



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

Bison: Heavy-duty Steel Kerb for Edging Hard Landscapes.

Kinley Systems Limited



EPD HUB, HUB-6249

Published on 08.05.2026, last updated on 08.05.2026, valid until 07.05.2031

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.

GENERAL INFORMATION

MANUFACTURER

Manufacturer	Kinley Systems Limited
Address	Westpoint, Compass Park, Robertsbridge, East Sussex, TN32 5BS
Contact details	sales@kinley.co.uk
Website	https://www.kinley.co.uk/

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	Dr Nathan Wood, Tunley Environmental
EPD verification	Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification
EPD verifier	D.V 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	Bison: Heavy-duty Steel Kerb for Edging Hard Landscapes.
Additional labels	Bison Heights: 75 - 200 mm
Product reference	-
Place(s) of raw material origin	United Kingdom
Place of production	Westpoint, Compass Park, Robertsbridge, East Sussex, TN32 5BS
Place(s) of installation and use	United Kingdom
Period for data	Calendar Year of 2024
Averaging in EPD	Multiple products
Variation in GWP-fossil for A1-A3 (%)	< 1
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	4

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 kg of Bison galvanised steel kerb edging system, including connectors
Declared unit mass	1 kg
Mass of packaging	0.0265 kg
GWP-fossil, A1-A3 (kgCO₂e)	3.18
GWP-total, A1-A3 (kgCO₂e)	3.13
Secondary material, inputs (%)	24.4
Secondary material, outputs (%)	85
Total energy use, A1-A3 (kWh)	10.5
Net freshwater use, A1-A3 (m³)	1.89

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Kinley Systems Limited is a UK-based manufacturer of high-performance landscape edging and outdoor surface systems, established in 2008 and operating from its fully stocked facility in East Sussex, England. The company has become a trusted standard-setter in the landscape architecture, hard landscaping and external works sectors, specialising in precision-engineered metal landscape edging, planters, structural support systems and associated outdoor products. The product range includes a variety of steel and aluminium edging systems designed for commercial, public realm, residential and private garden applications, supporting both soft and hard landscape interfaces.

Kinley's product portfolio focuses on durable, low-maintenance solutions designed to provide structural definition between hard and soft landscape finishes. Products are specified in public parks, heritage sites, commercial developments and private landscaping projects throughout the UK.

PRODUCT DESCRIPTION

This Environmental Product Declaration covers the Bison heavy-duty steel kerb edging system, a galvanised steel edge restraint designed for demarcating and retaining hard landscape surfaces. Bison provides a durable alternative to conventional concrete kerbs and is intended for use in civil construction and landscape applications including service roads (excluding motorways), pavements, parks, playgrounds, and building perimeters.

Bison is manufactured in the United Kingdom from galvanised steel, consisting of hot-rolled mild carbon steel coated with a protective zinc layer to enhance corrosion resistance and inhibit rust formation. The product exhibits high resistance to atmospheric corrosion and is suitable for use in normal environmental exposure conditions. The Bison system is supplied in

nominal 2.4 m lengths and is available in the following profile heights:

- 75 mm
- 100 mm
- 150 mm
- 200 mm

All profiles are manufactured from 2 mm thick galvanised steel and incorporate a rounded top edge detail to provide a smooth visible finish without sharp edges. The edging foot width is typically 50 mm for the standard flexible profiles. The system is designed to delineate asphalt, rubber coatings and other hard landscape surfaces, and is suitable for applications involving hot asphalt or tarmacadam due to its high heat resistance.

Individual edging sections are mechanically connected on site using galvanised steel strip connectors (joining inserts), typically 100 mm in length and matched to the respective profile height. Each edging length is fitted with connectors to enable continuous alignment and structural continuity between sections. Fixing to the substrate can be achieved with or without using 250 mm steel spiral fixing stakes or suitable mechanical anchors.

Installation is undertaken onto a compacted sub-base (e.g., MOT Type 1) with a minimum compacted depth of 150 mm. A thin dry-mix bedding layer (e.g., sharp sand and cement) is recommended beneath the edging foot to ensure continuous support. Under standard applications, wet concrete haunching is not required.

Bison Kerb is 100% recyclable at end of life. The galvanised steel construction enables recovery through established steel recycling streams.

The declared unit for this EPD is 1 kg of Bison galvanised steel kerb edging system, including associated galvanised steel connectors. The EPD covers the edging profiles and connectors as delivered to site. Installation accessories (e.g., spiral fixing stakes), bedding materials, sub-base

construction, surfacing materials, and site equipment are excluded from the system boundary.

Further information can be found at:
<https://www.kinley.co.uk/>

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	100	United Kingdom
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	0.01

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 kg of Bison galvanised steel kerb edging system, including connectors
Mass per declared unit	1 kg
Functional unit	-
Reference service life	-

SUBSTANCES, REACH - VERY HIGH CONCERN

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

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

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.

Module A1 includes the extraction, upstream processing and production of the galvanised steel, used for edging profiles (0.972 kg/DU) and strip connectors (0.0283 kg/DU). Galvanised steel production is modelled using generic data. Excess material required to account for losses during machining is included within this module. No coatings, paints, or chemical surface treatments are applied to the product.

Module A2 accounts for the transportation of galvanised steel input material and packaging materials from suppliers to the UK manufacturing facility. Transport is modelled using representative European road freight datasets for heavy goods vehicles (>32 metric tonne, EURO 6). Supplier-specific distances are applied for the galvanised steel inputs, while a conservative regional transport distance of 150 km is assumed for packaging materials.

Module A3 covers all processing operations undertaken at the UK manufacturing facility, including machining, cutting to 2.4 m lengths, inspection and packing. Primary energy data for 2024 (electricity) were used and allocated to the declared unit (1 kg of Bison galvanised steel kerb edging system including connectors) using a production-weighted mass allocation across total 2024 production output. The facility manufactures multiple steel products; however, no co-products are generated, and allocation was therefore performed on a mass basis in accordance with EN 15804. Manufacturing waste is included within this module and consists of galvanised steel scrap and waste water generated during profile processing. Scrap galvanised steel is segregated and sent for recycling in accordance with standard industry practice. No hazardous waste is generated. There are no direct process emissions.

Packaging materials used at the factory gate include wooden EUR pallets, plastic stretch film and steel strapping. The upstream production and transport of these materials are included within Modules A1-A3. Following manufacture and packaging, the finished product is transported from the manufacturing facility to a warehouse via a pallet-network heavy goods vehicle. This additional transport is modelled within Module A3 using a >32 tonne EURO 6 freight lorry dataset and the measured transport distance applied in the study.

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.

Module A4 covers the transportation of the finished Bison edging system from the warehouse to the delivery site. Delivery is undertaken via pallet-network heavy goods vehicle and is modelled using a >32 tonne EURO 6 compliant freight lorry dataset. A transport distance of 150 km is applied, representing typical regional deliveries within the south-east of the United Kingdom, particularly the London and surrounding areas. This distance reflects standard pallet-network distribution from the warehouse to site and is considered representative of average market conditions. The transported mass includes the declared unit (1 kg of Bison edging system including connectors) together with associated packaging materials. Due to secure palletisation and protective wrapping, no material losses are assumed to occur during transport.

Module A5 covers installation of the Bison edging system at the construction site. Installation is undertaken manually onto a prepared sub-base or suitable foundation. Fixing may be achieved using mechanical stakes or masonry fixings depending on substrate conditions; however, these

accessories are excluded from the declared unit and are not included within the system boundary of this EPD. Installation does not require energy-intensive machinery or powered equipment under normal conditions. No cutting, trimming or modification of the galvanised steel profiles is required under standard installation practice. Accordingly, no product losses are assumed during installation. Packaging materials (wooden EUR pallets, plastic stretch film and steel strapping) are removed at the installation stage and are modelled for end-of-life treatment in Module A5 using representative European waste treatment datasets. Recycling, energy recovery and disposal routes are applied in accordance with the default waste treatment assumptions embedded within the selected background datasets. Any exported energy associated with packaging waste treatment is accounted for within the modelling framework. No additional energy or water use is required during installation beyond minor manual handling activities.

PRODUCT USE AND MAINTENANCE (B1-B7)

Modules B1–B7 are not considered in this study, as the product use is passive (no operational energy), and no significant maintenance or replacement is expected over the service life. Refurbishment and operational water use are excluded as they are deemed out of scope. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

At end of life, the Bison galvanised steel edging system is assumed to be removed during refurbishment or demolition of the associated landscape installation. Energy use during deconstruction is considered negligible. The edging system is assumed to be dismantled manually using basic hand tools, without the need for energy-intensive equipment or auxiliary materials. No additional inputs are required at this stage.

Following removal, galvanised steel profiles and connectors are collected as construction and demolition waste and transported to waste treatment facilities. Transport is modelled using European heavy goods vehicle datasets. Two transport routes are applied in accordance with the assumed treatment pathways:

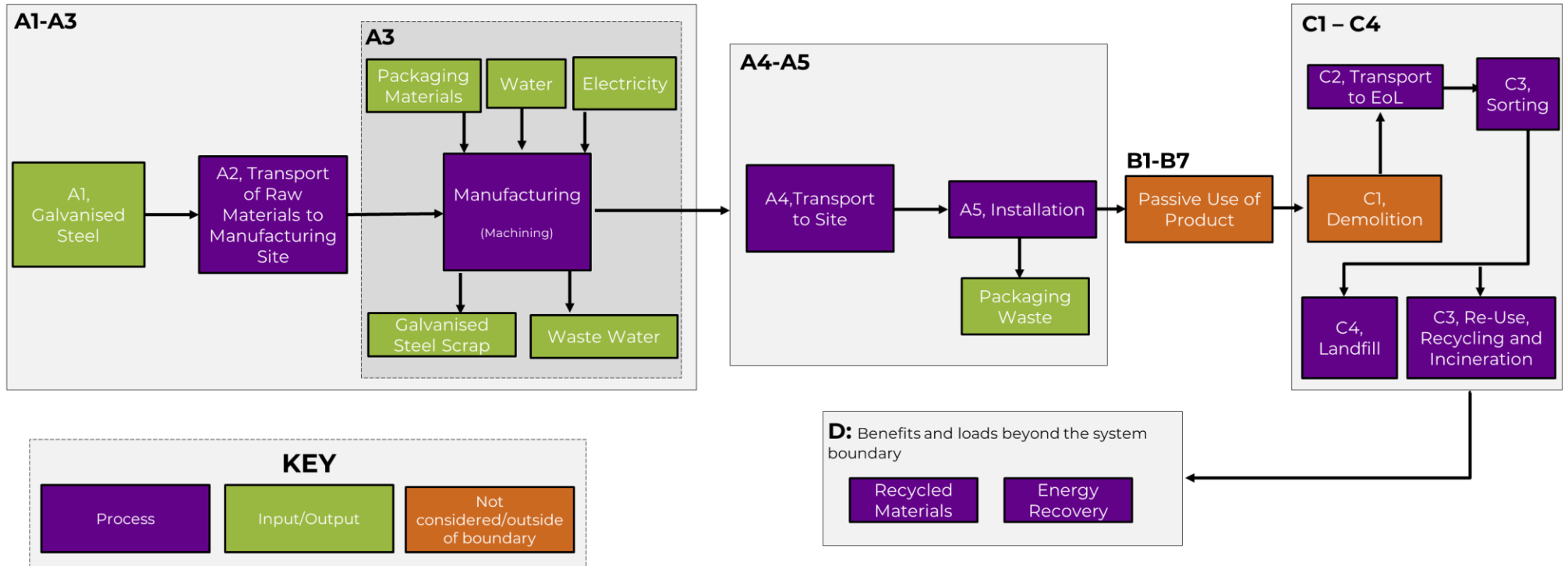
- 250 km to recycling facilities (85% of material)
- 50 km to landfill (15% of material)

These distances represent typical regional haulage to licensed recycling and disposal facilities.

A recycling rate of 85% is applied for galvanised steel from construction applications, based on World Steel (2020), which reports high recovery rates for post-consumer Steel in Europe. The recycling processing is modelled using sorting and pressing activities. Final disposal of the non-recovered 15% galvanised steel fraction is modelled in sanitary landfill. Galvanised steel is considered inert in landfill conditions.

Module D accounts for the net benefits and loads associated with galvanised steel recycling at end of life, in accordance with EN 15804 +A2. The 85% recycled galvanised steel fraction (0.85 kg per declared unit) is credited using an avoided burden approach. The avoided burden applies to the displacement of primary galvanised steel production through secondary material recovery (0.81 kg steel per DU and 0.043 kg steel per DU). A load associated with metal production processes is also applied.

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. WorldSteel 2023 data representing the production mix of global steel, hot dip galvanized was used to represent the steel raw material. Manufacturer-provided specific and generic data were used for the product's manufacturing stage. The analysis was performed in One Click LCA EPD Generator, with the 'Cut-Off, EN 15804+A2' allocation method, and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	No allocation
Packaging material	Not applicable
Ancillary materials	Allocated by mass or volume
Manufacturing energy and waste	Allocated by mass or volume

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Multiple products
Grouping method	Based on average results of product group - by total mass
Variation in GWP-fossil for A1-A3, %	< 1

This EPD covers multiple variants of the bison edging system, including connectors, including profile heights from 75 mm to 200 mm, supplied in 2.4 m lengths.

All included products:

- Are manufactured from hot-rolled galvanised mild carbon steel
- Are produced at the same UK manufacturing facility
- Follow identical core manufacturing processes (machining, cutting,

inspection and packing)

- Use the same energy sources and allocation methodology
- Share identical end-of-life assumptions

The declared unit is 1 kg of Bison galvanised steel kerb edging system, including connectors. As the environmental impacts are expressed per kilogram of product, differences in profile geometry (height, thickness, foot width) do not materially affect results. The relative mass contribution of connectors varies slightly between profile heights; however, connectors are manufactured from the same alloy and via the same production route. To determine the impacts associated with a specific standard 2.4 m Bison configuration (including one connector), the results shall be multiplied by the corresponding scaling factor provided below.

Each scaling factor represents the total mass (kg) of the respective 2.4 m system:

- 75 mm height, 2.4 m length Bison (incl. 1 × 75 mm connector): 7.7 kg
- 100 mm height, 2.4 m length Bison (incl. 1 × 100 mm connector): 9.8 kg
- 150 mm height, 2.4 m length Bison (incl. 1 × 150 mm connector): 13.9 kg
- 200 mm height, 2.4 m length Bison (incl. 1 × 200 mm connector): 18.0 kg

Environmental impacts for all variants were assessed and found to vary by less than 1% in GWP fossil for Modules A1–A3. This confirms that the declared results are representative of the full product range included in this EPD. The EPD therefore reports average results per kilogram, which are considered representative of all included bison edging system variants.

The scaling factors are tabulated below:

Bison Height	Scaling Factor / Profile Mass (kg)
75 mm	7.70
100 mm	9.80
150 mm	13.90
200 mm	17.51

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator for EPD Hub V3 and EPD Process Certification v3.2.4. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.10.1/3.11/3.12 and One Click LCA databases as sources of environmental data. Allocation used in Ecoinvent 3.10.1/3.11/3.12 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	3.02E+00	4.98E-02	5.54E-02	3.13E+00	1.59E-02	4.02E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.37E-02	1.89E-02	9.39E-04	-1.46E+00
GWP – fossil	kg CO ₂ e	3.04E+00	4.98E-02	9.27E-02	3.18E+00	1.59E-02	2.12E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.37E-02	1.91E-02	9.38E-04	-1.45E+00
GWP – biogenic	kg CO ₂ e	-1.82E-02	1.08E-05	-3.74E-02	-5.56E-02	3.48E-06	3.80E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.36E-06	-2.75E-04	4.21E-07	0.00E+00
GWP – LULUC	kg CO ₂ e	5.44E-04	1.94E-05	5.24E-05	6.16E-04	6.20E-06	1.36E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.06E-05	2.36E-05	5.38E-07	-5.51E-04
Ozone depletion pot.	kg CFC ₋₁₁ e	1.08E-12	1.04E-09	2.78E-09	3.82E-09	3.32E-10	1.45E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.50E-10	2.54E-10	2.61E-11	-5.78E-09
Acidification potential	mol H ⁺ e	7.57E-03	1.17E-04	2.93E-04	7.98E-03	3.76E-05	5.09E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.07E-05	2.28E-04	6.57E-06	-6.37E-03
EP-freshwater ²⁾	kg Pe	1.44E-06	3.48E-06	2.27E-05	2.76E-05	1.11E-06	2.53E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.84E-06	1.27E-05	8.21E-08	-7.05E-04
EP-marine	kg Ne	1.52E-03	3.08E-05	7.74E-05	1.63E-03	9.86E-06	5.20E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.65E-05	5.06E-05	2.52E-06	-1.44E-03
EP-terrestrial	mol Ne	1.61E-02	3.33E-04	7.95E-04	1.72E-02	1.07E-04	2.07E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.89E-04	5.72E-04	2.76E-05	-1.57E-02
POCP (“smog”) ³⁾	kg NMVOCe	5.53E-03	2.04E-04	2.84E-04	6.01E-03	6.53E-05	6.77E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.19E-04	1.70E-04	9.95E-06	-5.15E-03
ADP-minerals & metals ⁴⁾	kg Sbe	2.72E-05	1.42E-07	3.95E-07	2.78E-05	4.56E-08	2.79E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.61E-08	1.35E-06	1.40E-09	-7.79E-05
ADP-fossil resources	MJ	3.50E+01	7.47E-01	1.74E+00	3.75E+01	2.39E-01	1.28E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.44E-01	2.58E-01	2.30E-02	-1.38E+01
Water use ⁵⁾	m ³ e depr.	5.87E-02	3.83E-03	1.70E-02	7.95E-02	1.22E-03	4.66E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.70E-03	5.03E-03	1.01E-03	-3.70E-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	2.92E-07	4.85E-09	2.95E-09	2.99E-07	1.55E-09	8.86E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.37E-09	3.12E-09	1.51E-10	-9.37E-08
Ionizing radiation ⁶⁾	kBq 11235e	3.09E-02	9.01E-04	3.30E-02	6.48E-02	2.88E-04	3.43E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.99E-04	2.22E-03	1.38E-05	2.99E-02
Ecotoxicity (freshwater)	CTUe	4.69E+00	8.81E-02	1.63E+00	6.41E+00	2.82E-02	1.63E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.86E-02	1.26E+00	1.54E-02	-2.13E+01
Human toxicity, cancer	CTUh	1.57E-09	8.29E-12	5.29E-11	1.64E-09	2.65E-12	4.83E-13	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.91E-12	1.69E-11	1.70E-13	-6.63E-10
Human tox. non-cancer	CTUh	9.38E-09	4.83E-10	6.19E-10	1.05E-08	1.55E-10	2.49E-11	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.22E-10	1.16E-09	3.83E-12	-2.42E-08
SQP ⁷⁾	-	2.13E+00	7.52E-01	3.62E+00	6.50E+00	2.41E-01	1.24E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.46E-01	4.95E-01	4.52E-02	-4.66E+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	5.49E-01	1.22E-02	3.59E-01	9.21E-01	3.89E-03	-3.67E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.71E-03	4.73E-02	2.15E-04	-1.08E+00
Renew. PER as material	MJ	0.00E+00	0.00E+00	3.78E-01	3.78E-01	0.00E+00	-3.78E-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 renew. PER	MJ	5.49E-01	1.22E-02	7.37E-01	1.30E+00	3.89E-03	-7.46E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.71E-03	4.73E-02	2.15E-04	-1.08E+00
Non-re. PER as energy	MJ	3.43E+01	7.47E-01	1.67E+00	3.67E+01	2.39E-01	-2.77E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.44E-01	2.58E-01	2.30E-02	-1.38E+01
Non-re. PER as material	MJ	0.00E+00	0.00E+00	6.74E-02	6.74E-02	0.00E+00	-6.74E-02	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	3.43E+01	7.47E-01	1.74E+00	3.68E+01	2.39E-01	-9.51E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.44E-01	2.58E-01	2.30E-02	-1.38E+01
Secondary materials	kg	2.44E-01	3.23E-04	1.74E-03	2.46E-01	1.03E-04	9.75E-06	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.46E-04	3.14E-04	5.72E-06	7.97E-01
Renew. secondary fuels	MJ	0.00E+00	4.08E-06	1.28E-02	1.28E-02	1.30E-06	1.08E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.86E-06	1.47E-05	1.19E-07	-1.12E-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	1.89E+00	1.10E-04	9.24E-04	1.89E+00	3.53E-05	-3.23E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.08E-05	1.15E-04	2.38E-05	-6.30E-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	3.42E-07	1.08E-03	4.82E-03	5.91E-03	3.46E-04	9.36E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.82E-04	1.70E-03	2.62E-05	-4.50E-01
Non-hazardous waste	kg	4.39E-13	2.16E-02	2.28E-01	2.50E-01	6.93E-03	3.53E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.08E-02	6.70E-02	6.05E-04	-3.86E+00
Radioactive waste	kg	2.59E-28	2.23E-07	7.15E-06	7.38E-06	7.13E-08	8.56E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	7.33E-08	5.67E-07	3.35E-09	7.84E-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	1.28E-01	1.28E-01	0.00E+00	8.81E-03	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	4.60E-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	2.00E-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	2.60E-02	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 ₂ e	3.04E+00	4.98E-02	9.27E-02	3.18E+00	1.59E-02	2.12E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.37E-02	1.91E-02	9.39E-04	-1.46E+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. Electricity, medium voltage, residual mix, United Kingdom, Ecoinvent, 0.47 kgCO₂e/kWh

Transport scenario documentation - A4 (Transport resources)

1. Transport, freight, lorry >32 metric ton, EURO6, 150 km

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	50
Bulk density of transported products	2.05E+04
Volume capacity utilization factor	1

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	-
Water use (m ³)	-
Ancillary materials: type and mass (kg)	-
Waste materials: type and mass (kg)	0.001 kg plastic wrapping film, 0.025 kg of wooden pallet, and 0.0005 kg of steel strapping.
Waste materials: output routes	Plastic wrapping film, 0.0004 kg recycling, 0.00037 kg incineration, and 0.00023 kg landfill; wooden pallet, 0.008 kg recycling, 0.0075 kg incineration, and 0.0095 kg landfill; steel strapping, 0.00041 kg recycling, 0.000095 kg landfill.
Direct emissions (kg)	-

Use stages scenario documentation - B2 Maintenance

Scenario information	Value
Maintenance process description	-
Maintenance cycle (per RSL)	-
Energy use (kWh/cycle)	-
Water use (m3 or litres/cycle)	-
Ancillary materials (kg/cycle)	-
Waste materials (kg/cycle)	-

Use stages scenario documentation - B3 Repair

Scenario information	Value
Repair & Inspection process description	-
Repair cycle (per RSL)	-
Energy use (kWh/cycle)	-
Water use (m3 or litres/cycle)	-
Ancillary materials (kg/cycle)	-
Waste materials (kg/cycle)	-

Use stages scenario documentation - B5 Refurbishment

Scenario information	Value
Refurbishment process, cycle (per RSL)	-
Energy use (kWh/cycle)	-
Ancillary materials (kg/cycle)	-
Waste materials (kg/cycle)	-

Use stages scenario documentation - B6-B7 Use of energy and use of water

Scenario information	Value
Type of energy, consumption (kWh)	-
Freshwater consumption (m3)	-
Performance characteristics, E.g. Power rating, efficiency, capacity	-

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	1 kg of aluminium collected as scrap.
Collection process: Mixed waste (kg)	-
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0.85
Recovery: energy recovery (kg)	0
Disposal (kg)	0
Scenario assumptions e.g. transportation (mode, km) & other	Landfill, 50km. Recycling, 250km.

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

D.V as an authorized verifier for EPD Hub Limited 08.05.2026

