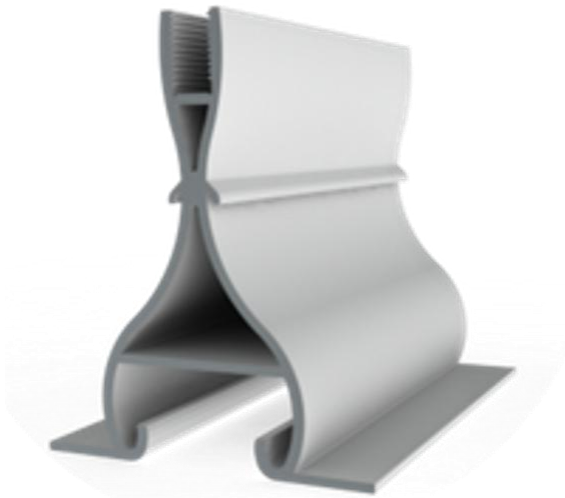
ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH ISO 14025 & ISO 21930:2017

ASM Atlas Ultra

ASM Modular Systems, Inc.



EPD HUB, HUB-5914

Published on 03.04.2026, last updated on 03.04.2026, valid until 02.04.2031

Life Cycle Assessment study has been performed in accordance with the requirements of ISO 21930:2017, 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	ASM Modular Systems, Inc.
Address	9500 Industrial Center Drive, Ladson, SC 29456
Contact details	info@asmproducts.com
Website	www.asmproducts.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	ISO 21930:2017 & 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	N/A
Scope of the EPD	Cradle to gate with options, A4-A5, and modules C1-C4, D
EPD author	Emma Johnson
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☑ External verification
EPD verifier	Sarah Curpen 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	Atlas Ultra
Additional labels	-
Product reference	Atlas Ultra
Place(s) of raw material origin	United States, Europe, China
Place of production	Red Lion, PA, USA
Place(s) of installation and use	North America
Period for data	Calendar Year 2024
Averaging in EPD	No grouping
Variation in GWP-fossil for A1-A3 (%)	0
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	67.7

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 m2
Declared unit mass	4.475 kg
Mass of packaging	0.05 kg
GWP-fossil, A1-A3 ($kgCO_2e$)	12.3
GWP-total, A1-A3 ($kgCO_2e$)	11.9
Secondary material, inputs (%)	74.9
Secondary material, outputs (%)	99
Total energy use, A1-A3 (kWh)	62.2
Net freshwater use, A1-A3 (m^3)	0.3

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Local Expertise, Global Strength. Founded in 1998 and headquartered in Ladson, South Carolina, ASM Infrastructure Solutions is a specialized partner in precision-engineered structural support systems. ASM plays a critical role in the design and specification of containment solutions, structural ceiling grids, airflow grilles, and raised access flooring — supporting both mission-critical data centers and commercial office environments.

With a highly agile and efficient team, ASM takes a hands-on approach to every project, ensuring delivery to the highest standards and applying deep technical expertise at every stage.

ASM is a trusted supplier to some of the world's leading Hyperscale, Cloud, and Commercial Office developers.

As part of the Kingspan Group, a global leader in data infrastructure and high-performance building solutions, ASM combines the responsiveness of a local team with the scale, innovation, and global reliability of an industry leader.

PRODUCT DESCRIPTION

ASM Atlas Ultra is a pre-engineered factory produced structural ceiling capable of directly supporting cable trays, utilities, light fixtures, HVAC registers and other accessories as indicated per area of work boasts a remarkable design, optimized to offer superior performance and unparalleled ease of installation. This innovative aluminum grid features a strut-like profile, resulting in a lightweight, ultra-strong ceiling system that is not only easy to transport but also effortless to install. High strength and performance with the ability to suspend a uniform load of 150 lbs/ SF with a 4x4 hanger.

With connection spacing up to 8 feet apart, the heavy-duty aluminum profile of ASM Atlas Ultra enables flexibility when it comes to suspending the grid from the building's structure. This EPD is based on 1 m2 of ASM Atlas Ultra and is produced with lower embodied carbon Aluminum. This product has been optimized to give superior structural performance.

Further information can be found at: www.asmproducts.com

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	USA, EU, Asia
Minerals	0	N/A
Fossil materials	0	N/A
Bio-based materials	0	N/A

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	0.187

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 m2
Mass per declared unit	4.475 kg
Functional unit	-
Reference service life	30 Years

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

Not declared = ND.

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 location-based approach is used in modelling the electricity mix utilized in the factory.
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 transport of the raw material from suppliers to the factory site is composed of 790 km by road transport, assuming it is done by a >32-ton EURO6 lorry and 6,560 km by sea transport via container ship. An additional 1,100 km by road transport has been added to include transport from Red Lion to the ASM facility in South Carolina.

The production of the ASM Atlas Ultra takes place at the facility in Red Lion, Pennsylvania. The data from the Red Lion manufacturing site, such as energy and ancillary resources consumption and waste generation for the year 2024 was considered and allocated to the ASM Atlas Ultra product as per the site's annual production volumes.

As per co-product allocation, aluminum manufacturing losses are excluded for the main product. There is no other manufacturing losses modelled - as only other wastes are lubrication oil and saw blades which are considered minor waste streams that are individually less than 1% of the total product weight and well below 5% cumulatively.

The finished product is packaged in carboard boxes, loaded onto a wooden crate, and secured with pallet wrap clear. Installation parts such as the turnbuckle and connectors are considered in the module A5 installation as they enter the system's scope at the installation stage.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts incurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. The transportation distance is based on the weighted average distance of sales made in 2023. The installation parts are made of carbon steel and ductile iron. The installation is carried out with electrical machinery. No construction losses are considered other than packaging waste, as none of the system's parts are amended on site.

The following recommended US scenarios are considered for the packaging end of life:

Resource	Scenario	Reference
Wood pallet	26.9% recycled 14.3% incinerated with ER 58.8% landfill	Containers and Packaging: Product-Specific Data | US EPA
Plastics	13.7% recycled 16.9% incinerated with ER 69.4% landfill	Containers and Packaging: Product-Specific Data | US EPA
Cardboard	80.9% recycled 3.7% incinerated with ER 15.4% landfill	Containers and Packaging: Product-Specific Data | US EPA

PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase is not covered, assuming there are no use emissions or replacements. Air, soil, and water impacts during the use phase have not been studied. The Reference Service Life of this product is 30 years.

PRODUCT END OF LIFE (C1-C4, D)

The energy consumption during deconstruction of the product is considered, assuming 0.01kWh spent per kg. The construction of the waste processing facility and the appropriate equipment are not a part of this model. Due to the material and energy recovery potential of the materials, a part of the end-of-life product is converted into recycled raw materials while electric and heat energy are generated from incineration. Energy recovery from incineration is used for packaging materials. The distance from demolition site to metal recycling facility was assumed at 250km and landfill at 25km, the transport was assumed as road freight, lorry >32 metric ton.

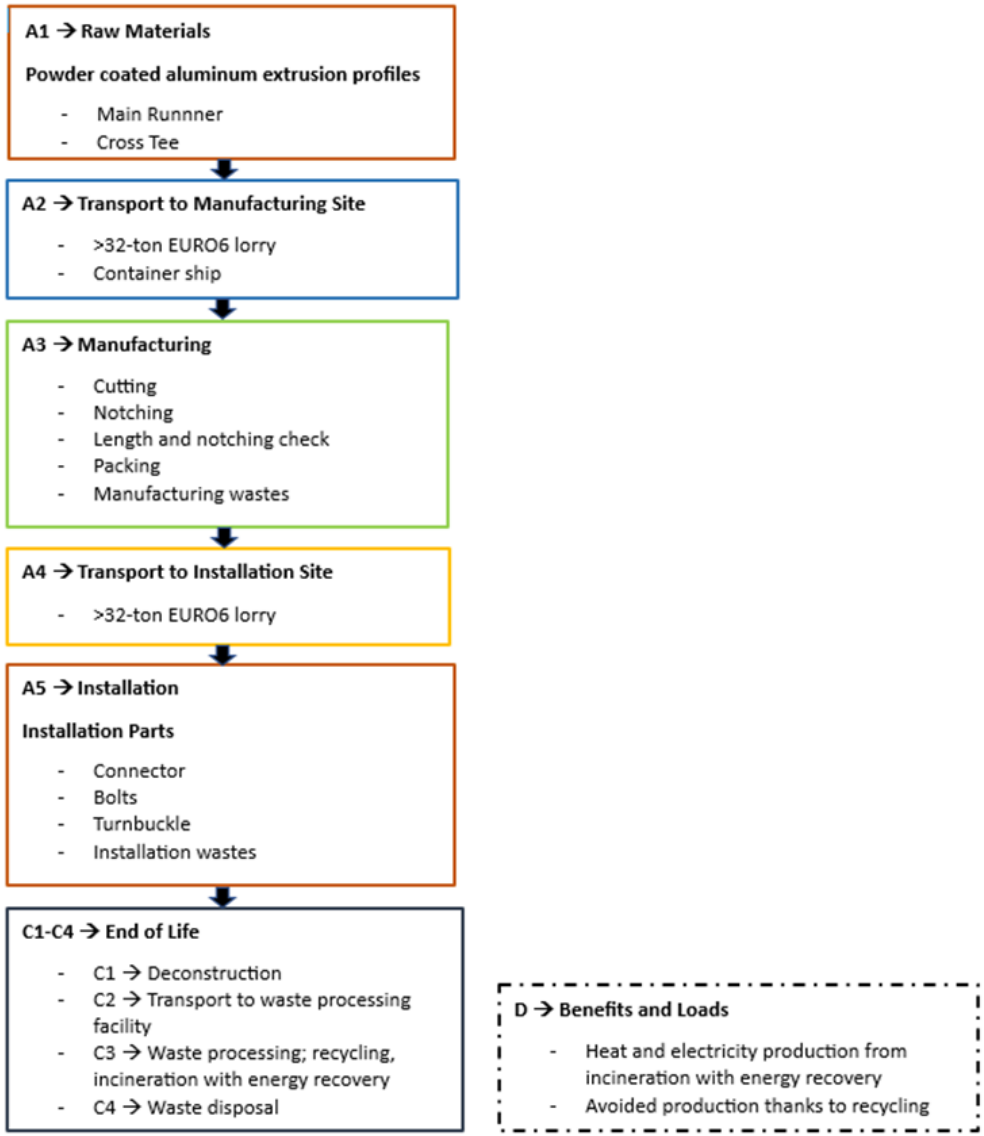
The assumptions for recycled materials were acquired from the Aluminum Association and the World Steel Association, stating 90% recycled Aluminum and 85% recycled steel. Due to the material and energy recovery potential of parts in the end-of-life product and packaging, recycled raw materials lead to avoided virgin material production, while the energy recovered from incineration displaces electricity and heat production (D). The benefits and loads of incineration and recycling are included in Module D for packaging materials as well.

The table below shows the used waste processing scenarios for the accumulated product materials and installation parts. The systems parts are either Aluminum or steel, the following recommended scenarios were considered for the End of Life:

Resource	Scenario	Reference
Aluminum	90% recycled 10% landfill	Aluminum Association
Steel	85% recycled 15% landfill	World Steel Association

The benefits considered for the system parts are the avoided production of Aluminum and steel thanks to recycling (while discounting the recycled content of the parts to avoid double accounting). The loads considered are from the recycling of such parts.
The same logic is applied to the packaging with the addition of recovered energy from the incineration with ER. The benefits and loads of product and packaging material recycling are included in Module D.

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.

This LCA study includes the provision of all materials, transportation, energy and emission flows, and end of life processing of product. The use phase is not covered, assuming there are no use emissions or replacements. All industrial processes from raw material acquisition and pre-processing, production, product distribution and installation, and end-of-life management are included. For easier modelling and because of lack of accuracy in available modelling resources, some constituents under 0.1% of product mass are excluded. These include some ancillary materials which are used in the product manufacturing only in very small amounts and have a negligible impact on the emissions of the product.

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

All estimations and assumptions regarding the cut off criteria and the allocation are declared in the part "Cut-off Criteria except the estimations/assumptions below:

Proxy data is used for certain materials during their absence from the database.
- Module A2, A4 & C2: Vehicle capacity utilization volume factor is assumed

to be 1 which means full load. It may vary but as the role of transportation emission in total results is small, the variety in load is assumed to be negligible. Empty returns are not considered as it is assumed that return trip is used by transportation companies to serve the needs of other clients.
- Module A4: Transportation does not cause losses as products are packaged properly. Also, volume capacity utilization factor is assumed to be 1 for the nested packaged products. Additionally, transportation distances are assumed based on a particular scenario of customer's premises in Red Lion, PA and a truck is the assumed vehicle type used.
- Module A5: Packaging waste is declared as installation waste.
- Module C2: Transportation distance to waste handling facility is estimated as 25km and the transportation method is assumed as truck.
- Module C3, C4, D: The product undergoes separate collection and a certain percentage of each material is assumed to be recycled, incinerated and landfilled. Ash from incineration processes is assumed negligible. The recycled end-of-life materials are assumed to serve as secondary raw materials in manufacturing while the materials incinerated displace electricity and heat production.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	No grouping
Grouping method	Not applicable
Variation in GWP-fossil for A1-A3, %	-

There is no average result considered in this study since EPD refers to one specific product produced in one production plant.

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'.

References used:

1. Aluminum Association, https://www.aluminum.org/
2. World Steel Association, https://worldsteel.org/
3. Containers and Packaging: Product-Specific Data | US EPA, https://www.epa.gov/facts-and-figures-about-materials-waste-and-recycling/containers-and-packaging-product-specific

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	7.87E+00	3.81E+00	1.96E-01	1.19E+01	7.97E-01	2.87E+00	ND	ND	ND	ND	ND	ND	ND	2.35E-02	1.74E-01	1.09E-01	3.43E-03	-2.08E+00
GWP – fossil	kg CO_2e	7.65E+00	3.81E+00	8.80E-01	1.23E+01	7.96E-01	2.19E+00	ND	ND	ND	ND	ND	ND	ND	2.34E-02	1.73E-01	7.98E-02	3.43E-03	-1.91E+00
GWP – biogenic	kg CO_2e	5.13E-02	8.42E-04	-6.85E-01	-6.33E-01	1.88E-04	6.86E-01	ND	ND	ND	ND	ND	ND	ND	8.95E-06	3.50E-05	2.91E-02	-1.09E-06	-3.53E-02
GWP – LULUC	kg CO_2e	1.67E-01	1.73E-03	1.11E-03	1.70E-01	3.71E-04	4.10E-04	ND	ND	ND	ND	ND	ND	ND	1.19E-05	6.26E-05	9.16E-05	1.96E-06	-1.38E-01
Ozone depletion pot.	kg CFC_{-11}e	7.35E-07	5.61E-08	1.04E-07	8.95E-07	1.28E-08	4.19E-09	ND	ND	ND	ND	ND	ND	ND	1.49E-10	3.44E-09	7.37E-10	9.95E-11	-5.87E-07
Acidification potential	mol H^+e	4.93E-02	1.89E-02	2.05E-03	7.02E-02	2.03E-03	9.81E-03	ND	ND	ND	ND	ND	ND	ND	6.54E-05	3.62E-04	5.84E-04	2.43E-05	-2.07E-02
EP-freshwater[2)]	kg Pe	3.85E-04	2.85E-04	7.73E-05	7.48E-04	6.39E-05	4.59E-05	ND	ND	ND	ND	ND	ND	ND	1.44E-05	1.17E-05	3.93E-05	2.82E-07	1.39E-03
EP-marine	kg Ne	6.49E-03	5.49E-03	6.10E-04	1.26E-02	5.15E-04	2.34E-03	ND	ND	ND	ND	ND	ND	ND	1.33E-05	8.72E-05	1.68E-04	9.28E-06	-5.82E-04
EP-terrestrial	mol Ne	7.22E-02	6.02E-02	6.49E-03	1.39E-01	5.57E-03	2.43E-02	ND	ND	ND	ND	ND	ND	ND	1.16E-04	9.41E-04	1.46E-03	1.01E-04	-2.08E-02
POCP ("smog")[3)]	kg NMVOCe	2.62E-02	2.24E-02	2.22E-03	5.08E-02	3.07E-03	7.47E-03	ND	ND	ND	ND	ND	ND	ND	4.61E-05	6.02E-04	4.24E-04	3.63E-05	-6.87E-03
ADP-minerals & metals[4)]	kg Sbe	1.86E-05	1.05E-05	1.33E-06	3.04E-05	2.30E-06	-4.18E-06	ND	ND	ND	ND	ND	ND	ND	3.15E-08	5.76E-07	2.85E-06	5.45E-09	-7.13E-06
ADP-fossil resources	MJ	1.05E+02	5.44E+01	1.41E+01	1.73E+02	1.20E+01	2.57E+01	ND	ND	ND	ND	ND	ND	ND	4.33E-01	2.44E+00	8.36E-01	8.43E-02	-3.50E+01
Water use[5)]	m^3e depr.	1.92E+00	2.60E-01	2.80E+00	4.98E+00	5.91E-02	4.37E-01	ND	ND	ND	ND	ND	ND	ND	5.18E-03	1.21E-02	2.00E-02	2.43E-04	7.94E-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	5.62E-07	3.49E-07	2.19E-08	9.32E-07	7.82E-08	2.48E-07	ND	ND	ND	ND	ND	ND	ND	3.40E-10	1.29E-08	8.61E-09	5.54E-10	-2.15E-08
Ionizing radiation[6]	kBq U235e	4.27E-01	4.57E-02	3.42E-01	8.15E-01	1.04E-02	6.28E-02	ND	ND	ND	ND	ND	ND	ND	9.17E-03	3.13E-03	9.20E-03	5.30E-05	-1.64E-01
Ecotoxicity (freshwater)	CTUe	1.48E+02	7.63E+00	1.34E+00	1.57E+02	1.68E+00	2.93E+00	ND	ND	ND	ND	ND	ND	ND	4.41E-02	3.25E-01	7.52E-01	7.07E-03	-7.29E+01
Human toxicity, cancer	CTUh	1.60E-08	6.42E-10	6.95E-10	1.73E-08	1.33E-10	1.26E-09	ND	ND	ND	ND	ND	ND	ND	2.80E-12	2.91E-11	7.73E-11	6.33E-13	-3.15E-09
Human tox. non-cancer	CTUh	2.40E-07	3.38E-08	2.93E-09	2.77E-07	7.72E-09	6.45E-09	ND	ND	ND	ND	ND	ND	ND	1.24E-10	1.55E-09	3.00E-09	1.45E-11	1.30E-07
SQP[7]	-	1.35E+01	4.87E+01	5.53E+01	1.17E+02	1.21E+01	3.20E+00	ND	ND	ND	ND	ND	ND	ND	6.24E-02	1.50E+00	3.51E+00	1.66E-01	1.34E-01

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	4.23E+01	7.28E-01	8.28E+00	5.13E+01	1.64E-01	-6.67E+00	ND	ND	ND	ND	ND	ND	ND	4.82E-02	4.26E-02	1.53E-01	8.13E-04	-3.29E+01
Renew. PER as material	MJ	0.00E+00	0.00E+00	5.98E+00	5.98E+00	0.00E+00	-5.98E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	4.23E+01	7.28E-01	1.43E+01	5.73E+01	1.64E-01	-1.26E+01	ND	ND	ND	ND	ND	ND	ND	4.82E-02	4.26E-02	1.53E-01	8.13E-04	-3.29E+01
Non-re. PER as energy	MJ	1.03E+02	5.44E+01	1.56E+01	1.73E+02	1.20E+01	2.46E+01	ND	ND	ND	ND	ND	ND	ND	4.33E-01	2.44E+00	8.36E-01	8.43E-02	-3.50E+01
Non-re. PER as material	MJ	0.00E+00	0.00E+00	5.29E-01	5.29E-01	0.00E+00	-5.29E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of non-re. PER	MJ	1.03E+02	5.44E+01	1.61E+01	1.73E+02	1.20E+01	2.41E+01	ND	ND	ND	ND	ND	ND	ND	4.33E-01	2.44E+00	8.36E-01	8.43E-02	-3.50E+01
Secondary materials	kg	3.35E+00	2.36E-02	2.40E-02	3.40E+00	5.09E-03	7.03E-01	ND	ND	ND	ND	ND	ND	ND	4.81E-05	1.13E-03	1.41E-03	2.12E-05	1.11E-01
Renew. secondary fuels	MJ	1.23E-04	2.84E-04	1.97E-01	1.97E-01	6.48E-05	9.95E-06	ND	ND	ND	ND	ND	ND	ND	1.41E-07	1.43E-05	1.00E-04	4.39E-07	3.49E-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	2.84E-01	7.71E-03	4.19E-03	2.96E-01	1.80E-03	1.93E+00	ND	ND	ND	ND	ND	ND	ND	1.57E-04	3.34E-04	4.57E-04	8.76E-05	-3.11E-01

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	9.11E-02	9.15E-02	1.52E-02	1.98E-01	2.02E-02	8.88E-03	ND	ND	ND	ND	ND	ND	ND	1.60E-03	3.56E-03	8.26E-03	9.31E-05	9.52E-01
Non-hazardous waste	kg	6.43E+00	1.68E+00	4.41E-01	8.55E+00	3.74E-01	1.62E+00	ND	ND	ND	ND	ND	ND	ND	7.07E-02	7.50E-02	3.51E-01	2.13E-03	6.30E+01
Radioactive waste	kg	3.91E-04	1.12E-05	4.23E-05	4.45E-04	2.55E-06	4.60E-06	ND	ND	ND	ND	ND	ND	ND	2.08E-06	7.78E-07	2.35E-06	1.29E-08	-2.84E-04

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	3.01E+00	0.00E+00	0.00E+00	3.01E+00	0.00E+00	1.44E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	4.43E+00	0.00E+00	-2.56E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.57E-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	MJ	1.75E-03	0.00E+00	0.00E+00	1.75E-03	0.00E+00	4.90E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.49E-03
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E-01	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	3.34E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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	7.82E+00	3.81E+00	8.81E-01	1.25E+01	7.97E-01	2.19E+00	ND	ND	ND	ND	ND	ND	ND	2.35E-02	1.74E-01	7.99E-02	3.44E-03	-2.04E+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.

ENVIRONMENTAL IMPACTS – TRACI 2.1. / ISO 21930

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Global Warming Pot.	kg CO_2e	1.28E+01	3.76E+00	8.76E-01	1.74E+01	7.85E-01	2.18E+00	ND	ND	ND	ND	ND	ND	ND	2.32E-02	1.71E-01	9.99E-02	3.35E-03	3.82E+00
Ozone Depletion	kg $CFC_{-11}e$	1.15E-07	5.92E-08	1.17E-07	2.92E-07	1.35E-08	4.43E-09	ND	ND	ND	ND	ND	ND	ND	1.61E-10	3.63E-09	7.79E-10	1.05E-10	2.31E-08
Acidification	kg SO_2e	5.58E-02	1.65E-02	1.79E-03	7.40E-02	1.76E-03	8.32E-03	ND	ND	ND	ND	ND	ND	ND	5.54E-05	3.09E-04	4.96E-04	2.19E-05	1.45E-02
Eutrophication	kg Ne	1.90E-02	1.33E-03	2.14E-03	2.25E-02	2.17E-04	3.68E-04	ND	ND	ND	ND	ND	ND	ND	1.33E-05	4.16E-05	1.02E-04	2.45E-06	1.18E-02
POCP (“smog”)	kg O_3e	7.39E-01	3.72E-01	3.82E-02	1.15E+00	3.75E-02	1.42E-01	ND	ND	ND	ND	ND	ND	ND	6.87E-04	6.59E-03	7.85E-03	6.26E-04	2.05E-01
ADP-fossil	MJ	1.01E+02	5.45E+01	4.21E+00	1.59E+02	1.20E+01	4.13E+00	ND	ND	ND	ND	ND	ND	ND	4.33E-01	2.45E+00	8.39E-01	8.43E-02	4.17E+01

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

1. Heat production, propane, at industrial furnace >100kW, World, Ecoinvent, 0.0945 kgCO2e/MJ
2. Natural gas (Industrial furnace >100 kW), World, One Click LCA, 0.25 kgCO2e/kWh
3. Electricity, USA, Pennsylvania, 2023, Pennsylvania, One Click LCA, 0.51 kgCO2e/kWh
4. Electricity production, wind, 1-3MW turbine, onshore, Connecticut, Ecoinvent, 0.0140 kgCO2e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Transport, freight, lorry >32 metric ton, EURO6, 1750 km

Transport scenario documentation A4

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	1.62E+03
Volume capacity utilization factor	1

Installation scenario documentation - A5 (Installation resources)

1. Market group for electricity, low voltage, Ecoinvent, 0.0955 kWh
2. Steel sections Global 2022, WorldSteel, 0.8486 kg
3. Steel wire rod Global 2022, WorldSteel, 0.233 kg

Installation scenario documentation - A5 (Installation waste)

1. Treatment of waste wood, post-consumer, sorting and shredding, Ecoinvent, Materials for recycling, 0.12 kg
2. Treatment of waste wood, untreated, sanitary landfill, Ecoinvent, 0.26 kg
3. Treatment of waste wood, untreated, municipal incineration, Ecoinvent, Materials for energy recovery, 0.064 kg
4. Exported Energy: Thermal, Ecoinvent, 0.32 MJ
5. Exported Energy: Thermal, Ecoinvent, 0.0074 MJ
6. Exported Energy: Thermal, Ecoinvent, 0.0064 MJ
7. Exported Energy: Electricity, Ecoinvent, 0.15 MJ
8. Exported Energy: Electricity, Ecoinvent, 0.0035 MJ
9. Exported Energy: Electricity, Ecoinvent, 0.0029 MJ
10. Treatment of waste polyethylene, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 4.4E-4 kg
11. Treatment of waste polyethylene, municipal incineration, Ecoinvent, Materials for energy recovery, 5.5E-4 kg
12. Treatment of waste polyethylene, sanitary landfill, Ecoinvent, 0.0023 kg
13. Treatment of waste paperboard, unsorted, sorting, Ecoinvent, Materials for recycling, 0.024 kg
14. Treatment of waste packaging paper, municipal incineration, Ecoinvent, Materials for energy recovery, 0.0011 kg
15. Treatment of waste packaging paper, sanitary landfill, Ecoinvent, 0.0046 kg

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

1. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.16 kg
2. Sorting and pressing of iron scrap, Ecoinvent, Materials for recycling, 0.92 kg
3. Treatment of metal scrap, mixed, for recycling, unsorted, sorting, Ecoinvent, Materials for recycling, 3.51 kg
4. Treatment of scrap steel, inert material landfill, Ecoinvent, 0.39 kg
5. Market group for electricity, medium voltage, Ecoinvent, 0.0499 kWh

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

Sarah Curpen as an authorized verifier for EPD Hub Limited 03.04.2026