND	MND	MND	MND	MND	MND	MNR	1,25E-04	3,19E-04	3,28E-05	3,54E-01
Renew. secondary fuels	MJ	1,12E-04	4,68E-06	6,36E-03	6,48E-03	3,69E-06	5,27E-06	MND	MND	MND	MND	MND	MND	MND	MNR	1,27E-06	1,02E-04	1,26E-06	-2,10E-04
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	MNR	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	3,76E-02	2,16E-04	1,18E-03	3,90E-02	1,70E-04	1,43E-03	MND	MND	MND	MND	MND	MND	MND	MNR	5,85E-05	2,83E-02	9,82E-05	-1,24E-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	1,33E-01	2,21E-03	2,57E-03	1,38E-01	1,74E-03	4,48E-03	MND	MND	MND	MND	MND	MND	MND	MNR	5,99E-04	8,86E-02	0,00E+00	-4,33E-02
Non-hazardous waste	kg	3,43E+00	3,64E-02	3,60E-02	3,50E+00	2,87E-02	4,37E-02	MND	MND	MND	MND	MND	MND	MND	MNR	9,84E-03	2,18E-01	3,73E-01	-1,16E+00
Radioactive waste	kg	1,01E-04	1,12E-05	5,12E-05	1,63E-04	8,80E-06	3,05E-07	MND	MND	MND	MND	MND	MND	MND	MNR	3,02E-06	2,60E-06	0,00E+00	-7,40E-05

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MNR	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	4,38E-02	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	6,39E-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	MND	MND	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	8,75E-01	MND	MND	MND	MND	MND	MND	MND	MNR	0,00E+00	2,33E+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	2,09E+00	1,10E-01	3,08E-02	2,23E+00	8,67E-02	3,58E-02	MND	MND	MND	MND	MND	MND	MND	MNR	2,98E-02	6,47E-01	2,65E-02	-7,33E-01
Ozone depletion Pot.	kg CFC_{-11}e	1,15E-06	2,03E-08	3,43E-09	1,17E-06	1,60E-08	1,33E-09	MND	MND	MND	MND	MND	MND	MND	MNR	5,48E-09	1,87E-08	9,50E-10	-3,83E-07
Acidification	kg SO_2e	8,52E-03	3,66E-04	1,29E-04	9,02E-03	2,88E-04	2,73E-05	MND	MND	MND	MND	MND	MND	MND	MNR	9,89E-05	3,80E-04	2,62E-05	-3,54E-03
Eutrophication	kg PO_4^{3e}	3,74E-03	8,33E-05	5,09E-05	3,88E-03	6,56E-05	9,18E-05	MND	MND	MND	MND	MND	MND	MND	MNR	2,25E-05	1,85E-04	1,18E-03	-1,12E-03
POCP (“smog”)	kg C_2H_4e	5,13E-04	1,43E-05	7,07E-06	5,34E-04	1,12E-05	1,88E-06	MND	MND	MND	MND	MND	MND	MND	MNR	3,86E-06	2,52E-05	4,99E-06	-2,04E-04
ADP-elements	kg Sbe	4,99E-05	2,52E-07	3,20E-07	5,05E-05	1,99E-07	3,97E-08	MND	MND	MND	MND	MND	MND	MND	MNR	6,83E-08	6,90E-07	1,30E-08	-1,15E-05
ADP-fossil	MJ	5,46E+01	1,67E+00	3,91E+00	6,02E+01	1,32E+00	8,27E-02	MND	MND	MND	MND	MND	MND	MND	MNR	4,52E-01	9,86E-01	9,17E-02	-2,03E+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	4,99E-05	2,52E-07	3,20E-07	5,05E-05	1,99E-07	3,97E-08	MND	MND	MND	MND	MND	MND	MND	MNR	6,83E-08	6,90E-07	1,30E-08	-1,15E-05
Hazardous waste disposed	kg	1,33E-01	2,21E-03	2,57E-03	1,38E-01	1,74E-03	4,48E-03	MND	MND	MND	MND	MND	MND	MND	MNR	5,99E-04	8,86E-02	0,00E+00	-4,33E-02
Non-haz. waste disposed	kg	3,43E+00	3,64E-02	3,60E-02	3,50E+00	2,87E-02	4,37E-02	MND	MND	MND	MND	MND	MND	MND	MNR	9,84E-03	2,18E-01	3,73E-01	-1,16E+00
Air pollution	m^3	3,87E+02	1,99E+01	3,28E+01	4,40E+02	1,57E+01	1,82E+00	MND	MND	MND	MND	MND	MND	MND	MNR	5,39E+00	2,82E+01	1,01E+00	-1,91E+02
Water pollution	m^3	1,62E+01	1,18E-01	2,98E-01	1,66E+01	9,26E-02	1,51E-01	MND	MND	MND	MND	MND	MND	MND	MNR	3,18E-02	8,40E-01	1,81E+00	-4,80E+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

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

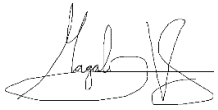
I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried 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.

Magaly González Vázquez, as an authorized verifier acting for EPD Hub Limited
22.02.2024



VERIFIED ISO 14025