ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Galvanised Nails

ITW Construction Products UK & Nordics

EPD HUB, HUB-5460

Published on 20.02.2026, last updated on 20.02.2026, valid until 19.02.2031

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.

Created with One Click LCA

GENERAL INFORMATION

MANUFACTURER

Manufacturer	ITW Construction Products UK & Nordics
Address	C/ López Bravo, 73 - PI Villalonquejar 09001 - Burgos - España and Gl Banegårdsvej 25, 5500 Middelfart Denmark
Contact details	https://www.itwbyg.dk/da/
Website	https://itwcp.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	Sajeda Mutadel
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Yazan Badour as an authorized verifier for EPD Hub

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	Galvanised Nails
Additional labels	-
Product reference	-
Place(s) of raw material origin	Europe
Place of production	Spain/Denmark
Place(s) of installation and use	Europe/UK
Period for data	01/01/2024-31/12/2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	-
GTIN (Global Trade Item Number)	Not applicable
NOBB (Norwegian Building Product Database)	Not applicable
A1-A3 Specific data (%)	8.76

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of galvanised steel nails
Declared unit mass	1 kg
Mass of packaging	0.245 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	4.1
GWP-total, A1-A3 ($kgCO_2e$)	4.04
Secondary material, inputs (%)	21.1
Secondary material, outputs (%)	85
Total energy use, A1-A3 (kWh)	15.4
Net freshwater use, A1-A3 (m^3)	0.05

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

ITW Construction Products UK & Nordics is a business unit within Illinois Tool Works Inc. (ITW), a multinational industrial company with activities across a wide range of industrial sectors. Founded more than a century ago, ITW has developed into a leading diversified manufacturer of specialized industrial equipment, consumables and associated services.
The company operates according to the ITW Business Model, which is based on clearly defined operational principles and business practices. Key elements of this model include the 80/20 Front to Back process, customer driven innovation and a decentralized operating structure that enables business units to respond effectively to local markets and customer needs.
Within ITW Construction Products UK & Nordics, the focus is on the development and supply of engineered fastening systems, complementary consumables and digital solutions for construction applications. The products are designed for use across a variety of materials, including wood, concrete and steel, and are specified to meet demanding technical and performance requirements in professional construction projects.

PRODUCT DESCRIPTION

The product assessed in this Environmental Product Declaration (EPD) is a metal fastening component (nail) manufactured from galvanised steel for ITW Construction Products UK & Nordics. The product belongs to the ITW Woodnailing GalvPlus product range and is intended for use in structural construction applications.
The product is clearly identified as a galvanised steel fastening component, distinguishing it from fastening products manufactured from non galvanised steel or alternative corrosion protection solutions. This EPD applies exclusively to the galvanised steel product assessed and does not cover other material variants or surface treatments.
The fastening component is manufactured primarily from steel with a hot dip galvanised surface coating, applied to provide corrosion protection and durability in construction environments. The galvanised steel is selected to meet defined mechanical strength and performance requirements relevant to its intended use in building applications.
The product is designed to provide secure mechanical connections in load bearing construction assemblies and is used in accordance with the manufacturer's specifications. Typical applications include the fastening of structural metal connectors to building elements, such as joists, beams, and other load bearing components, contributing to the stability and safety of the building structure, particularly in environments where corrosion resistance is required.
The declared unit of the product is 1 kg of steel fastening components. The product consists of 100% metal and includes a documented share of secondary material inputs, with a high potential for material recovery and recycling at end of life. Environmental performance is quantified for the product stage (A1–A3) in accordance with the underlying life cycle assessment.
Manufacturing of the galvanised steel fastening components covered by this EPD takes place at ITW Woodnailing production facilities in both Spain and Denmark. The production sites included operate under ISO 9001 certified quality management systems and in accordance with ITW's global standards for quality, operational performance, and environmental management. Electricity use in production is modelled according to the assumptions defined in this EPD.
This product description is consistent with the underlying LCA study and project report and has been prepared in accordance with EN 15804+A2, ISO 14025, and the applicable EPD Hub Core Product Category Rules (PCR).

Further information can be found at:
https://itwcp.com/

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	Czechia
Minerals	-	
Fossil materials	-	
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	0.038

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of galvanised steel nails
Mass per declared unit	1 kg
Functional unit	-
Reference service life	

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

Not declared = ND.

SUBSTANCES, REACH - VERY HIGH CONCERN

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

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 Manufacturing and Packaging stage (A1–A3) includes all environmental impacts associated with the production of galvanized steel fastening components at the manufacturing sites covered by this EPD, in accordance with EN 15804+A2 and the applicable Product Category Rules.

a) Transport assumptions and distances for materials
Galvanized steel wire is supplied by European suppliers and transported to the manufacturing facilities in Spain and Denmark. Transport of raw materials is modelled using heavy-duty lorry transport with representative European average transport distances, as implemented in the underlying One Click LCA model. Packaging and ancillary materials are modelled using European average transport datasets consistent with the geographical scope of the EPD.

b) Production losses
Material losses generated during cutting and forming of galvanized steel wire, such as steel scraps and offcuts, are included in module A3. These production losses are collected on site, sorted, and sent to recycling. No coproducts are generated.

c) Manufacturing process
Manufacturing is carried out at ITW Woodnailing production facilities in Spain and Denmark using comparable production processes. The process starts with galvanized steel wire, which is mechanically cut and formed into nails. Water is used for cleaning operations, and lubricants are applied to ensure smooth cutting and forming of the steel. The process includes cutting, forming, sorting, and packaging of finished products. The manufacturing sites are modelled as a combined system weighted by production volumes.

d) Energy sources profile
Manufacturing energy consumption consists primarily of medium-voltage grid electricity supplied from the national residual electricity mixes of Spain and Denmark. Fuel use for internal handling equipment is included where applicable. No renewable or green electricity is used, and no guarantees of origin, renewable energy certificates, or other contractual instruments are claimed within the scope of this EPD.

e) Packaging and ancillary materials
Packaging materials include corrugated cardboard boxes for product protection and grouping, wooden pallets for transport, and plastic film used to secure products during handling and shipment. Ancillary materials include water and lubricants used during manufacturing. All packaging and ancillary materials are included in module A3.

f) Assumptions for end of life of manufacturing waste (A3)
Manufacturing waste consists mainly of steel scrap, which is assumed to be collected separately and recycled. Packaging waste generated during manufacturing is treated according to European average waste management scenarios, including recycling, incineration, and landfill, based on EU statistical data and One Click LCA background datasets.

g) Transport assumptions and distances for A3 waste
Transport of manufacturing waste to waste treatment facilities is modelled using representative European average lorry transport distances, consistent with the applied

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 and Installation stages (A4–A5) are modelled in accordance with EN 15804+A2 and the applicable Product Category Rules.

Transportation to the construction site (A4) is based on road transport by lorry. An average transport distance of 2,000 km is assumed, representing typical delivery distances within both the European and UK construction markets. Transport impacts include fuel combustion, exhaust emissions, and associated upstream processes, as modelled in the LCA.

No material losses are assumed during installation (A5). Energy consumption during installation is considered negligible, as the product is installed using standard fastening equipment and does not require dedicated installation machinery. No additional installation materials are required.

Waste generated during installation consists exclusively of packaging materials. No waste of the product itself is assumed at the installation stage.

End-of-life assumptions for installation waste (A5) follow European average waste treatment scenarios. Packaging waste is treated according to the following distribution: cardboard is recycled (83%), incinerated (8%), and landfilled (9%); wooden pallets are recycled (32%), incinerated (30%), and landfilled (38%); plastic packaging is recycled (40%), incinerated (37%), and landfilled (23%).

Transport distances for installation waste treatment are assumed as European averages and modelled as follows: 50 km to landfill, 150 km to incineration, and 250 km to recycling.

All assumptions applied for stages A4 and A5 are consistent with the underlying LCA model and are based on European average data and statistical references.

PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase is not relevant for the life cycle emissions of this product and is, therefore, not accounted into the assessment.
Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life stages (C1–C4) and benefits and loads beyond the system boundary (Module D) are modelled in accordance with EN 15804+A2 and the applicable Product Category Rules.

Demolition and dismantling (C1) are assumed to be carried out using standard power tools. Energy consumption for demolition is considered equivalent to the energy used during installation and is included in the assessment.

Transport of end-of-life materials (C2) is modelled as road transport by lorry. An average transport distance of 50 km is assumed from the construction site to waste treatment facilities, representing typical European conditions.

Waste processing (C3) and disposal (C4) are modelled using the following

material-specific assumptions:

– Steel from the product:
85% is recycling, and 15% is sent to landfill.

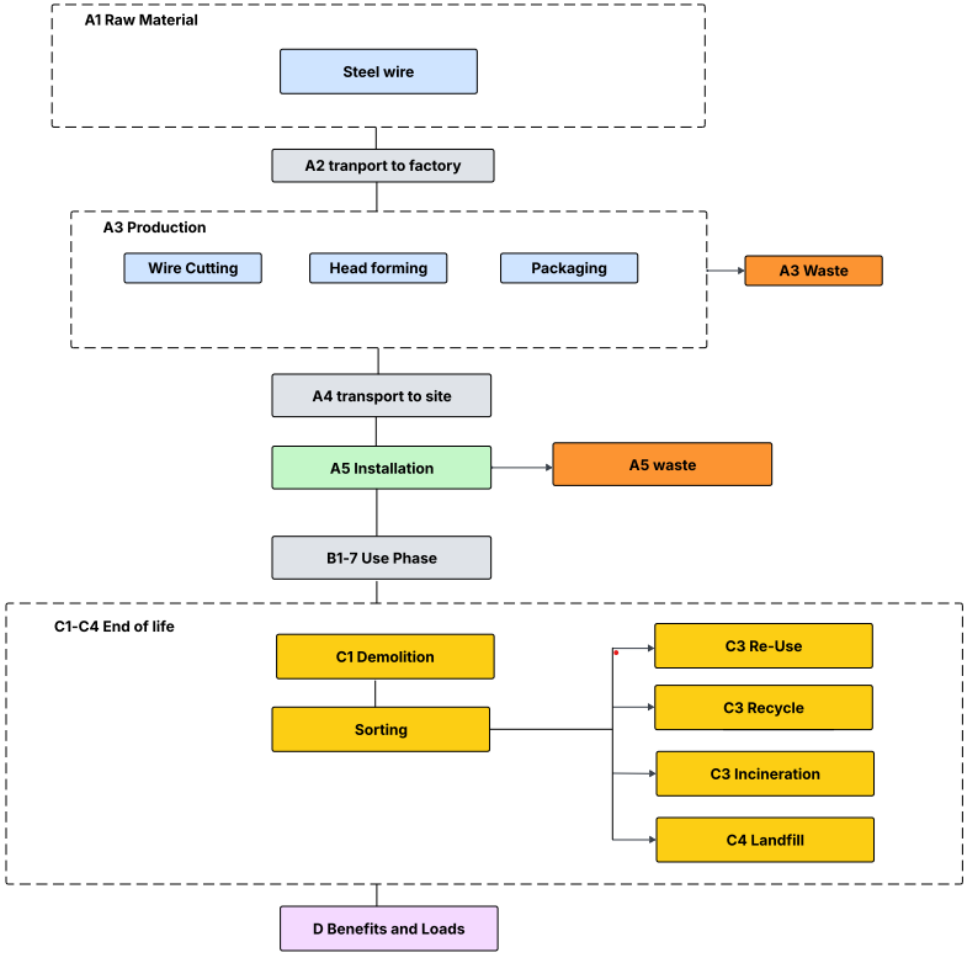
– Packaging materials from the product system:
Packaging waste treatment follows European average assumptions, with material-specific shares applied as follows:
• Cardboard: 83% recycling, 8% incineration, 9% landfill
• Wooden pallets: 32% recycling, 30% incineration, 38% landfill
• Plastic packaging: 40% recycling, 37% incineration, 23% landfill

Module C3 includes energy and auxiliary material inputs associated with sorting, pressing, and recycling preparation of steel and packaging materials. Materials sent to landfill are reported in Module C4.

Benefits and loads beyond the system boundary (Module D) account for the substitution effects of recycled materials and energy recovery. Recycled steel is credited with avoiding the production of virgin steel according to the cut-off approach. Energy recovered from the incineration of packaging waste is assumed to substitute average European electricity and thermal energy production. The resulting benefits and burdens are reported in Module D.

All end-of-life assumptions, percentages, transport distances, and treatment routes are based on European average data and are consistent with the underlying LCA project report.

SYSTEM 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 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	Allocated by mass or volume
Packaging material	Allocated by mass or volume
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3, %	-

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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‘.

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	3.36E+00	1.45E-01	5.35E-01	4.04E+00	2.35E-01	8.45E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.30E-02	1.92E-02	9.37E-04	-1.59E+00
GWP – fossil	kg CO_2e	3.34E+00	1.45E-01	6.10E-01	4.10E+00	2.35E-01	6.90E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.30E-02	1.92E-02	9.36E-04	-1.57E+00
GWP – biogenic	kg CO_2e	5.05E-03	3.05E-05	-7.91E-02	-7.40E-02	5.32E-05	7.76E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.38E-06	-4.08E-05	-2.98E-07	-1.72E-02
GWP – LULUC	kg CO_2e	1.00E-02	5.44E-05	3.93E-03	1.40E-02	1.05E-04	2.96E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.90E-05	2.37E-05	5.35E-07	-2.78E-03
Ozone depletion pot.	kg $CFC\text{-}_{11}$e	4.75E-08	2.92E-09	7.89E-09	5.83E-08	3.46E-09	3.73E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.01E-10	2.58E-10	2.71E-11	-6.82E-09
Acidification potential	mol H^+e	1.10E-01	4.67E-04	3.00E-03	1.13E-01	8.00E-04	1.49E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.43E-04	2.29E-04	6.64E-06	-7.25E-03
EP-freshwater[2)]	kg Pe	1.80E-03	9.77E-06	2.01E-04	2.01E-03	1.83E-05	6.93E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.34E-06	1.24E-05	7.70E-08	-7.41E-04
EP-marine	kg Ne	6.32E-03	1.59E-04	6.46E-04	7.12E-03	2.63E-04	1.32E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.64E-05	5.06E-05	2.53E-06	-1.55E-03
EP-terrestrial	mol Ne	4.59E-01	1.73E-03	6.11E-03	4.67E-01	2.86E-03	5.30E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.05E-04	5.72E-04	2.76E-05	-1.69E-02
POCP ("smog")[3)]	kg NMVOCe	1.21E-02	7.62E-04	2.12E-03	1.49E-02	1.18E-03	1.10E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.99E-04	1.69E-04	9.90E-06	-5.59E-03
ADP-minerals & metals[4)]	kg Sbe	3.17E-04	4.00E-07	1.31E-06	3.19E-04	6.55E-07	2.70E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.41E-07	1.36E-06	1.49E-09	-7.81E-05
ADP-fossil resources	MJ	4.00E+01	2.10E+00	8.94E+00	5.11E+01	3.41E+00	3.38E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.03E-01	2.58E-01	2.30E-02	-1.50E+01
Water use[5)]	m^3e depr.	2.08E+00	1.08E-02	1.11E-01	2.20E+00	1.68E-02	8.49E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.80E-03	4.64E-03	6.63E-05	-4.57E-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	1.13E-06	1.44E-08	4.27E-08	1.18E-06	2.35E-08	2.48E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.41E-09	3.10E-09	1.51E-10	-1.05E-07
Ionizing radiation[6]	kBq U235e	2.81E-01	2.53E-03	7.06E-02	3.54E-01	2.97E-03	1.08E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.88E-04	2.19E-03	1.44E-05	1.88E-02
Ecotoxicity (freshwater)	CTUe	9.97E+01	2.47E-01	1.91E+00	1.02E+02	4.82E-01	2.42E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.53E-02	1.50E-01	1.93E-03	-2.15E+01
Human toxicity, cancer	CTUh	5.74E-09	2.39E-11	2.73E-10	6.03E-09	3.87E-11	1.60E-12	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.31E-12	1.72E-11	1.73E-13	-7.91E-10
Human tox. non-cancer	CTUh	8.79E-08	1.36E-09	4.80E-09	9.41E-08	2.20E-09	9.47E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.77E-10	1.17E-09	3.97E-12	-2.51E-08
SQP[7]	-	1.19E+01	2.11E+00	1.20E+01	2.60E+01	3.43E+00	3.49E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.60E-01	5.02E-01	4.52E-02	-4.84E+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	4.53E+00	3.42E-02	1.08E+00	5.65E+00	4.67E-02	-8.09E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.27E-03	4.81E-02	2.22E-04	-1.76E+00
Renew. PER as material	MJ	0.00E+00	0.00E+00	6.82E-01	6.82E-01	0.00E+00	-6.82E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.52E-01
Total use of renew. PER	MJ	4.53E+00	3.42E-02	1.76E+00	6.33E+00	4.67E-02	-1.49E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.27E-03	4.81E-02	2.22E-04	-1.61E+00
Non-re. PER as energy	MJ	4.00E+01	2.10E+00	7.59E+00	4.97E+01	3.41E+00	-1.07E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.03E-01	2.58E-01	2.30E-02	-1.50E+01
Non-re. PER as material	MJ	0.00E+00	0.00E+00	1.09E+00	1.09E+00	0.00E+00	-1.09E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.80E-02
Total use of non-re. PER	MJ	4.00E+01	2.10E+00	8.68E+00	5.08E+01	3.41E+00	-1.20E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.03E-01	2.58E-01	2.30E-02	-1.49E+01
Secondary materials	kg	2.11E-01	9.08E-04	2.13E-02	2.33E-01	1.45E-03	3.28E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.71E-04	3.15E-04	5.78E-06	8.12E-01
Renew. secondary fuels	MJ	2.75E-04	1.15E-05	1.67E-02	1.69E-02	1.84E-05	4.30E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.45E-06	1.46E-05	1.20E-07	-1.14E-04
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	4.94E-02	3.10E-04	5.16E-03	5.49E-02	5.03E-04	-5.37E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.99E-05	1.37E-04	2.39E-05	-8.21E-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	1.07E+00	3.04E-03	8.04E-02	1.16E+00	5.77E-03	2.93E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.05E-03	1.69E-03	2.54E-05	-4.84E-01
Non-hazardous waste	kg	8.19E+00	6.08E-02	1.58E+00	9.84E+00	1.07E-01	1.06E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.97E-02	6.09E-02	5.80E-04	-4.04E+00
Radioactive waste	kg	7.20E-05	6.26E-07	1.66E-05	8.92E-05	7.26E-07	2.72E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.20E-07	5.60E-07	3.52E-09	5.33E-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	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	7.21E-01	7.21E-01	0.00E+00	3.84E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	8.50E-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	8.59E-02	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	3.61E-02	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	4.98E-02	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	3.34E+00	1.44E-01	6.13E-01	4.09E+00	2.33E-01	9.37E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.27E-02	1.92E-02	9.28E-04	-1.56E+00
Ozone depletion Pot.	kg CFC_{-11}e	4.38E-08	2.32E-09	6.69E-09	5.28E-08	2.76E-09	3.02E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.80E-10	2.13E-10	2.15E-11	-6.93E-09
Acidification	kg SO_2e	6.25E-02	3.55E-04	2.46E-03	6.53E-02	6.11E-04	1.13E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.10E-04	1.84E-04	4.91E-06	-5.88E-03
Eutrophication	kg PO_4^3e	1.37E-02	8.96E-05	1.58E-03	1.53E-02	1.49E-04	5.55E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.67E-05	2.66E-05	1.56E-06	-9.96E-04
POCP (“smog”)	kg C_2H_4e	1.27E-03	3.33E-05	1.98E-04	1.50E-03	5.45E-05	2.24E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.83E-06	1.09E-05	4.65E-07	-7.95E-04
ADP-elements	kg Sbe	3.16E-04	3.91E-07	1.26E-06	3.18E-04	6.38E-07	2.66E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.38E-07	1.36E-06	1.46E-09	-7.80E-05
ADP-fossil	MJ	3.54E+01	2.06E+00	7.78E+00	4.53E+01	3.36E+00	3.20E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.95E-01	2.20E-01	2.28E-02	-1.55E+01

ADDITIONAL INDICATOR – 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	3.35E+00	1.45E-01	6.14E-01	4.11E+00	2.35E-01	6.90E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.30E-02	1.92E-02	9.37E-04	-1.57E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH4 fossil, CH4 biogenic and Dinitrogen monoxide – were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Heat production, wood pellet, at furnace 9kW, Albania, Ecoinvent, 0.0163 kgCO2e/MJ
2. Electricity, medium voltage, residual mix, Spain, Ecoinvent, 0.41 kgCO2e/kWh
3. Market for heat, central or small-scale, natural gas, Albania, Ecoinvent, 0.0777 kgCO2e/MJ
4. Market for heat, central or small-scale, natural gas, Albania, Ecoinvent, 0.0777 kgCO2e/MJ
5. Market for propane, burned in building machine, World, Ecoinvent, 0.0945 kgCO2e/MJ
6. Electricity, medium voltage, residual mix, Denmark, Ecoinvent, 0.65 kgCO2e/kWh
7. Market group for heat, central or small-scale, natural gas, Europe, Ecoinvent, 0.0777 kgCO2e/MJ
8. Market group for heat, central or small-scale, natural gas, Europe, Ecoinvent, 0.0777 kgCO2e/MJ

Transport scenario documentation - A4 (Transport resources)

1. Market for transport, freight, lorry >32 metric ton, EURO5, 2000 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	100
Bulk density of transported products	0.00E+00
Volume capacity utilization factor	<1

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste aluminium, sanitary landfill, Ecoinvent, 0.0012 kg
2. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.011 kg
3. Direct emission to air: Butene, One Click LCA, 0.0147 kg
4. Direct emission to air: Propylene, One Click LCA, 0.0058 kg
5. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.014 kg
6. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 0.0013 kg
7. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 0.0015 kg
8. Exported Energy: Electricity, Ecoinvent, 0.0026 MJ
9. Exported Energy: Electricity, Ecoinvent, 0.0085 MJ
10. Exported Energy: Electricity, Ecoinvent, 0.025 MJ
11. Exported Energy: Thermal, Ecoinvent, 0.0038 MJ
12. Exported Energy: Thermal, Ecoinvent, 0.012 MJ
13. Exported Energy: Thermal, Ecoinvent, 0.034 MJ
14. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0014 kg
15. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.0013 kg
16. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 7.8E-4 kg
17. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.012 kg
18. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.011 kg
19. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.014 kg

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

1. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.85 kg
2. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.15 kg

Scenario information	Value
Scenario assumptions e.g. transportation	85% to recyclicg, 15% to landfill, transport to recycling is 250km , to landfill 50km

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 15804+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

Yazan Badour as an authorized verifier for EPD Hub Limited 20.02.2026

VERIFIED ISO 14025