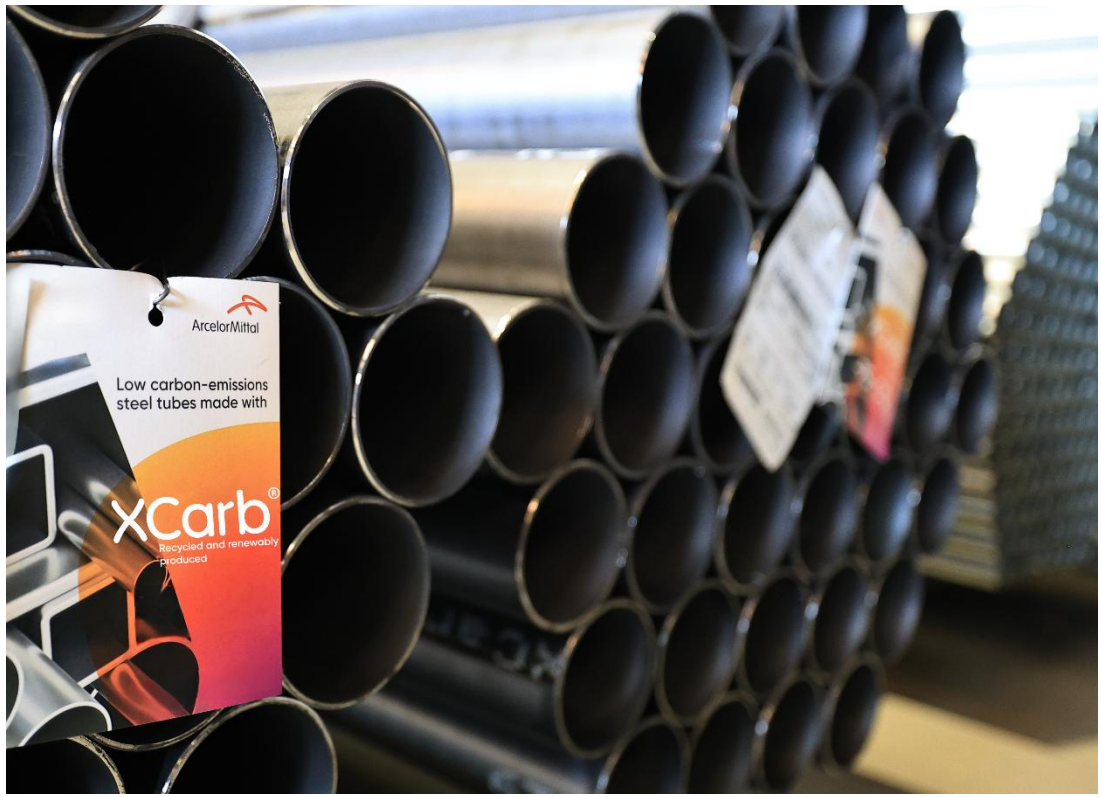
XCarb®

Recycled and renewably produced

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Structural Hollow Sections made of XCarb® recycled and renewably produced steel ArcelorMittal Tubular Products Europe



EPD HUB, HUB-3550
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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

Structural Hollow Sections made of XCarb® recycled and renewably produced steel

GENERAL INFORMATION

MANUFACTURER

Manufacturer	ArcelorMittal Europe - Tubular Products
Address	24-26, boulevard d'Avranches L 1160 Luxembourg
Contact details	unai.aramburu@arcelormittal.com
Website	https://tubular.arcelormittal.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2:2019 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2, 24 Mar 2025
Sector	Construction product
Category of EPD	Third party verified EPD
Parent EPD number	-
Scope of the EPD	Cradle to gate with modules C1-C4, D
EPD author	Ipek Goktas, One Click LCA
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Sarah Curpen, an authorized verifier acting for EPD Hub Limited.

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	Structural Hollow Sections made of XCarb® recycled and renewably produced steel
Additional labels	Structural Hollow Sections (SHS), Hollow Structural Sections (HSS)
Product reference	EN 10219 (cold-formed), EN 10210 (hot-finished)
Place(s) of raw material origin	Spain
Place of production	France
Place(s) of installation and use	Europe
Period for data	01.01-31.12.2024
Averaging in EPD	Multiple factories
Variation in GWP-fossil for A1-A3 (%)	+9/-4%
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	>90%

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg
Declared unit mass	1 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	7,13E-01
GWP-total, A1-A3 ($kgCO_2e$)	7,13E-01
Secondary material, inputs (%)	95,9
Secondary material, outputs (%)	99
Total energy use, A1-A3 (kWh)	8,19
Net freshwater use, A1-A3 (m^3)	0,01

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

ArcelorMittal Europe – Tubular Products is a division of ArcelorMittal Downstream Solutions and a leading European producer of steel pipes and tubes. With production facilities located across Europe and a broad distribution network, the company supplies a wide range of tubular steel products to markets including construction, energy, automotive, agriculture, and mechanical engineering.

The product portfolio includes seamless, welded, precision, and cold drawn tubes, with advanced finishing capabilities such as galvanizing, coating, laser cutting, and bending. ArcelorMittal Tubular Products is committed to sustainability and innovation, supporting the development of high-performance, low-emission steel solutions through its industrial operations and global R&D network.

The company engages closely with customers to develop value-added solutions and contributes to the steel industry's transformation toward circular and low-carbon production.

As part of the XCarb® initiative, ArcelorMittal is pioneering low-carbon steelmaking, utilizing Electric Arc Furnace (EAF) technology with at least 75% recycled content and powered by 100% renewable electricity.

Our journey towards becoming carbon neutral by 2050 is well underway. In line with the Paris Climate Goals and the European Green Deal, ArcelorMittal has also committed to reduce CO2 emissions in our European operations by 35% by 2030.

PRODUCT DESCRIPTION

This declaration covers structural hollow sections produced by ArcelorMittal Europe – Tubular Products. The structural hollow sections are produced in square, rectangular, or circular profiles for load-bearing and structural applications. Other customized shapes (e.g., elliptical, special-profile sections) may also be available depending on design and production specifications.

Depending on the manufacturing route, sections are either hot-finished in accordance with EN 10210 or cold-formed and welded according to EN 10219. The steel used is typically non-alloyed or fine grain structural steel. Products carry CE marking and meet applicable requirements under the Construction Products Regulation (EU No. 305/2011). Each supply is accompanied by a material certificate and a declaration of performance.

Technical Characteristics:
Structural hollow sections offer high strength-to-weight ratio, dimensional accuracy and excellent weldability.

These products are widely used in the construction industry, are very versatile and can be applied as structural elements in various applications such as agricultural equipment, cranes, buildings, pavilions, stadiums, civil and mechanical engineering, and other sectors such as renewable energy installations.

They are considered in EN 1993 (Eurocode 3), the European reference code for the design of steel structures, in EN 1090, the European reference standard for the construction of steel structures, as well as in Regulation (EU) No 5/2011, the European Construction Products Regulation.

Manufacturing Process:
This product consists of structural welded hollow sections manufactured by ArcelorMittal Europe – Tubular Products Lexy and Rettel, using XCarb® recycled and renewably produced steel. The hot-rolled coils used in the process are sourced from ArcelorMittal Sestao (Spain) and meet the criteria for the XCarb® recycled and renewably produced label. This involves production in an electric arc furnace (EAF) with at least 75% scrap content and powered entirely by renewable electricity.

Structural hollow sections are tubular steel products produced from steel coils. The coils are first slit into strips of the required width and then formed into a circular shape. The strip edges are welded together using a high-frequency induction welding process. If needed, further forming operations are carried out to achieve the desired shape and dimensions. The tubes are then subjected to non-destructive testing and cut to precise lengths. Depending on the product type and customer requirements, additional processes—such as heat treatment (for hot-finished sections), sizing, testing, and final cutting—may be applied during or after manufacturing.

Application and Use:
Structural hollow sections fabricated with XCarb® steel are highly versatile products that can be used as structural elements in various applications, including agricultural equipment, cranes, buildings, pavilions, stadiums, civil and mechanical engineering, and other sectors such as renewable energy installations.

These products are widely used in the construction industry and are considered in EN 1993 (Eurocode 3), the European reference code for the design of steel structures, in EN 1090, the European reference standard for the execution of steel structures, as well as in Regulation (EU) No. 5/2011, the European Regulation for Construction Products.

Further information can be found at www.tubular.arcelormittal.com.

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	Spain
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	0,0005

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		
×	×	×	MND	MND	MND	MND	MND	MND	MND	MND	MND	×	×	×	×	×		
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 = MND

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 product stage (Modules A1–A3) covers all relevant processes from raw material extraction to the finished product leaving the gate of ArcelorMittal's manufacturing sites.

A1 – Raw Material Supply:

This stage involves the extraction and processing of raw materials, particularly iron ore, coal, limestone, and recycled steel scrap. Under the XCarb initiative, steelmaking processes rely predominantly on Electric Arc Furnace (EAF) technology, using a minimum of 75% steel scrap and 100% renewable electricity. This is a significant shift from the traditional Blast Furnace (BF) route, which is more carbon intensive.

A2 – Transport to Manufacturing Site:

Transportation of raw materials to production facilities includes road, rail, and maritime transport modes. The environmental burdens account for fuel consumption, associated emissions, and wear on transport infrastructure.

A3 – Manufacturing and Packaging:

Manufacturing processes include hot finishing (for EN 10210 products) and cold forming (for EN 10219 products), followed by welding (for welded HSS), cutting, and surface treatment. This stage incorporates:

- Energy use
- Use of process water and lubricants,
- Ancillary materials,
- Packaging (e.g., plastic straps, wooden supports),
- Internal transportation,
- Material losses and waste processing,
- Handling and on-site treatment or recycling of production waste (such as mill scale, scrap, sludges),
- Electricity transmission losses.

The packaging is designed to protect products during transport and handling. Typical materials include recyclable steel, plastic and wooden components.

TRANSPORT AND INSTALLATION (A4-A5)

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

PRODUCT USE AND MAINTENANCE (B1-B7)

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

PRODUCT END OF LIFE (C1-C4, D)

These modules consider the dismantling of the considered product (C1), the transportation of the dismantled components to their final end-of-life destination (C2), the waste processing for recovery or recycling (C3) as well as the disposal (C4).

For module C1, diesel consumption used in demolition machines is taken into consideration.

For module C2, the transportation of the dismantled components is considered by truck over 100 km for all recovery applications such as reuse, recycling, incineration, and 50 km for the disposal applications such as landfilling.

For modules C3 & C4, based on common practices, the following end of life scenario is considered:

- 89% of the steel is recycled
- 10% of the steel is reused
- 1% of the steel is sent to landfill

At the end-of-life, the steel material leaves the system in C3 to be recycled and reused in module D as well as disposal in module C4.

Module D includes any declared benefits and loads from net flows leaving the product system that have not been allocated as co-products and that have passed the end-of-waste state in the form of reuse, recovery and/or recycling potentials.

Steel is assumed to reach the end of waste status directly at the construction site. The treatment as well as net impacts and benefits of reuse or recycling potentials (for the net scrap amount only) are grouped to module D.

Potential environmental benefits are given for the net steel scrap that is produced at the end of a final product's life. This net scrap is determined as follows:

- Net scrap = Amount of steel recycled at end-of-life – Scrap input from previous product life cycles

MANUFACTURING PROCESS

The manufacturing of ArcelorMittal's Hollow Structural Sections involves the following main steps:

Steel Production	EAF Route: Steel scrap is melted using electric arcs.
Forming	EN 10210 (hot-finished): Sections are hot-formed or heat-treated after cold forming to achieve specific mechanical properties. EN 10219 (cold-formed): Sections are shaped at ambient temperature without subsequent heat treatment.
Welding	Longitudinal Electric Resistance Welding (ERW) is used for hollow sections.
Cutting and Finishing	Sections are cut to length and inspected.
Quality Control and Certification	Products undergo dimensional and mechanical property testing to meet EN standards. CE marking and third-party verification are part of standard quality assurance.

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	Partly allocated by revenue
Packaging material	No allocation
Ancillary materials	Allocated by revenue
Manufacturing energy and waste	Allocated by revenue

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple factories
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3, %	+9/-4%

The weighted average product has been calculated based on the annual production rates of each factory considered in the EPD. Consequently, this EPD represents the weighted average product.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1 environmental data sources follow the methodology 'allocation, 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	6,00E-01	6,32E-02	4,96E-02	7,13E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,01E-05	1,07E-02	3,80E-02	6,24E-05	-2,22E-01
GWP – fossil	kg CO_2e	6,00E-01	6,31E-02	4,95E-02	7,13E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,01E-05	1,07E-02	2,16E-02	6,24E-05	-2,23E-01
GWP – biogenic	kg CO_2e	1,94E-04	4,45E-05	9,46E-05	3,33E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,20E-09	2,25E-06	1,63E-02	-1,99E-08	2,40E-05
GWP – LULUC	kg CO_2e	2,70E-04	7,43E-05	1,39E-05	3,58E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,23E-09	4,01E-06	1,78E-05	3,57E-08	3,49E-06
Ozone depletion pot.	kg CFC_{-11}e	8,41E-11	9,73E-10	1,49E-09	2,55E-09	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,38E-12	2,15E-10	1,45E-10	1,81E-12	-6,06E-10
Acidification potential	mol H^+e	1,85E-03	4,29E-04	1,40E-04	2,42E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	8,13E-07	3,44E-05	9,56E-05	4,43E-07	-7,13E-04
EP-freshwater[2)]	kg Pe	4,04E-07	1,71E-05	1,04E-05	2,79E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,60E-09	7,19E-07	8,46E-06	5,13E-09	-9,46E-05
EP-marine	kg Ne	4,15E-04	1,60E-04	4,09E-05	6,16E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,77E-07	1,17E-05	4,51E-05	1,69E-07	-1,78E-04
EP-terrestrial	mol Ne	4,54E-03	1,73E-03	3,52E-04	6,62E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,13E-06	1,27E-04	2,52E-04	1,84E-06	-1,94E-03
POCP ("smog")[3)]	kg NMVOCe	1,26E-03	5,30E-04	1,54E-04	1,94E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,23E-06	5,61E-05	7,49E-05	6,60E-07	-6,89E-04
ADP-minerals & metals[4)]	kg Sbe	7,39E-07	1,88E-07	1,75E-07	1,10E-06	MND	MND	MND	MND	MND	MND	MND	MND	MND	3,23E-11	2,94E-08	3,89E-07	9,92E-11	-3,63E-08
ADP-fossil resources	MJ	6,46E+00	9,17E-01	3,02E+00	1,04E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,18E-03	1,54E-01	1,61E-01	1,53E-03	-2,02E+00
Water use[5)]	m^3e depr.	1,76E-01	1,50E-02	2,72E-02	2,18E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	2,94E-06	7,91E-04	5,06E-03	4,42E-06	-2,98E-02

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.

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[6)]	MJ	1,89E+01	9,56E-02	7,02E-02	1,91E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,47E-06	2,52E-03	3,05E-02	1,48E-05	4,56E-02
Renew. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renew. PER	MJ	1,89E+01	9,56E-02	7,02E-02	1,91E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,47E-06	2,52E-03	3,05E-02	1,48E-05	4,56E-02
Non-re. PER as energy	MJ	6,48E+00	9,17E-01	3,02E+00	1,04E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,18E-03	1,54E-01	1,61E-01	1,53E-03	-2,02E+00
Non-re. PER as material	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of non-re. PER	MJ	6,48E+00	9,17E-01	3,02E+00	1,04E+01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,18E-03	1,54E-01	1,61E-01	1,53E-03	-2,02E+00
Secondary materials	kg	9,59E-01	1,14E-03	1,90E-03	9,62E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	4,90E-07	6,68E-05	3,08E-04	3,85E-07	1,44E-01
Renew. secondary fuels	MJ	0,00E+00	3,64E-06	5,79E-04	5,83E-04	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,28E-09	8,43E-07	2,40E-05	7,97E-09	3,79E-06
Non-ren. secondary fuels	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Use of net fresh water	m^3	4,64E-03	4,17E-04	8,08E-04	5,86E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	7,79E-08	2,28E-05	8,20E-05	1,59E-06	-3,35E-04

6) 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	8,61E-09	3,88E-03	3,86E-03	7,73E-03	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,31E-06	2,24E-04	2,28E-03	1,69E-06	-2,94E-03
Non-hazardous waste	kg	4,46E-02	9,52E-02	1,05E-01	2,45E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,79E-05	4,47E-03	1,29E-01	3,87E-05	-5,50E-01
Radioactive waste	kg	4,04E-05	2,21E-06	3,32E-05	7,58E-05	MND	MND	MND	MND	MND	MND	MND	MND	MND	1,28E-10	4,61E-08	5,93E-07	2,35E-10	2,23E-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	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	8,90E-01	0,00E+00	0,00E+00
Materials for recycling	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	1,00E-01	0,00E+00	0,00E+00
Materials for energy rec	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	MND	MND	MND	MND	MND	MND	MND	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	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	MND	MND	MND	MND	MND	MND	MND	MND	MND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

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[7)]	kg CO_2e	6,00E-01	6,32E-02	4,96E-02	7,13E-01	MND	MND	MND	MND	MND	MND	MND	MND	MND	9,01E-05	1,07E-02	3,80E-02	6,24E-05	-2,22E-01

7) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH4 fossil, CH4 biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO2 is set to zero.

SCENARIO DOCUMENTATION

Manufacturing energy scenario documentation

Scenario parameter	Value
Electricity data source and quality	Source: Electricity, medium voltage, residual mix, France, EI v3.10.1 Data Quality: Good
Electricity CO2e / kWh	0.187 kg CO2e/kWh
District heating data source and quality	-
District heating CO2e / kWh	-

End of life scenario documentation

Scenario information	Value
Collection process – kg collected separately	1
Collection process – kg collected with mixed waste	0
Recovery process – kg for re-use	0,10
Recovery process – kg for recycling	0,89
Recovery process – kg for energy recovery	0
Disposal (total) – kg for final deposition	0,01
Scenario assumptions e.g. transportation	Transportation of the dismantled components is considered by truck over 100km.

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 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: Sarah Curpen
Tool verification validity: 27 March 2025 - 26 March 2028

Sarah Curpen, an authorized verifier acting for EPD Hub Limited.

29.06.2025