

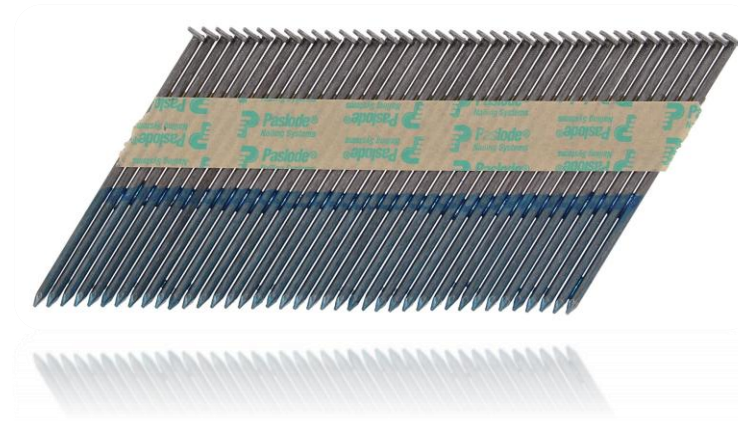


ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Bright nails

ITW Construction Products UK & Nordics



EPD HUB, HUB-5461

Published on 03.03.2026, last updated on 03.03.2026, valid until 02.03.2031

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 Villalonguejar 09001 - Burgos - España and GI 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	ISO 21930:2017 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	Bright nails
Additional labels	-
Product reference	-
Place(s) of raw material origin	Europe
Place of production	Burgos Spain/ Middelfart 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 (%)	7.13

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Bright steel nails
Declared unit mass	1 kg
Mass of packaging	0.245 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	3.47
GWP-total, A1-A3 (kgCO ₂ e)	3.4
Secondary material, inputs (%)	23.1
Secondary material, outputs (%)	85
Total energy use, A1-A3 (kWh)	11.4
Net freshwater use, A1-A3 (m ³)	0.04

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 bright steel wire, produced for ITW Construction Products UK & Nordics. The product belongs to the ITW Woodnailing bright steel fastening product range and is intended for use in structural and non-structural construction applications.

The product is clearly identified as a bright steel fastening component, distinguishing it from fastening products manufactured from coated, alloyed, or alternative steel grades. This EPD applies exclusively to the bright steel product assessed and does not cover other material or surface-treated variants.

The fastening component is manufactured primarily from bright carbon steel wire, characterized by its clean, untreated surface finish and selected for its mechanical strength, dimensional accuracy, and reliability in construction applications. The bright finish is achieved without additional metallic or organic surface coatings. Depending on the intended application, the product may be used in dry or controlled indoor environments where corrosion resistance requirements are limited.

The product is designed to provide secure mechanical connections in construction assemblies when installed in accordance with the manufacturer's specifications. Typical applications include the fastening of timber elements, structural connectors, and ancillary building components such as joists, beams, and framing members, contributing to the structural performance and integrity of the building.

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 (recycled) material inputs, with high potential for material recovery and recycling at end of life. Environmental performance indicators are quantified for the product stage (A1–A3) in accordance with the underlying life-cycle assessment.

Manufacturing of the bright steel wire and the fastening components covered by this EPD takes place at ITW Woodnailing production facilities in Spain and Denmark. The included production sites operate under ISO 9001-certified quality management systems and in accordance with ITW's global standards for quality, operational performance, and environmental management. Electricity consumption in production is modeled according to the assumptions defined in this EPD.

This product description is consistent with the underlying LCA study and project report and is 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	Europe
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 Bright 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 relevant processes associated with raw material production, manufacturing, packaging, energy use, and handling of manufacturing waste, in accordance with EN 15804+A2 and the applicable EPD Hub Core PCR.

a) Transport assumptions and distances for materials

Transport of raw materials to the manufacturing sites is modelled using representative European average transport distances by lorry, as implemented in the One Click LCA model. Packaging materials and ancillary materials are modelled using European average transport datasets consistent with the declared geographical scope.

b) Production losses

Material losses generated during manufacturing, such as steel offcuts and scrap, are included in module A3. These losses are collected, sorted, and sent to recycling. Associated waste treatment processes are included in the life cycle inventory.

c) Manufacturing process

The manufacturing process starts with steel wire delivered to the

production facility, where it is mechanically cut and formed into steel nails. Water is used for cleaning purposes, and lubricants are applied to ensure smooth cutting and forming operations. The process includes cutting, forming, sorting, and packaging. Manufacturing is carried out at production sites using equivalent production processes, which are modelled as a combined system.

d) Energy sources profile

Manufacturing energy demand is supplied by grid electricity and other energy carriers, modelled using country-specific datasets based on a market-based approach. Electricity consumption includes transmission losses in accordance with the applied background datasets.

e) Packaging and ancillary materials

Packaging materials include corrugated cardboard boxes, wooden pallets, and plastic film. Ancillary materials include lubricants and cleaning agents used during production. 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 collected separately and sent to recycling. Non-metallic waste streams are treated according to representative European waste management scenarios, including recycling, incineration, or landfill, in accordance with the 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 transport distances by lorry, consistent with the applied waste treatment datasets.

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.

All assumptions applied for modules A4 and A5 are consistently declared in the One Click LCA model and reflected in the results tables.

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.

For module A5, no material losses during installation are assumed for the declared product. Installation does not require dedicated machinery or additional installation materials beyond the product itself, and energy consumption during installation is considered negligible. Therefore, no installation energy inputs are included in the model.

Waste generated in module A5 consists solely of packaging materials. Waste treatment scenarios are based on European average statistics and include recycling, incineration and landfill. The following waste treatment shares and transport distances are applied and documented in the background data:

- Cardboard: 83% recycled, 8% incinerated, 9% landfilled
- Wooden pallets: 32% recycled, 30% incinerated, 38% landfilled
- Plastic packaging: 40% recycled, 37% incinerated, 23% landfilled
- Transport distances: 50 km to landfill, 150 km to incineration, 250 km to

recycling

All A4 and A5 assumptions are transparently included in the results tables and background data of the One Click LCA project, ensuring consistency, traceability and compliance with EN 15804+A2 requirements.

PRODUCT USE AND MAINTENANCE (B1-B7)

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

PRODUCT END OF LIFE (C1-C4, D)

The end-of-life scenario has been updated to include a clear and transparent percentage breakdown for all materials, in accordance with EN 15804+A2.

During deconstruction (C1), the product is assumed to be disassembled using power tools, with energy consumption considered equivalent to that used during installation.

For transport to waste processing (C2), the following assumptions are applied:

- Steel waste transported 250 km by lorry to recycling facilities
- Steel waste transported 50 km by lorry to landfill facilities

The waste treatment assumptions applied in modules C3–C4 are as follows:

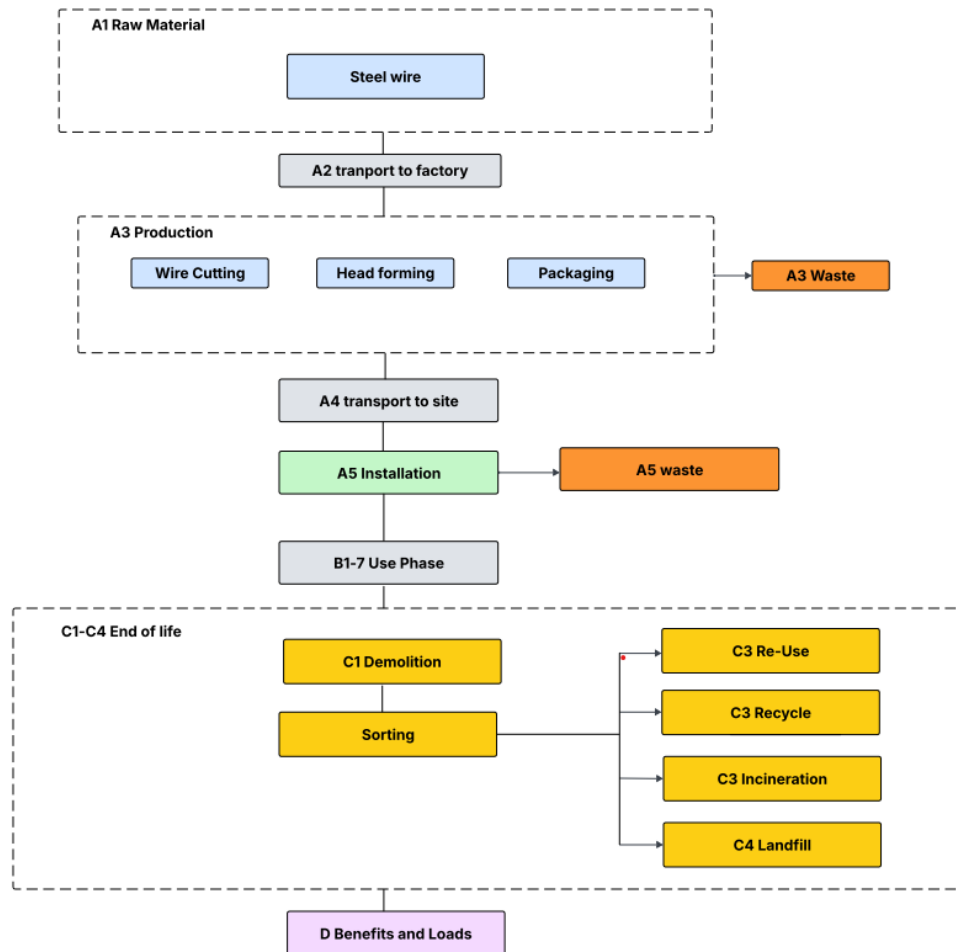
- Steel product:
 - 85% collected and sent to recycling
 - 15% sent to landfill
- Packaging materials:
 - Cardboard: 83% recycled, 8% incinerated, 9% landfilled
 - Wooden pallets: 32% recycled, 30% incinerated, 38% landfilled
 - Plastic packaging: 40% recycled, 37% incinerated, 23% landfilled

Module C3 includes the energy and resource inputs associated with sorting and processing of materials destined for recycling. Module C4 covers disposal of non-recyclable fractions to landfill.

Module D reports the environmental benefits and loads beyond the system boundary resulting from material recycling and energy recovery. Recycled steel substitutes the production of primary steel, and energy recovered from incineration of packaging materials is assumed to substitute conventional electricity and heat production.

All end-of-life assumptions, percentages and transport distances are consistently implemented in the One Click LCA model and reported transparently in the EPD results.

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, %	-

-

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 ₂ e	2.73E+00	2.76E-02	6.38E-01	3.40E+00	2.37E-01	9.13E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.30E-02	1.92E-02	9.37E-04	-1.62E+00
GWP – fossil	kg CO ₂ e	2.72E+00	2.76E-02	7.19E-01	3.47E+00	2.37E-01	7.89E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.30E-02	1.92E-02	9.36E-04	-1.60E+00
GWP – biogenic	kg CO ₂ e	1.79E-03	5.81E-06	-8.49E-02	-8.31E-02	5.36E-05	8.34E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.38E-06	-4.08E-05	-2.98E-07	-1.82E-02
GWP – LULUC	kg CO ₂ e	8.66E-03	1.04E-05	4.27E-03	1.29E-02	1.06E-04	3.32E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.90E-05	2.37E-05	5.35E-07	-3.52E-03
Ozone depletion pot.	kg CFC ₁₁ e	1.73E-08	5.55E-10	9.05E-09	2.69E-08	3.50E-09	4.20E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.01E-10	2.58E-10	2.71E-11	-7.12E-09
Acidification potential	mol H ⁺ e	1.04E-02	8.89E-05	3.64E-03	1.41E-02	8.07E-04	1.70E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.43E-04	2.29E-04	6.64E-06	-7.53E-03
EP-freshwater ²⁾	kg Pe	1.26E-03	1.86E-06	2.28E-04	1.49E-03	1.84E-05	7.86E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.34E-06	1.24E-05	7.70E-08	-7.52E-04
EP-marine	kg Ne	2.30E-03	3.02E-05	7.69E-04	3.10E-03	2.65E-04	1.45E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.64E-05	5.06E-05	2.53E-06	-1.59E-03
EP-terrestrial	mol Ne	2.42E-02	3.29E-04	7.33E-03	3.19E-02	2.89E-03	6.00E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.05E-04	5.72E-04	2.76E-05	-1.72E-02
POCP (“smog”) ³⁾	kg NMVOCe	8.22E-03	1.45E-04	2.56E-03	1.09E-02	1.19E-03	1.43E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.99E-04	1.69E-04	9.90E-06	-5.72E-03
ADP-minerals & metals ⁴⁾	kg Sbe	2.17E-05	7.61E-08	1.52E-06	2.33E-05	6.61E-07	3.27E-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	2.73E+01	3.99E-01	1.06E+01	3.83E+01	3.44E+00	3.83E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.03E-01	2.58E-01	2.30E-02	-1.53E+01
Water use ⁵⁾	m ³ e depr.	1.35E+00	2.05E-03	1.32E-01	1.48E+00	1.70E-02	9.48E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.80E-03	4.64E-03	6.63E-05	-4.86E-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	1.88E-07	2.74E-09	5.32E-08	2.44E-07	2.37E-08	2.84E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.41E-09	3.10E-09	1.51E-10	-1.09E-07
Ionizing radiation ⁶⁾	kBq 11235e	1.15E-01	4.81E-04	8.41E-02	2.00E-01	2.99E-03	1.21E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.88E-04	2.19E-03	1.44E-05	1.56E-02
Ecotoxicity (freshwater)	CTUe	9.58E+00	4.71E-02	2.25E+00	1.19E+01	4.86E-01	3.15E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.53E-02	1.50E-01	1.93E-03	-2.16E+01
Human toxicity, cancer	CTUh	3.36E-09	4.54E-12	3.20E-10	3.69E-09	3.91E-11	1.80E-12	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.31E-12	1.72E-11	1.73E-13	-8.33E-10
Human tox. non-cancer	CTUh	2.54E-08	2.59E-10	5.56E-09	3.12E-08	2.22E-09	1.09E-10	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.77E-10	1.17E-09	3.97E-12	-2.54E-08
SQP ⁷⁾	-	8.46E+00	4.02E-01	1.32E+01	2.21E+01	3.46E+00	4.02E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.60E-01	5.02E-01	4.52E-02	-4.89E+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	3.05E+00	6.50E-03	1.25E+00	4.30E+00	4.71E-02	-8.71E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.27E-03	4.81E-02	2.22E-04	-2.01E+00
Renew. PER as material	MJ	0.00E+00	0.00E+00	7.32E-01	7.32E-01	0.00E+00	-7.32E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.62E-01
Total use of renew. PER	MJ	3.05E+00	6.50E-03	1.98E+00	5.04E+00	4.71E-02	-1.60E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.27E-03	4.81E-02	2.22E-04	-1.85E+00
Non-re. PER as energy	MJ	2.73E+01	3.99E-01	8.89E+00	3.66E+01	3.44E+00	-1.24E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.03E-01	2.58E-01	2.30E-02	-1.53E+01
Non-re. PER as material	MJ	0.00E+00	0.00E+00	1.39E+00	1.39E+00	0.00E+00	-1.39E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.90E-02
Total use of non-re. PER	MJ	2.73E+01	3.99E-01	1.03E+01	3.80E+01	3.44E+00	-1.52E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.03E-01	2.58E-01	2.30E-02	-1.52E+01
Secondary materials	kg	2.31E-01	1.73E-04	2.25E-02	2.53E-01	1.46E-03	3.70E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.71E-04	3.15E-04	5.78E-06	8.17E-01
Renew. secondary fuels	MJ	2.72E-04	2.18E-06	1.77E-02	1.80E-02	1.86E-05	5.08E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.45E-06	1.46E-05	1.20E-07	-1.15E-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	3.13E-02	5.90E-05	5.39E-03	3.67E-02	5.08E-04	-5.84E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.99E-05	1.37E-04	2.39E-05	-8.82E-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	1.13E+00	5.78E-04	9.74E-02	1.23E+00	5.82E-03	3.28E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.05E-03	1.69E-03	2.54E-05	-4.95E-01
Non-hazardous waste	kg	6.54E+00	1.16E-02	1.90E+00	8.45E+00	1.08E-01	1.16E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.97E-02	6.09E-02	5.80E-04	-4.09E+00
Radioactive waste	kg	2.93E-05	1.19E-07	1.97E-05	4.91E-05	7.33E-07	3.03E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.20E-07	5.60E-07	3.52E-09	4.63E-06

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	9.00E-01	9.00E-01	0.00E+00	4.36E-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	9.48E-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	3.98E-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	5.50E-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 ₂ e	2.71E+00	2.74E-02	7.21E-01	3.46E+00	2.36E-01	1.05E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.27E-02	1.92E-02	9.28E-04	-1.60E+00
Ozone depletion Pot.	kg CFC ₁₁ e	1.65E-08	4.41E-10	7.67E-09	2.47E-08	2.79E-09	3.40E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.80E-10	2.13E-10	2.15E-11	-7.18E-09
Acidification	kg SO ₂ e	8.41E-03	6.75E-05	2.99E-03	1.15E-02	6.17E-04	1.30E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.10E-04	1.84E-04	4.91E-06	-6.12E-03
Eutrophication	kg PO ₄ ³ e	1.88E-03	1.71E-05	1.87E-03	3.77E-03	1.50E-04	6.11E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.67E-05	2.66E-05	1.56E-06	-1.01E-03
POCP (“smog”)	kg C ₂ H ₄ e	1.13E-03	6.34E-06	2.41E-04	1.37E-03	5.50E-05	2.89E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	9.83E-06	1.09E-05	4.65E-07	-8.17E-04
ADP-elements	kg Sbe	2.13E-05	7.43E-08	1.46E-06	2.29E-05	6.44E-07	3.24E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.38E-07	1.36E-06	1.46E-09	-7.81E-05
ADP-fossil	MJ	2.53E+01	3.91E-01	9.20E+00	3.49E+01	3.39E+00	3.62E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.95E-01	2.20E-01	2.28E-02	-1.58E+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 ₂ e	2.73E+00	2.76E-02	7.23E-01	3.48E+00	2.37E-01	7.90E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.30E-02	1.92E-02	9.37E-04	-1.61E+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. Market for propane, burned in building machine, World, Ecoinvent, 0.0945 kgCO₂e/MJ
2. Heat production, wood pellet, at furnace 9kW, Albania, Ecoinvent, 0.0163 kgCO₂e/MJ
3. Electricity, medium voltage, residual mix, Spain, Ecoinvent, 0.41 kgCO₂e/kWh
4. Market for heat, central or small-scale, natural gas, Albania, Ecoinvent, 0.0777 kgCO₂e/MJ
5. Market for heat, central or small-scale, natural gas, Albania, Ecoinvent, 0.0777 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, 0.0016 kg
2. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.014 kg
3. Direct emission to air: Butene, One Click LCA, 0.019 kg
4. Direct emission to air: Propylene, One Click LCA, 0.0075 kg
5. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.015 kg
6. Treatment of waste packaging paper, municipal incineration, Ecoinvent, 0.0014 kg
7. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 0.0016 kg
8. Exported Energy: Electricity, Ecoinvent, 0.0028 MJ
9. Exported Energy: Electricity, Ecoinvent, 0.01 MJ
10. Exported Energy: Electricity, Ecoinvent, 0.027 MJ
11. Exported Energy: Thermal, Ecoinvent, 0.004 MJ
12. Exported Energy: Thermal, Ecoinvent, 0.014 MJ
13. Exported Energy: Thermal, Ecoinvent, 0.037 MJ
14. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 0.0016 kg
15. Treatment of waste polyethylene, municipal incineration, Ecoinvent, 0.0015 kg
16. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 9.2E-4 kg
17. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.013 kg
18. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, 0.012 kg
19. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.015 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 recycling, 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 03.03.2026

