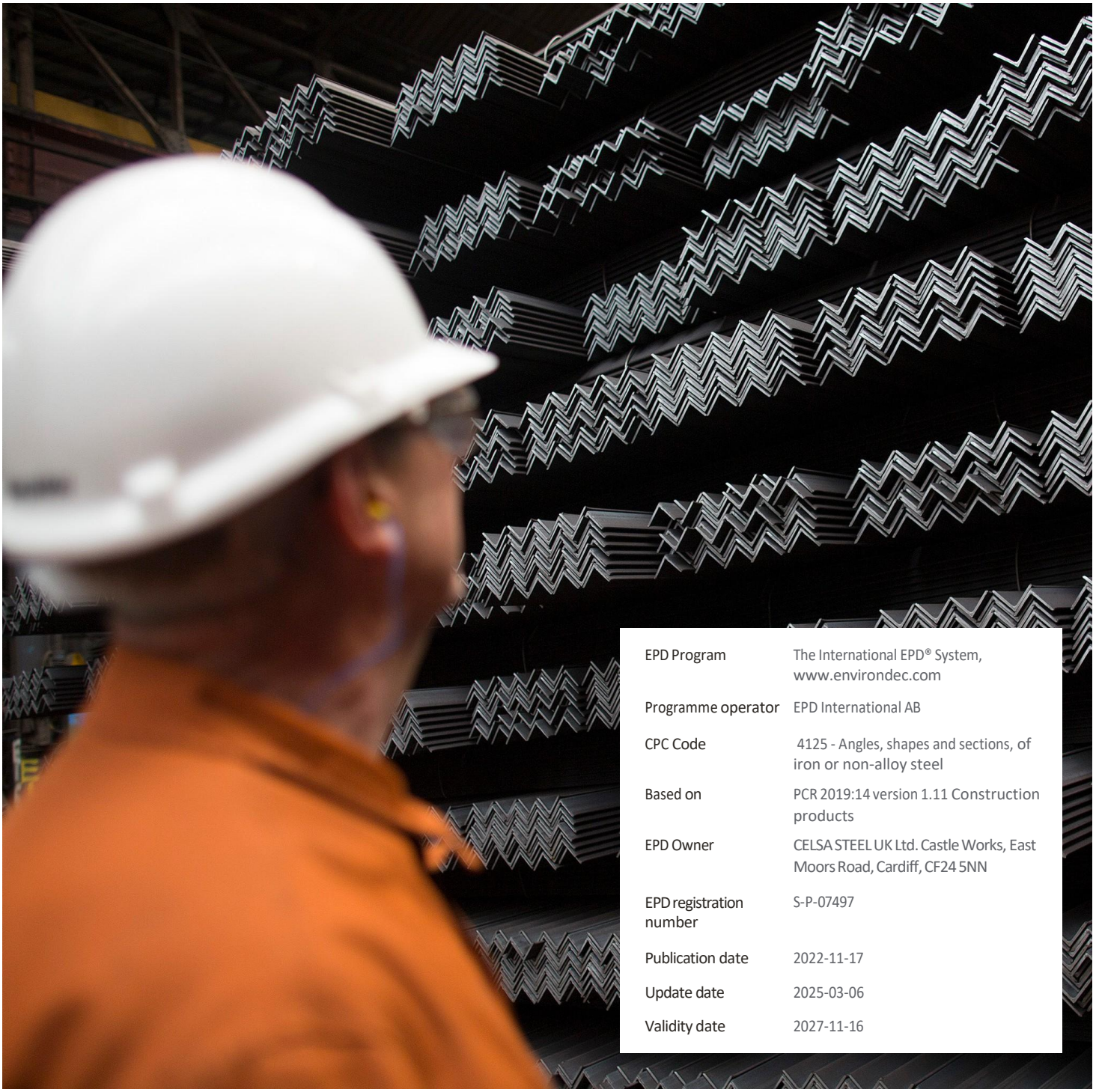
# Environmental Product Declaration

S-P-07497. HOT ROLLED MERCHANT BARS AND SECTIONS

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019

1st Producer of Circular Steel *in Europe*



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|---|---|
| EPD Program | The International EPD® System, www.environdec.com |
| Programme operator | EPD International AB |
| CPC Code | 4125 - Angles, shapes and sections, of iron or non-alloy steel |
| Based on | PCR 2019:14 version 1.11 Construction products |
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# 0 Celsa Steel UK

Celsa Steel UK belongs to the Celsa Group of companies. Celsa, later to become Celsa Group, was established in 1967 reinforcing the bar re-rolling mill. Four decades later, Celsa Group has grown to be one of the largest steel manufacturers in Europe, producing over 10 million tonnes of steel each year. They have group companies in Spain, the UK, Poland, Norway France.

## About us

Acquired in 2003, Celsa Steel UK is the largest producer of reinforcement in the United Kingdom and one of the largest manufacturers of other steel long products. From our facilities in Cardiff, we produce and deliver around 1.2 million tonnes of finished product each year, mainly to the UK and Irish markets.

Our facilities consist of a state-of-the-art melt shop built in 2006, and two production facilities: one for reinforcing products and wire rod, the other for merchant bar and light sections.

Celsa directly employ over 800 staff members and several hundred sub-contractors in South Wales.

## Products

At Celsa UK we are committed to providing our customers with a diverse range of high quality steel products. Through our customer focused approach we aim to develop our product portfolio to meet the dynamic needs of the market, whilst ensuring that the highest quality standards are maintained through improved internal controls and quality assurance.

Each of our products and processes is subject to stringent quality control to ensure that our products conform to the British and European Standards through BBA and CARES approval and CE marking.

## Sections Mill

Our sections mill is capable of producing 350,000 tonnes of merchant bar and section. It is a 14-stand cross-country mill with a billet reheating furnace that can produce 80 tonnes per hour.

The original mill was commissioned in 1964 and updated in 1985 to provide a range of medium steel section products, including angles and flats channels in a range of sizes and lengths up to

15.5m. Further developments came in 1993 and 1994 when the furnace was reconstructed to use either oil or gas. In 2003, after a successful commissioning period, the mill began producing equal and unequal angles, standard and UPN channels, and flat bars from 60mm to 300mm. In 2006 a new Russula process control was installed ensuring tighter tolerances, a greater production volume as well as an extend product range to include smaller sizes.

## Process

Scrap arrives at our facilities by rail and by road for delivery to the melt shop. There are over 20 different grades of scrap, each representing a different of quality. Scrap ranges from scrapped cars – which often contain impurities such as copper from copper wiring – to turnings from machining factories where the steel tends to have fewer tramp elements. Each of our products has a different recipe for the scrap employed depending on its final use. Some wire rods can be drawn down to just 0.5mm diameter by our customers, so it is essential that the scrap we use for such products has few impurities.

Once the correct scrap recipe is prepared, the scrap is charged into the furnace, and an electrical discharge is applied through graphite electrodes. This produces high current electrical arcs, which melt the scrap to form molten steel. Once the scrap is all melted, there is a further refining of the molten steel, before the furnace is tapped into a refractory-lined ladle further processing.

When steel is tapped from the EAF into the ladle, the main alloying elements are added to the molten steel. These elements, such as manganese and silicon will combine with unwanted impurities such as oxygen and sulphur preventing them from having a harmful effect on steel properties. Manganese and silicon are also used to strength the steel.

The ladle of molten steel is moved to the ladle arc station. Here the temperature and composition of the steel are adjusted to tightly controlled limits, to ensure that the steel is of the right analysis to produce the required properties in the finished products. Alloying elements such as manganese, vanadium or boron may be added to produce the necessary strength, ductility or toughness in the final steel.

Once the ladle of molten steel is of the required temperature and chemical composition, it is moved to the continuous caster. The molten steel is run through a gate in the base of the ladle, and into a tundish. The tundish is a bath-shaped refractory-lined vessel, which acts as a reservoir for the molten steel during the casting process. In the base of the tundish are six nozzles from which the molten steel flows into six moulds, where the steel will start to solidify.

The moulds are copper tubes with square cross-sections. The tubes are hollow, and cooling water is pumped through them to accelerate the solidification process. As this solidification occurs, the strand of steel continuously withdrawn from the mould, as molten steel is fed from the tundish above. The solidifying strand is straightened, and then cut to the required length by gas torches. This produces billets, up to 15m in length, which will then be rolled down to the finished products.

The cast billets of steel are then transferred by rail to one of our two rolling mills. One mill is used for bar and coil products and the other for sections.

Sections and merchant bar products, such as angles, flats and channels are rolled on a dedicated Sections mill. Grooving are again used to shape the stock as it passes through the rolling line.

After rolling, the products are cooled in still air on a cooling bed, prior to in-line roller straightening, bundling, and storage for despatch.

# 1 Product Information

### Product description and applications

The product consists of 100 % recycled steel produced by the Electric Arc Furnace route from post-consumer and pre-consumer scrap.

Three types of hot rolled channels are produced at the Sections Mill: Heavy, Light and UPN channels. These are mainly used in steel and composite construction, although they have numerous applications including the manufacture of cranes, handrail posts and traffic sign posts. CELSA also manufacture hot rolled heavy equal and unequal angles. These channels are mainly used in construction, however as with flat bars and channels, they can also be used in numerous applications including the construction of electricity pylons, cranes, roofs, and also in structural design including steel frames, brackets, bracing, trim and reinforcements. CELSA flat bars have numerous applications in sectors as varied as the automobile industry, the naval industry, construction, agriculture, mining and metal joinery.

The results in this EPD are an average representative of all steel products manufactured for CELSA at the Sections Mill. Averages are obtained through the total production, total consumption of raw materials and total generation of waste and emissions in CELSA facilities.

### Technical data and composition

The mains characteristics and chemical composition of Sections Mill products are shown below.

Products do not contain any of the substances listed on the “Candidate List of Substances of Very High Concern (SVHC) for authorisation".

### Packaging

Steel straps are used for the transport of the products to the customer. This input is included in the scope of EPD and is recyclable following delivery. Packaging of raw materials used in manufacturing is outside the scope.

### Recycling and disposal

Steel products are highly recyclable. During manufacturing, all unfit material and discards are fed back into the billet production.

In the same way, when an steel product reaches the end of its life, it is systematically and selectively collected and sent for recycling or can even be reused.

Incorporation of post-consumer steel scrap at the beginning of the product system results in reduced of environmental burdens. In module D only the net benefits of recycling and reuse, i.e. the recycling/reuse benefits at the end of life minus the benefits already considered in the module A1 due to steel scrap content are reported. In this EPD, the scrap not collected at the end of life is sent to landfill.

| Chemical composition | % |
|---|---|
| Fe | 95 |
| FeSi,SiMn, CuSi, FeB, Al, FeV, C & other charge additives | 5 |
| **Material** | **%** |
| Post-consumer scrap | 85.7 |
| Pre-consumer scrap | 14.3 |
| Renewable material | 0 |
| Biogenic carbon dioxide | 0 |
| **Packaging** | **%** |
| Steel strap - packaging (versus product) | 0.08 |

| Property (steel product from the Sections Mill) | Value, units |
|---|---|
| Steel Grades (BS EN 10025-2004) | S-235-JR & JO, S-275-JR & J0, S-355-JR, JO & J2 |
| Size (depth options) | 80, 100, 120 & 140 mm |
| Size (width options) | 45, 50, 55 & 60 mm |
| Web thickness | 6 mm, 6 mm, 7 mm, 7 mm |
| Flange thickness | 8 mm, 8.5 mm, 9 mm, 10 mm |
| Length | 6.1 m and 12.2 m (special lengths available on request) |
| Length tolerance | -0 + 100 mm |
| Density | 7.85 g/cm$^3$ |

# 2 LCA Information

## Declared unit

1000 kg of hot rolled merchant bars sections.

## Goal and scope

This EPD evaluates the environmental impacts of 1000 kg of steel products from cradle to gate with modules C1-C4 and module D. This EPD is the basis for B2B communication for customer and relevant stakeholders within the value chain of steel products.

## System boundaries

This EPD provides information on the production stage of steel products (raw material supply, transport to plants and manufacturing) and their end-of-life. Recycling/reuse potential of steel with burden savings due to use in a second product systems is also reported. The information is presented in a modular way separated in the following stages.

A1-3 - Cradle to gate

This module includes the provision of all materials, products and energy, as well as waste processing up to the end-of-waste state (i.e., when the waste flow is no longer considered a waste material but a raw material for a subsequent cycle) or disposal of final residues during the product stage.

Processes relating to resource extraction e.g., raw materials used to produce the steel, are included them in the system. All energy used in factories and factory support offices is included but energy used in head offices and sales offices etc. are excluded. Maintenance of equipment is also not included. The electricity consumed at the plant has been adapted to specific power mix supply.

The aggregation of the modules A1, A2 and A3 is allowed by EN 15804. This rule is applied in this EPD and denoted by A1-3.

C1 - Dismantling

This module has been modelled considering that 100 % of the products are utilized in the fabrication of components employed in multi-story buildings. Default data to estimate environmental burdens are shown in the table below.

C2 - Transport to waste processing

Transport is calculated on the basis of a scenario with the parameters described in the attached table.

C3 - Waste processing for reuse, recovery and/or recycling

This module has been modelled using the generic datasets from Ecoinvent for the treatment of waste reinforcement steel and waste bulk iron. For the steel products studied, it is assumed that 89% of the product from the Section Mill plant is sent for recycling and 11% is reused.

C4 - Final disposal

Environmental burdens associated with Module C4 has a zero value because 100% of the material is sent for recycling or reuse.

D - Benefits and loads beyond the product system

Module D has been calculated for the recycling and the reuse flows using the protocols stated in EN 15804:2012+A2: 2019 - Annex D with figures and formulae described in prEN 17662 (see table below).

Benefits are assessed at the point of functional equivalence, i.e. where the substitution of EAF steel (recycling route) or steel channels (reuse route) take place. In the recycling process, melting yield for post-consumer scrap was taken into account.

| Stage | Production | | | Construction | | Use | | | | | | | End-of-life | | | | Resource |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| **Module** | Raw materials supply | Transport | Manufacturing | Transport | Installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Dismantling | Transport | Waste processing | Disposal | Reuse, recovery or recycling potentials |
| **Declared module** | X | X | X | ND | ND | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |
| **Geography** | UK | UK | UK | - | - | - | - | - | - | - | - | - | EU27 | EU27 | EU27 | EU27 | EU27 |
| **Specific data** | 42% GWP-GHG | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| **Variation - products** | 0% | | | | | | | | | | | | | | | | |
| **Variation - sites** | not relevant | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

X - Module declared / ND - Not declared

## Data collection

Foreground inventory data was provided by CELSA UK and refers to the two manufacturing locations: Melt Shop (Tremorfa Works, Cardiff) and Sections Mill (Tremorfa Works, Cardiff). Inventory data includes raw material, packaging material, consumable items, process energy, water use, direct air, water and solid emissions, as well as the production of co-products.

This inventory data was compiled in July 2022 by CELSA UK and has been revised in December 2024, with some improvements. Methodology has been updated to EF3.1, new assumptions has been made and adjustments in emissions factors were done in the model. The inventory data refers to the 12-month period between January 2021 and December 2021, representing conventional operation conditions.

## Database(s) and LCA software used

The LCA modelling of CELSA UK steel products was carried out using SimaPro 9.6.0.1 LCA software which was the most up-to-date version available at the time of the LCA.

Unless otherwise indicated, all relevant background LCI datasets were sourced from the Ecoinvent database v3.10 (March, 2024). In certain cases, the original Ecoinvent datasets were adapted to the specific requirements of the LCA analysis. These modified datasets have been distinctly identified in this report and the changes are clearly described.

Environmental data of electricity consumed in the installations was adapted to the mix provided by the electricity supplier, with a value of GHG-GWP of 0,287 kg $CO_2$ eq/kWh.

## Data Quality

The quality of the data used to calculate this LCA meets the following requirements:

- The data used in the LCA were as up to date as possible (updated within the last 10 years for generic data and within the last 5 years for manufacturer-specific data).

- Used background data are of recognised prestige and acceptance in the technical and scientific fields. In particular, the Ecoinvent database, in the most recent version existing at the time of the study, is considered to be of preferential use.

- Regionally specific datasets were used to model the energy consumption (electricity, natural gas or diesel). For the processes of transport, production of raw materials or end-of-life, datasets were chosen according to their technological and geographical representation of the actual process.

## Estimates and Assumptions

The main hypotheses and assumptions made in this study are as follows:

- Post-consumer steel scrap was modeled as burden free when entering the system althought transport to the plant was included.

- Direct $CO_2$ emissions generated in the smelter due to the combustion of elemental carbon and the calcination of carbonates present in the raw materials have been modelled on the basis of stoichiometric ratios. It was assumed to have complete oxidation of the elemental carbon and complete calcination of carbonates.

- Metal scrap transport distances were calculated using a scrap purchasing database. Entries to this database included: point of origin of the metal scrap, distance travelled, means of transport and load. Based on this information, a weighed transport distance of scrap transported by train and by road was calculated. A similar database was used to obtain the transport distances for the rest of the raw materials. Due to the wide range of products included in this database, and the large number of points of origin, a country base analysis was carried out to define the weighted contribution of each location for each product category.

- Recovery rates for reuse and recycling, and landfilling rates were calculated using the default data provided in Annex I of "prEN 17662 Product category rules complementary to EN 15804 for Steel, Iron and Aluminium structural products for use in construction works". This standard draft was also consulted to obtain default values for distances for module C2 and the raw materials consumed in steel structure dismantling.

## Allocation

Total energy consumption was attributed entirely to total production. This is also the case for raw materials and waste generation.

The steel making process generates coproducts which have a commercial application. These include the EAF steelmaking slag and EAF steel dust (both produced only in Melt shop), and the mill scale (produced both in Melt shop and in Sections Mill). For Melt shop, a physical allocation method based on the calorific value of the coproducts has been used. This methodology is based on the procedures developed by the World Steel Association and EUROFER (see references). For the Sections Mill, an economic approach was applied to determine the allocation of environmental flows between the laminated products and the mill scale.

## Cut-off criteria

Criteria for the exclusion of inputs and outputs were defined according to requirements "EN 15804: 2012+A2 2019 Core rules for the product category of construction products". Where there is insufficient data for a unit process in the LCA study, the cut-off criteria was set at 1% of the total mass of input of that process. The total of neglected input flows per module was set at a maximum of 5% of energy and mass use. Based on this cut-off criteria, ancillary materials (such as expendable components, spare parts and chemicals for wastewater treatment, etc.) have been excluded from the analysis"

In module D only the burdens and benefits of the net output flow of post-consumer scrap or recycled product are reported.

## Differences between the EPD and previous versions

Compared to the previous version of this EPD, the following changes have been made to the model:

- Changes in "market" processes: all market processes used for input materials were changed to transformation processes, as this doubled the environmental impact of transport.
- Transport: a larger lorry was used to transport materials.
- Some GLO processes were changed to RER where possible.
- Changes have been made to some data due to better verification of inventory data.
- The methodology has been updated from EF 3.0 to EF 3.1.
- Ecoinvent database has been updated from v3.8 to v3.10.
- New assumptions have also been made:
  - As CelsaUK is a waste manager, the scrap received at the melt shop or its transport were not taken into account;
  - The oxygen consumed is produced within the plant and the energy used for this is included in the energy consumed by the melt shop.

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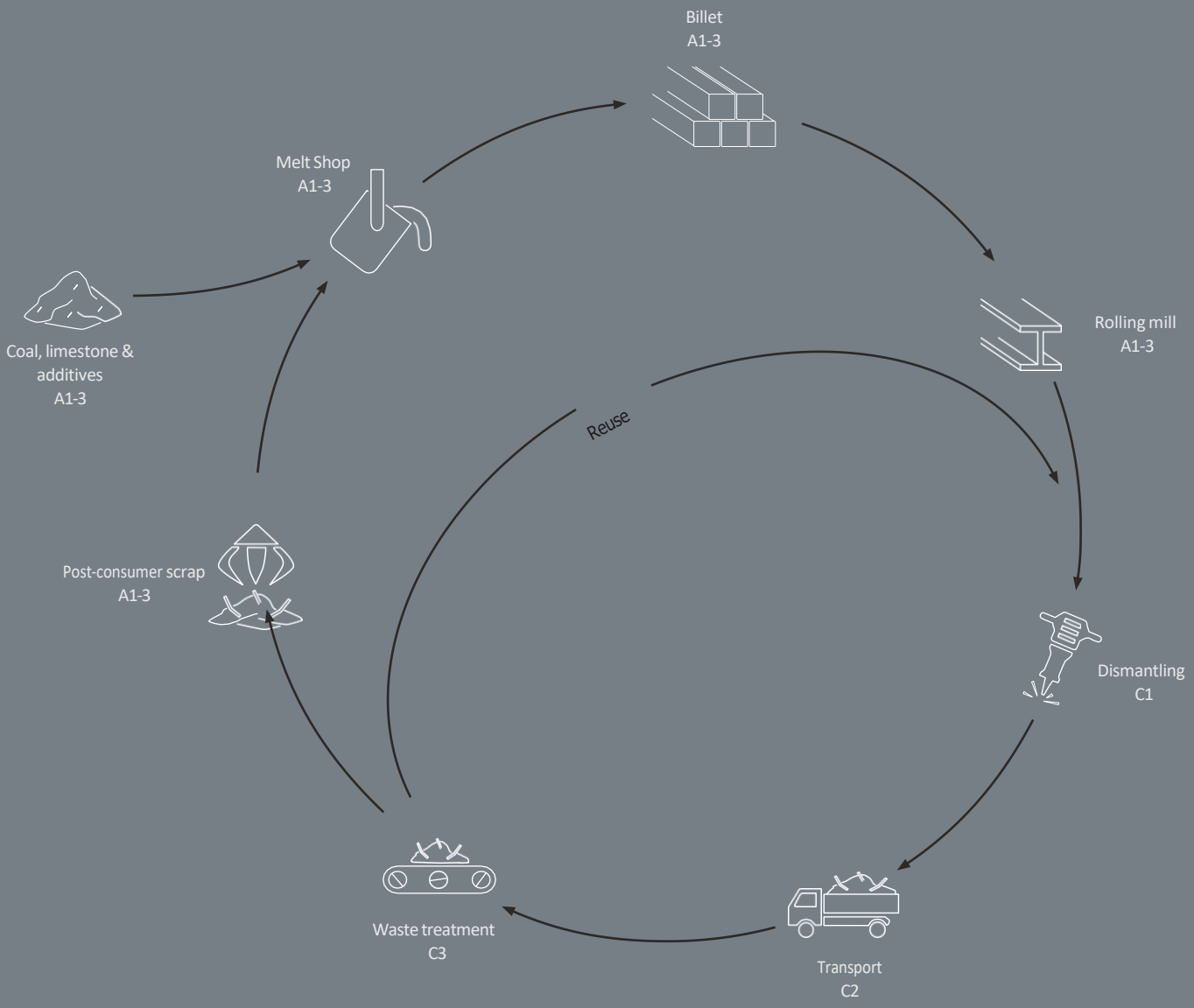


| **C1 module parameters*** | |
|---|---|
| Oxygen | 0.4 kg/t |
| Propane | 6.75 kg/t |
| Diesel | 13.83 l/t |

(*) prEN 17662 Multi storage

| **C2 module parameters** | |
|---|---|
| Transport by road | Transport, freight, lorry 16-32 t |
| Diesel consumption | 0.037 kg/tkm |
| Distance to storage - reuse* | 200 km |
| Distance to CDW treatment* | 100 km |

(*) prEN 17662

| **C3, C4 and D modules parameters** | |
|---|---|
| Reuse* | 11% |
| Recovery rate (recycling)* | 89% |
| Landfill* | 0% |
| Distance to recycling* | 100 km |
| Distance to EoL* | 200 km |
| Efficiency for steel recycling | 95% |

(*) prEN 17662

# 3 Environmental Information

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.

## Average steel product from the Sections Mill

| Basic environmental impacts | Units | A1-3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| GWP-GHG* | kg $CO_2$ eq | 4,17E+02 | 5,16E+01 | 1,69E+01 | 5,38E+01 | 0,00E+00 | 3,66E+02 |
| GWP-total | kg $CO_2$ eq | 4,17E+02 | 5,16E+01 | 1,69E+01 | 5,38E+01 | 0,00E+00 | 3,66E+02 |
| GWP-fossil | kg $CO_2$ eq | 4,14E+02 | 5,16E+01 | 1,68E+01 | 5,38E+01 | 0,00E+00 | 3,66E+02 |
| GWP-biogenic | kg $CO_2$ eq | 3,35E+00 | 9,67E-03 | 6,35E-04 | 2,32E-03 | 0,00E+00 | 2,29E-02 |
| GWP-luluc | kg $CO_2$ eq | 2,35E-01 | 1,11E-02 | 4,14E-04 | 1,84E-03 | 0,00E+00 | 4,14E-02 |
| ODP | kg CFC-11 eq | 1,30E-05 | 8,16E-07 | 3,44E-07 | 8,97E-07 | 0,00E+00 | 8,39E-07 |
| AP | mol $H^+$ eq | 1,09E+00 | 4,58E-01 | 1,97E-02 | 4,92E-01 | 0,00E+00 | 1,17E+00 |
| EP-freshwater | kg P eq | 5,89E-03 | 3,39E-04 | 1,41E-05 | 5,72E-05 | 0,00E+00 | 1,20E-02 |
| EP-marine | kg N eq | 2,44E-01 | 2,10E-01 | 4,36E-03 | 2,31E-01 | 0,00E+00 | 2,41E-01 |
| EP-terrestrial | mol N eq | 2,77E+00 | 2,30E+00 | 4,77E-02 | 2,53E+00 | 0,00E+00 | 2,81E+00 |
| POCP | kg NMVOC eq | 1,01E+00 | 6,87E-01 | 4,26E-02 | 7,53E-01 | 0,00E+00 | 9,62E-01 |
| ADPE (1) | kg Sb eq | 6,87E-05 | 2,18E-06 | 5,57E-07 | 2,23E-06 | 0,00E+00 | 5,27E-05 |
| ADPF (1) | MJ | 6,64E+03 | 7,14E+02 | 2,23E+02 | 7,23E+02 | 0,00E+00 | 3,41E+03 |
| WDP (1) | $m^3$ eq | 1,41E+01 | 7,06E+00 | 9,29E-02 | 5,57E-01 | 0,00E+00 | 2,24E+01 |
| **Additional environmental impacts** | **Units** | **A1-3** | **C1** | **C2** | **C3** | **C4** | **D** |
| PM (1) | disease inc. | 2,49E-05 | 1,27E-05 | 9,97E-07 | 1,41E-05 | 0,00E+00 | 3,24E-05 |
| IRP (2) | kBq U235 eq | 4,43E+01 | 7,07E-01 | 3,03E-02 | 5,45E-01 | 0,00E+00 | 8,39E-01 |
| ETP-fw (1) | CTUe | 1,74E+03 | 2,79E+01 | 7,61E+00 | 2,42E+01 | 0,00E+00 | 1,30E+04 |
| HTP-c (1) | CTUh | 4,39E-06 | 4,48E-09 | 1,17E-09 | 3,76E-09 | 0,00E+00 | 3,71E-05 |
| HTP-nc (1) | CTUh | 1,45E-06 | 6,60E-08 | 1,12E-07 | 5,38E-08 | 0,00E+00 | 7,92E-07 |
| SQP (1) | Pt | 3,73E+03 | 1,20E+01 | 4,98E-01 | 2,62E+00 | 0,00E+00 | 3,77E+02 |

*GWP-GHG: *The category includes all greenhouse gases included in GWP-total, but excludes removals and emissions of biogenic carbon dioxide and biogenic carbon stored in the product. It has been calculated with EF 3.1*

| Resource use | Units | A1-3 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|
| PERE | MJ | 1,43E+03 | 1,81E+01 | 7,73E-01 | 2,47E+00 | 0,00E+00 | 3,53E+01 |
| PERM | MJ | 3,45E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| PERT | MJ | 1,43E+03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| PENRE | MJ | 6,64E+03 | 7,14E+02 | 2,23E+02 | 7,23E+02 | 0,00E+00 | 3,41E+03 |
| PENRM | MJ | 4,60E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| PENRT | MJ | 6,64E+03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| SM | kg | 1,20E+03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| RSF | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| NRSF | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| FW | $m^3$ eq | 1,82E+00 | 2,21E-01 | 5,71E-03 | 2,63E-02 | 0,00E+00 | 5,88E-01 |
| **Waste categories** | **Units** | **A1-3** | **C1** | **C2** | **C3** | **C4** | **D** |
| HWD | kg | 2,57E-02 | 4,45E-03 | 1,47E-03 | 4,83E-03 | 0,00E+00 | 3,90E-02 |
| NHWD | kg | 1,45E+01 | 6,04E-02 | 6,78E-03 | 2,19E-02 | 0,00E+00 | 2,25E+00 |
| RWD | kg | 2,16E-02 | 5,59E-04 | 2,09E-05 | 2,31E-04 | 0,00E+00 | 5,32E-04 |
| **Other ouput flows** | **Units** | **A1-3** | **C1** | **C2** | **C3** | **C4** | **D** |
| CRU | kg | 5,05E-02 | 0,00E+00 | 0,00E+00 | 8,90E+02 | 0,00E+00 | 0,00E+00 |
| MFR | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| MER | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| EE-e | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| EE-t | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

**BASIC ENVIRONMENTAL IMPACTS.** GWP-GHG -Global Warming Potential, GWP-fossil - Global Warming Potential - fossil fuels, GWP-biogenic - Global Warming Potential - biogenic, GWP-luluc - Global Warming Potential - land use and land use change, GWP-total - Global Warming Potential - total, ODP - Depletion potential of the stratospheric ozone layer, AP - Acidifcation potential, Accumulated Exceedance, EP-freshwater - Europhication potential - freshwater, EP-freshwater - Europhication potential - freshwater, EP-marine - Europhication potential - marine, EP-terrestrial - Europhication potential - terrestrial, POCP - Photochemical Ozone Creation Potential, ADPE - Abiotic depletion potential - non-fossil resources, ADPF - Abiotic depletion potential - fossil resources, WDP - Water (user) deprivation potential.

**ADDITIONAL ENVIRONMENTAL IMPACTS.** PM - Particulate Matter emissions, IRP - Ionizing radiation, human health, ETP-fw - Eco-toxicity - freshwater, HTP-c - Human toxicity, cancer effect, HTP-nc - Human toxicity, non-cancer effects, SQP - Land use related impacts/Soil quality.

**RESOURCE USE**. PERE: Renewable primary energy as energy carrier; PERM: Renewable primary energy resource as material utilization; PERT: Total use of renewable primary energy resources; PENRE: Non-renewable primary energy as energy carrier; PENRM: Non-renewable primary energy as material utilization; PENRT: Total use of non-renewable primary energy resources; SM: Use of secondary materials; RSF: Use of renewable secondary fuels; NRSF: Use of non- renewable secondary fuels; FW: Net use of fresh water.

**WASTE**. HWD: Hazardous waste disposed; NHWD: Non-hazardous waste disposed; RWD: Radioactive waste disposed.

**OTHER OUTPUT FLOWS.** CRU: Components for re-use; MFR: Materials for recycling; MER: Materials for energy recovery; EE-e: Exported energy (electricity); EE-t: Exported energy (thermal).

(1) The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

(2) 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.

# 4 Contacts

**EPD Program**

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**Third-Party Verifier**

CERTINALIA SLU
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**EPD Owner**

Celsa Steel UK
Castle Works
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CF24 5NN UK

**EPD Author**

ABALEO S.L.
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# 5_ Program Information

This declaration is an environmental product declaration (EPD) in accordance with ISO 14025 and the requirements given in the product category rules document for Construction Products and Construction Services (EN 15804) and the general program guidelines by The International EPD® System. The results shown in this EPD are based on the LCA for CELSA Steel UK products according to standard 14044.

This EPD is not comparative assertions and are either not comparable or have limited comparability when they cover different life cycle stages or are based on different Product Category Rules. EPDs of construction products may not be comparable if they do not comply with EN 15804. EPDs within the same product category but from different programmes may not be comparable. The EPD owner is responsible for its content, as well as to preserve supporting documentation during the period of validity that justifies the data and statements that are included.

| | |
|---|---|
| EPD Program | The International EPD® System EPD<br>International AB<br>Box 210 60<br>SE-100 31 Stockholm Sweden<br>www.environdec.com - info@environdec.com |
| EPD registration number | S-P-07497 |
| EPD owner | Celsa Steel UK Ltd. Castle Works, East Moors Road, Cardiff, CF24 5NN |
| Functional unit | 1000 kg of hot rolled merchant bars sections |
| System boundaries | Cradle to gate with modules C1-C4 and module D |
| Published | 2022 - 11 - 17 |
| Update date | 2025-03-03 |
| Valid until | 2027 - 11- 16 |
| Reference year for data | 2021 |
| Product group classification | UN CPC Code: 4125 - Angles, shapes and sections, of iron or non-alloy |
| Product Category Rules | PCR 2019:14 version 1.11 Construction products. Based on CEN standard EN 15804. ISO standard ISO 21930 and CEN standard EN 15804 serves as the core Product Category Rules (PCR) |
| PCR review was conducted by | The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact |
| Independent verification of the declaration and data, according to ISO 14025:2006 | **X** External __ Internal<br>**X** EPD verification __ EPD Process certification |
| Third-party verifier | Maria Feced. CERTINALIA SLU<br>Accredited by ENAC, nº 125/C-PR283 |
| Procedure for follow-up during EPD validity involves third party verifier: | **X** Yes __ No |

# 6 References


- DBEIS, 2021. UK Energy Brief in 2021, Department for Business, Energy & Industrial Strategy (DBEIS), UK Government.
- Ecoinvent Database 3.10. http://www.ecoinvent.org/database/.
- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental Product Declarations - Core rules for the product category of construction products. CEN/TC 350/WG 3 N 1439.
- General Programme Instructions of The International EPD® System. Version 3.0.
- ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental
- ISO 14040-44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment-Principles
- PCR 2019:14 v1.11 Construction products and construction services. International EPD System
- prEN 17662 Product category rules complementary to EN 15804 for Steel, Iron and Aluminium structural products for use in construction works.
- Tackling recycling aspects in EN15804 - Christian Leroy, Jean-Sebastien Thomas, Nick Avery, Jan Bollen, and Ladji Tikana. International Symposium on Life Cycle Assessment and Construction, 2012.
- World Steel Association, EUROFER, 2014. A methodology to determine the LCI of steel industry co-products. 14 February 2014. https://worldsteel.org/steel-topics/life-cycle-thinking/methodology-for-slag-lci-calculation/
- Wernet, G., Bauer, C., Steubing, B., Reinhard, J., Moreno-Ruiz, E., Weidema, B., 2016. The Ecoinvent data- base version 3 .10: overview and methodology. Int. J. Life Cycle Assess. 21, 1218–1230.

# VERIFICATION STATEMENT CERTIFICATE

## *CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN*

*Certificate No. / Certificado nº: EPD07802*

TECNALIA R&I CERTIFICACION S.L., confirms that independent third-party verification has been conducted of the Environmental Product Declaration (EPD) on behalf of:
TECNALIA *R&I CERTIFICACION S.L., confirma que se ha realizado verificación de tercera parte independiente de la Declaración Ambiental de Producto (DAP) en nombre de:*

**CELSA STEEL UK Ltd.**
**Castle Works**
**East Moors Road**
**Cardiff, CF24 5NN**

for the following product(s):
*para el siguiente(s) producto(s):*

**HOT ROLLED MERCHANT BARS AND SECTIONS**
***Secciones y perfiles de acero laminado en caliente***

with registration number **EPD-IES-0007497 (S-P-07497)** in the International EPD® System *(www.environdec.com).*
*con número de registro* ***EPD-IES-0007497 (S-P-07497)*** *en el Sistema International EPD® (www.environdec.com).*

it´s in conformity with:
*es conforme con:*

- **ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations.**
- **General Programme Instructions for the International EPD® System v3.01**
- **PCR 2019:14 Construction products (EN 15804:A2) v1.11**
- **UN CPC 4125 Angles, shapes and sections, of iron or non-alloy steel.**

| | |
|---|---|
| Issued date / *Fecha de emisión:* | 01/12/2022 |
| Update date / *Fecha de actualización:* | 05/03/2025 |
| Valid until / *Válido hasta:* | 23/11/2027 |
| Serial Nº / *Nº Serie:* | EPD0780201-E |

Carlos Nazabal Alsua
*Manager*

ENAC
CERTIFICACIÓN
ISO 17065
Nº125 / C-PR283

This certificate is not valid without its related EPD.
*Este certificado no es válido sin su correspondiente EPD.*

This certificate is subject to modifications, temporary suspensions and withdrawals by CERTINALIA.
*El presente certificado está sujeto a modificaciones, suspensiones temporales y retiradas por CERTINALIA.*

The validity of this certificate can be checked through consultation in www.certinalia.com.
*El estado de vigencia del certificado puede confirmarse mediante consulta en www.certinalia.com.*


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