PIPELIFE
wienerberger

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

PVC 110x6m Sewer SN4 EN 13476
Pipelife Ireland Solutions Ltd

EPD HUB, EPD number HUB-4574
Published on 05.12.2025, last updated on 05.12.2025, valid until 05.12.2030

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.

One Click LCA Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Pipelife Ireland Solutions Ltd
Address	Little Island, Co. Cork. Ireland T45 TX05
Contact details	Ireland@pipelife.com
Website	www.pipelife.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	-
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Aaminah Nisa, Wienerberger Limited
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub

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 110x6m Sewer SN4 EN 13476
Additional labels	-
Product reference	-
Place(s) of raw material origin	EU
Place of production	Ireland
Place(s) of installation and use	Ireland
Period for data	01.01.2023 - 31.12.2023
Averaging in EPD	No Grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	6.75

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	1.87E+00
GWP-total, A1-A3 ($kgCO_2e$)	1.87E+00
Secondary material, inputs (%)	1.15
Secondary material, outputs (%)	57
Total energy use, A1-A3 (kWh)	8.3
Net freshwater use, A1-A3 (m^3)	0.01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Pipelife Ireland is Ireland leading manufacturer and supplier of a multifaceted range of NSAI (National Standards Authority of Ireland) and BSI (British Standards Institute) certified plastic pipe systems for water, gas, electrical, hot / cold potable, and central / underfloor heating applications. Pipelife Ireland also manufactures PVC corrugated pipe and PVC pressure pipes, PVC smooth wall pipe for under and overground drainage systems, waste and rainwater PVC systems, fascia PVC-UE, roofline, and cladding systems along with wastewater management products including ABS, PP and PVC.

Pipelife Ireland is an ISO 9001 company and has over 55 years of Irish manufacturing serving customer in Ireland, UK, and Europe. Pipelife Ireland employs over 200 people with it state of the art manufacturing base located in Little Island, Co. Cork.

PRODUCT DESCRIPTION

Pipelife Ireland Solutions Ltd 110mm SN4 terracotta sewer pipe is a structured-wall pipe made from unplasticized polyvinylchloride (PVC-U), designed for underground non-pressure drainage and sewer systems. These pipes which are supplied in wooden bales are manufactured in accordance with and are certified to BS EN 13476, thus ensuring durability and performance in underground applications.

The stiffness class of SN4 ensure suitability for underground installation with normal traffic loads. Socketed ends with elastomeric sealing rings provide a watertight joint and flexible connection that allows ground movement and thermal expansion. This sewer pipe provides excellent chemical resistance with an operational range up to 45°C continuously. The area of intended application is outside the building. These pipes are lightweight, easy to install and have limited UV resistance therefore prolonged exposure to direct sunlight is not recommended. The product is certified to BS EN 13476 and guaranteed for 25 years.

Further information can be found at www.pipelife.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	-	-
Minerals	-	-
Fossil materials	100	EU
Bio-based materials	-	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	-
Biogenic carbon content in packaging, kg C	0.00021

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	Deconstruction/ demolition	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.

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

The PVC 110mm Sewer pipe is produced with a mixture of virgin PVC and PVC regrind material and <1% of pigment added to the mix.

The pipes are extruded, cooled, cut to the required coil lengths and straight lengths, and packaged for distribution. In this phase, we calculate with a 0.9% production loss, which accounts for material waste during the manufacturing process. All scrap waste is reprocessed on site and put back into the process. Additionally, the environmental impacts are modelled based on the electricity consumption required for production processes and the use of diesel for operating forklifts within the facility.

In this LCA, packaging material, timber frames, are included as a material input in A3 and the impact of waste treatment of packaging is allocated in A5.

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.

A4: Transport
The products are assumed to be transported to various locations within Ireland. A standard transport distance of 200 km is applied, modelled using >32 metric ton, EURO6 vehicle.

A5: Installation
A 5% installation loss was applied.
Packaging waste:
Wood packaging waste is modelled based with the datapoint A5 x EoL Wood packaging EU scenario. One Click LCA - EI 3.10.
50 km to a waste sorting plant. The assumed mode of transport is by lorry - Transport, freight, lorry >32 metric ton, EURO6[1]
Installation processes have not been evaluated.

PRODUCT USE AND MAINTENANCE (B1-B7)

B1 Use:
Pipes do not emit any emissions to air during their use, so this module is not relevant.
B2 Maintenance:
Once installed, pipework requires no maintenance for a minimum of 60 years.
B3 Repair:
It is assumed that the pipe should not need any repair during its reference service life, so impacts are negligible.
B4 Replacement:
The reference service life of the pipe extends beyond the 60-year study period and likely life of the building so no replacements are expected.
B5 Refurbishment:
It has been assumed that no refurbishment action that relates to the pipe will be required during the 60-year study period.
B6 Operational Energy Use:
No energy is consumed by the pipe during operation, so this module is not relevant.
B7 Operational Water Use:
No water is consumed by the pipe during operation, so this module is not relevant.

Air, soil, and water impacts during the use phase have not been studied.

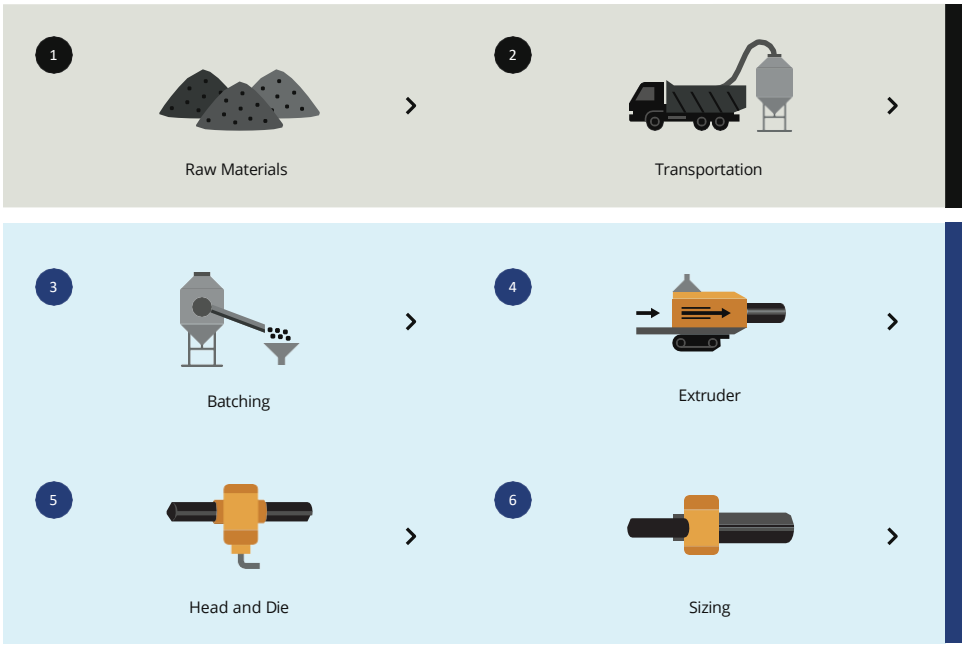
PRODUCT END OF LIFE (C1-C4, D)

C1 Deconstruction, demolition:
This element was not evaluated.
C2 End of life transport to waste processing:
1 kg of pipe is transported 50 km to a waste sorting plant. The assumed mode of transport is by lorry - Transport, freight, lorry >32 metric ton, EURO6
C3 waste processing for reuse, recovery and/or recycling: It is possible to fully recycle the pipe after use. However, the most likely scenario currently in use are outlined below:
57% of the material is recycled[2]
C4 Disposal:
43% of the material is sent to landfill
D Benefits and loads beyond the system boundary:
includes the reuse, recovery and/or recycling potentials, expressed as net impacts and benefits. Recycling PVC avoids the production of virgin material. Wood packaging from A5 is ground to make mulch, avoiding the production of new mulch. The benefit of exported energy from incineration is also considered.

[1] EPDIreland - Product Category Rules

[2] Treatment of C&D Waste by category

PIPELIFE 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.

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 1 and 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	Allocated by mass or volume
Ancillary materials	Not applicable
Manufacturing energy and waste	Allocated by mass or volume

AVERAGES AND VARIABILITY

Type of average	No averaging
Averaging method	Not applicable
Variation in GWP-fossil for A1-A3	-

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 and One Click LCA databases as sources of environmental data.

EPDIreland –Product Category Rules **–** https://www.igbc.ie/wp-content/uploads/2022/05/EPD-Ireland-Product-Category-Rules-PCR-V-2.1-05.03.2022.pdf

Treatment of C&D Waste by category – https://www.epa.ie/our-services/monitoring--assessment/waste/national-waste-statistics/construction--demolition/

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_2e	1.78E+00	8.87E-02	5.92E-03	1.87E+00	2.07E-02	9.83E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.17E-03	2.90E-02	5.15E-02	-7.62E-01
GWP – fossil	kg CO_2e	1.78E+00	8.86E-02	6.78E-03	1.87E+00	2.07E-02	9.83E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.17E-03	3.74E-02	5.15E-02	-7.85E-01
GWP – biogenic	kg CO_2e	-2.22E-03	1.99E-05	-8.63E-04	-3.06E-03	4.52E-06	-7.52E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.13E-06	-8.47E-03	-2.71E-05	2.34E-02
GWP – LULUC	kg CO_2e	1.52E-03	3.96E-05	6.87E-06	1.57E-03	8.06E-06	8.48E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.01E-06	6.86E-05	3.14E-06	-4.50E-04
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	6.61E-07	1.36E-09	7.49E-11	6.62E-07	4.32E-10	3.32E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.08E-10	2.11E-10	1.24E-10	-3.72E-07
Acidification potential	mol H^+e	6.46E-03	3.36E-04	3.80E-05	6.83E-03	4.88E-05	3.60E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.22E-05	1.70E-04	3.42E-05	-2.46E-03
EP-freshwater[2)]	kg Pe	5.84E-04	6.76E-06	2.63E-06	5.93E-04	1.45E-06	3.07E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.61E-07	1.02E-05	5.06E-07	-2.52E-04
EP-marine	kg Ne	1.40E-03	1.04E-04	9.40E-06	1.51E-03	1.28E-05	8.87E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.20E-06	1.36E-04	1.14E-04	-4.66E-04
EP-terrestrial	mol Ne	1.26E-02	1.14E-03	8.15E-05	1.38E-02	1.39E-04	7.45E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.46E-05	5.13E-04	1.39E-04	-4.45E-03
POCP ("smog")[3)]	kg NMVOCe	7.32E-03	4.63E-04	2.95E-05	7.82E-03	8.49E-05	4.11E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.12E-05	1.63E-04	6.06E-05	-3.37E-03
ADP-minerals & metals[4)]	kg Sbe	2.98E-05	2.45E-07	1.75E-07	3.02E-05	5.92E-08	1.54E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.48E-08	3.31E-07	1.08E-08	-1.58E-05
ADP-fossil resources	MJ	4.32E+01	1.29E+00	8.16E-02	4.46E+01	3.11E-01	2.27E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.77E-02	2.83E-01	1.07E-01	-2.20E+01
Water use[5)]	m^3e depr.	5.09E-01	6.33E-03	2.40E-03	5.17E-01	1.59E-03	2.67E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.98E-04	8.61E-03	5.23E-04	-2.40E-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	5.19E-08	8.72E-09	6.96E-10	6.13E-08	2.02E-09	3.74E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.04E-10	6.23E-09	7.74E-10	-4.31E-09
Ionizing radiation[6)]	kBq U235e	2.37E-01	1.15E-03	2.91E-04	2.39E-01	3.75E-04	1.20E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.36E-05	8.79E-04	1.06E-04	-1.21E-01
Ecotoxicity (freshwater)	CTUe	1.03E+01	1.78E-01	4.84E-02	1.06E+01	3.66E-02	5.61E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.15E-03	3.49E-01	1.59E-01	-4.61E+00
Human toxicity, cancer	CTUh	3.02E-09	1.48E-11	7.63E-12	3.05E-09	3.45E-12	1.60E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.61E-13	8.71E-11	2.52E-12	-1.58E-09
Human tox. non-cancer	CTUh	2.12E-08	8.23E-10	1.98E-10	2.22E-08	2.01E-10	1.20E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.02E-11	8.23E-10	4.96E-10	-9.38E-09
SQP[7)]	-	6.51E+00	1.27E+00	1.72E-01	7.96E+00	3.13E-01	4.67E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.82E-02	5.55E-01	2.49E-01	-2.51E+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	2.60E+00	1.78E-02	1.64E+00	4.26E+00	5.06E-03	2.04E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.26E-03	3.03E-02	1.67E-03	-1.12E+00
Renew. PER as material	MJ	5.02E-02	0.00E+00	5.04E-03	5.53E-02	0.00E+00	-5.49E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	-2.84E-02	-2.14E-02	6.02E-04
Total use of renew. PER	MJ	2.65E+00	1.78E-02	1.64E+00	4.31E+00	5.06E-03	1.98E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.26E-03	1.94E-03	-1.97E-02	-1.12E+00
Non-re. PER as energy	MJ	2.47E+01	1.29E+00	-3.01E-01	2.56E+01	3.11E-01	-7.97E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.77E-02	-2.39E+01	-1.67E+01	-3.17E+01
Non-re. PER as material	MJ	1.86E+01	0.00E+00	-1.66E-01	1.84E+01	0.00E+00	-1.56E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	-1.05E+01	-7.92E+00	1.94E+01
Total use of non-re. PER	MJ	4.32E+01	1.29E+00	-4.66E-01	4.41E+01	3.11E-01	-7.97E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.77E-02	-3.44E+01	-2.47E+01	-1.22E+01
Secondary materials	kg	1.15E-02	5.51E-04	5.05E-04	1.26E-02	1.34E-04	7.93E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.36E-05	1.78E-03	3.87E-05	4.83E-01
Renew. secondary fuels	MJ	1.02E-04	6.86E-06	1.71E-06	1.11E-04	1.70E-06	6.96E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.24E-07	1.49E-05	7.25E-07	-4.47E-05
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	1.35E-02	1.88E-04	5.40E-05	1.37E-02	4.59E-05	7.01E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.15E-05	1.63E-04	-1.59E-03	-6.43E-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	1.06E-01	2.14E-03	1.52E-03	1.09E-01	4.50E-04	5.96E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.12E-04	5.18E-03	1.88E-04	-4.09E-02
Non-hazardous waste	kg	5.51E+01	3.98E-02	1.92E-02	5.51E+01	9.00E-03	2.77E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.25E-03	1.19E-01	2.14E+00	-3.09E+01
Radioactive waste	kg	6.37E-05	2.83E-07	1.21E-04	1.85E-04	9.27E-08	9.26E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.32E-08	2.23E-07	2.60E-08	-3.15E-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	9.00E-03	9.00E-03	0.00E+00	4.50E-04	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	2.01E-06	0.00E+00	1.16E-07	2.13E-06	0.00E+00	2.62E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	5.70E-01	0.00E+00	0.00E+00
Materials for energy rec	kg	8.58E-10	0.00E+00	1.60E-15	8.58E-10	0.00E+00	4.29E-11	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	9.26E-05	0.00E+00	0.00E+00	9.26E-05	0.00E+00	1.31E-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	5.46E-04	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	7.56E-04	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_2e	1.77E+00	8.81E-02	6.88E-03	1.87E+00	2.06E-02	9.88E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.14E-03	4.57E-02	4.93E-02	-7.52E-01
Ozone depletion Pot.	kg CFC_{-11}e	6.53E-07	1.08E-09	7.91E-11	6.54E-07	3.44E-10	3.27E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.58E-11	1.79E-10	9.94E-11	-3.71E-07
Acidification	kg SO2e	5.36E-03	2.60E-04	3.16E-05	5.65E-03	3.87E-05	2.97E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.68E-06	1.33E-04	2.54E-05	-2.04E-03
Eutrophication	kg PO43e	1.77E-03	5.77E-05	8.07E-06	1.84E-03	9.67E-06	9.61E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.42E-06	4.07E-05	1.66E-05	-8.46E-04
POCP (“smog”)	kg C2H4e	5.16E-04	2.18E-05	2.85E-06	5.41E-04	3.95E-06	2.91E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.87E-07	2.07E-05	9.53E-06	-2.20E-04
ADP-elements	kg Sbe	2.41E-05	2.39E-07	1.75E-07	2.45E-05	5.78E-08	1.26E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.44E-08	3.28E-07	1.05E-08	-1.24E-05
ADP-fossil	MJ	3.91E+01	1.27E+00	7.75E-02	4.04E+01	3.05E-01	2.06E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.61E-02	2.69E-01	1.05E-01	-1.99E+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	1.78E+00	8.86E-02	6.78E-03	1.87E+00	2.07E-02	9.83E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.17E-03	3.75E-02	5.15E-02	-7.85E-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.

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SCENARIO DOCUMENTATION

MANUFACTURING ENERGY SCENARIO DOCUMENTATION

Scenario parameter	Value
Electricity data source and quality	1. Electricity production, wind, 1-3MW turbine, onshore; Ireland; Ecoinvent 3.10.1 2. Electricity, Ireland, residual mix, direct GWP only, 2023, Ireland, One Click LCA
Electricity CO2e / kWh	1. 0.0145 2. 0.45

TRANSPORT SCENARIO DOCUMENTATION A4

Scenario parameter	Value
Fuel and vehicle type. Eg, electric truck, diesel powered truck	1. Diesel lorry >32 metric ton, EURO6
Average transport distance, km	1. 200
Capacity utilization (including empty return) %	50
Bulk density of transported products	-
Volume capacity utilization factor	1

INSTALLATION SCENARIO DOCUMENTATION A5

Scenario information	Value
Ancillary materials for installation (specified by material) / kg	-
Water use / m³	-
Other resource use / kg	-
Quantitative description of energy type (regional mix) and consumption during the installation process / kWh or MJ	-
Waste materials on the building site before waste processing, generated by the product's installation (specified by type) / kg	0.05 kg (pipe waste)
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	0.00078 kg (wood packaging)
Direct emissions to ambient air, soil and water / kg	-

END OF LIFE SCENARIO DOCUMENTATION C1-C4

Scenario information	Value
Average transport distance to nearest disposal site, km	50
C2: Transported mass, kg	1.0
C3: Recovery process – kg for recycling	0.57
C3: Recovery process – kg for re-use	-
C3: Recovery process – kg for energy recovery	-
C4: Disposal (total) – kg for final deposition	0.43

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

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

Magaly Gonzalez Vazquez as an authorized verifier for EPD Hub Limited 05.12.2025