Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

STEEL BEAMS AND STEEL MERCHANT BARS

from

CELSA HUTA OSTROWIEC

Programme:	The International EPD® System, www.environdec.com
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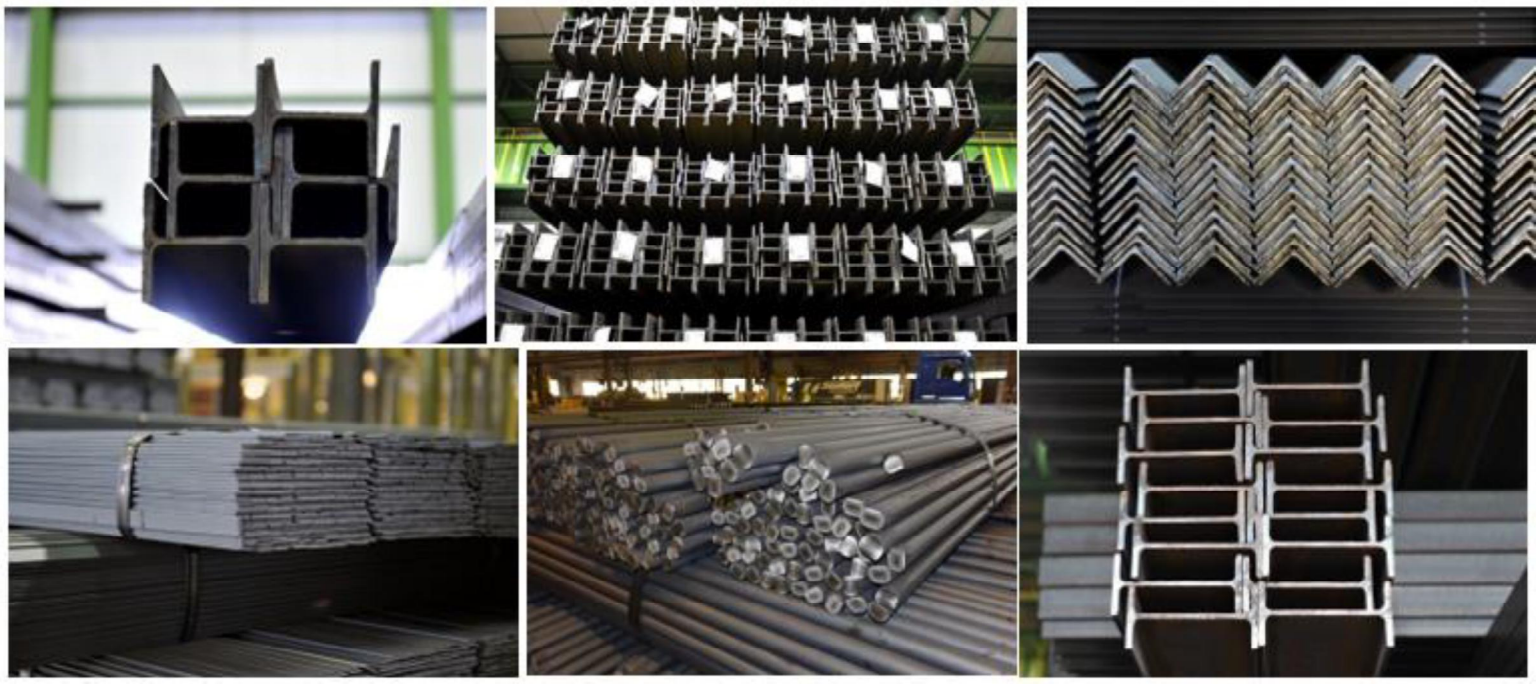

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
Environmental Product Declaration in accordance with ISO standard ISO 14025 and ISO 21930 and CEN standard EN 15804 since they serve as the core Product Category Rules (PCR)
Product Category Rules (PCR): PCR 2019:14, Construction products version 1.2.5 and CPC = 412 (Products of iron or steel) UN CPC code: - 4124 beams (Bars and rods, hot-rolled, of iron or steel) - 4125 merchants (angles and shapes)
PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/T 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
Life Cycle Assessment (LCA)
LCA accountability: UNESCO Chair in Life Cycle and Climate Change (https://www.unescochair.esci.upf.edu/en)
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by accredited certification body Third-party verifier: Maria Feced Mateu from TECNALIA R&I CERTIFICACION S.L. is an approved certification body accountable for the third-party verification The certification body is accredited by: ENAC with accreditation no. 125/C-PR283
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: CELSA Huta Ostrowiec (https://www.celsaho.com/)
Jana Samsonowicza 2, 27-400 Ostrowiec Świętokrzyski, Poland

Contact: Carlos Javier Abajo Fuentes CABAJO@gcelsa.com;
Juan Carlos Orozco JOROZCO@gcelsa.com;
Paola Baldivieso paola.baldivieso@gcelsa.com

Description of the organisation:

In autumn 2003 Celsa Group acquired Huta Ostrowiec – steel plant in Poland with almost 200 years of experience either in rolled or forged steel products manufacturing. Celsa Huta Ostrowiec is a leading steel manufacturer. The company operates electric arc furnaces (EAF) and continuous casting lines. The billets produced are hot-rolled in distinct rolling mills, specializing in:

- Long products
- Forge products

CELSA's commitment to product diversification is supported by the quality and certification of its products, as well as investments in technological innovation. The CELSA Group is Europe's top producer of low-emission, circular steel and holds the largest circular supply chain in the region. Employing sustainable technology, the group recycles ferrous scrap to produce steel in electric arc furnaces, ensuring environmentally friendly and energy-efficient operations. In 2021, CELSA produced 6.6 million tons of steel, recycled 7.1 million tons of ferrous scrap, and recovered 2.6 million tons of by-products, with 96% of its final product being made from recycled steel.

The CELSA Group operates across Spain, France, Poland, the UK, Ireland, Norway, Denmark, Finland, and Sweden. It consists of six business groups, encompassing 120 work centers, seven steel mills, ten rolling mills, and 45 recycling plants. Additionally, the group includes transformation and distribution companies, providing direct, indirect, and induced employment for over 70,000 professionals.

Aiming to address global systemic risks such as climate change and natural resource depletion, CELSA Group is dedicated to embracing circularity and becoming a Net Positive company by 2050.

Futher insights (CELSA):

- 6.600.000 Steel produced in 2021
- 7.010.000 T recycled in 2021
- 120 Work centers distributed all over the world
- 5.280 Million euros turnover in 2021
- 11.929 Number of professionals (own and subcontractors employees)
- 3.758 Million euros total investment in local suppliers

Product-related or management system-related certifications:

- ISO 9001:2015
- ISO 45001:2018
- ISO 14001:2015
- Sustainability for steel construction products mark.

Product information

Celsa Group offers a wide range of structural profiles up to 600 mm in height and lengths up to 24 metres. Its range of profiles is mainly composed of UPN, IPN, IPE, HEA, HEB profiles according to European standards and wide flange profiles type W according to American standards.

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 signposts. 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. The target group is B2B.

Product name: Steel beams & Steel merchant bars and others steel sections

Product identification:
The results in this EPD are an average representative of steel beams and steel merchant bars products manufactured for CELSA Huta Ostrowiec. Activity data has already been provided by Celsa Huta Ostrowiec for this products.

- Harmonized standard EN 10025-1:2004 Hot rolled products of structural steels - Part 1: General technical delivery conditions
- PN-EN 10060:2006 Hot rolled round steel bars for general purposes - Dimensions and tolerances on shape and dimensions
- PN-EN 10058:2019-11 Hot rolled flat steel bars and steel wide flats for general purposes -- Dimensions and tolerances on shape and dimensions
- PN-EN 10059:2005 Hot rolled square steel bars for general purposes - Dimensions and tolerances on shape and dimensions
- PN-EN 10056-1:2017-03 Structural steel equal and unequal leg angles -- Part 1: Dimensions
- PN-EN 10279:2003 Hot rolled steel channels - Tolerances on shape, dimensions and mass
- PN-EN 10365:2017-03 Hot rolled steel channels, I and H sections -- Dimensions and masses
- PN-EN 10024:1998 Hot rolled taper flange I sections - Tolerances on shape and dimensions
- PN-EN 10034:1996 Structural steel I and H sections - Tolerances on shape and dimension

Product description:
Steel sections for structural and general use & Square, rectangular and square steel bars, hot rolled, for general purposes.

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

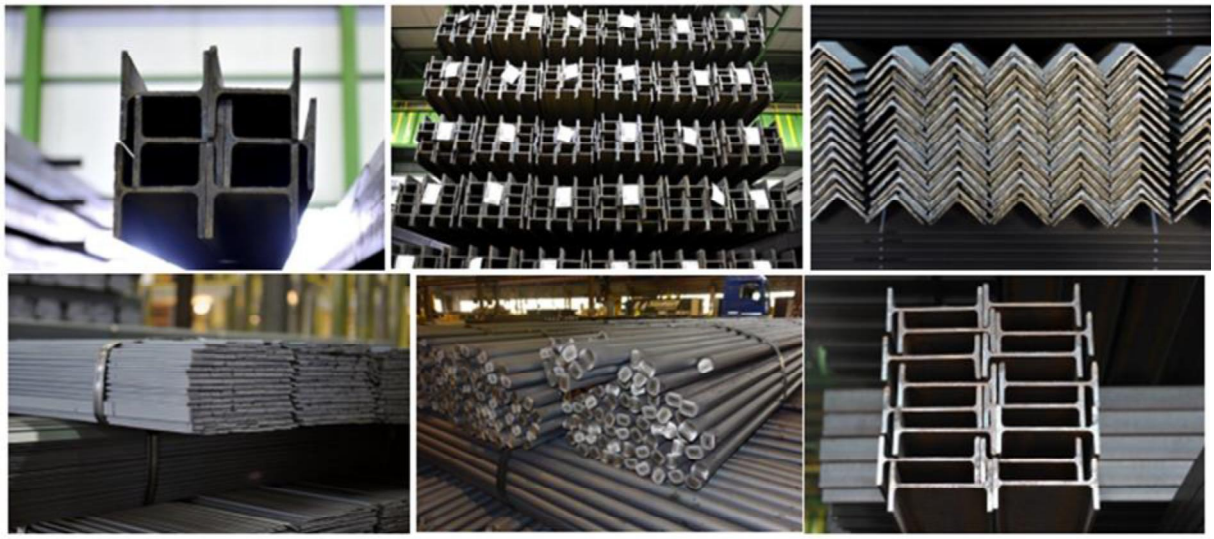
The following tables corresponds to the main characteristics of the products.

UN CPC code:

4124 beams (Bars and rods, hot-rolled, of iron or steel);
4125 merchants (angles and shapes)

Geographical scope:
Europe. Products under study are produced in Poland but can be used at world wide.

Name and location of production site(s):
Jana Samsonowicza 2, 27-400 Ostrowiec Świętokrzyski, Poland



The intended use of the products is as a construction materials.

Characteristic	**Value, units – BEAMS**
Size (thickness options)	80 - 300 mm
Size (length options)	6 - 18 m. Special lengths to 22 m are also available by prior order
Length tolerance	-0 + 100 mm
Yield strength min	235 MPa
Tensile strength min	360 MPa
Elongation	17%
Impact Test	≥ 27 J
Welding requirements	Ceq ≤ 0.45%
Characteristic	**Value, units – MERCHANTS**
Size (thickness options)	3 - 40 mm
Size (length options)	6 - 12 m. Special lengths to 16 m are also available by prior order
Length tolerance	-0 + 100 mm
Yield strength min	235 MPa
Tensile strength min	360 MPa

Elongation min	17%
Impact Test min.	27 J
Welding requirements	Ceq ≤ 0.45%

LCA information

The scenario studied in the present report is the most representative updated version in the date of developing the study; utilizing data of sufficient accuracy and technological, temporal and geographical representativeness; and utilizing complete datasets, in accordance with the limits of the system.

Functional unit / declared unit: 1,000 kg of steel beams and steel merchant bars

Reference service life: Not applicable

Time representativeness: Reference year, 2021 (January to December, representing conventional operation conditions). This inventory data was compiled in 2022 using questionnaires issued by UNESCO Chair in Life Cycle and Climate Change and completed by CELSA, which were iteratively refined.

Database(s) and LCA software used: Unless otherwise indicated, all relevant background LCI datasets were sourced from the Professional GaBi Databases (GaBi Professional Software (version 10.6.1.35). In specific cases, the original Sphera datasets were modified according to the specificities of the study. These corrections are distinctly identified in this report and the changes are clearly described.

Description of system boundaries:

- Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)

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:

Production of raw materials, energy (Module A1) and auxiliary materials (Module A3). Transport of raw materials, semi-finished products, and auxiliary materials to the production site (Module A2).

Production of steel onsite, including the production of auxiliary materials on-site, disposal of production residues and packaging of raw materials, also considering on-site emissions (Module A3). Scrap occurring during the production on-site is looped back to satisfy some of the demand for scrap input to the process.

Steel scrap that enters the product system is assumed to reach end of waste state after it has gone through a sorting and shredding process that takes place at demolition sites or waste processing facilities. Scrap emerging from these sites or facilities meets end of waste criteria, as it is a valuable commodity with a well-established existing market.

Maintenance of equipment is not included. The electricity consumed at the plant has been adapted to specific power mix supply.

C1 Dismantling:

This module has been modelled assuming that 100% of products are used in construction sector, i.e., as integrated into other structures. For rebars has been used generic dataset from Ecoinvent for the

treatment of waste reinforcement steel. Default data to estimate environmental burdens are shown in the table below.

C2 Transport to waste processing:
Transport is calculated based on a scenario with the parameters described in the table below.

C3 Waste processing for reuse, recovery and/or recycling
The material and energy expenses required for Module C3 are negligible. It is assumed that there is no sorting or processing required for steel sections.

And

C4 Final disposal:
The End-of-life of the selected scenario is representative of steel products consumed in UK. According to the reference used[1], the data has been validated for consistency with other, European countries and it has been concluded to be representative for Europe.

- 4% landfilling, 91% recycling, and 5% reused

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

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

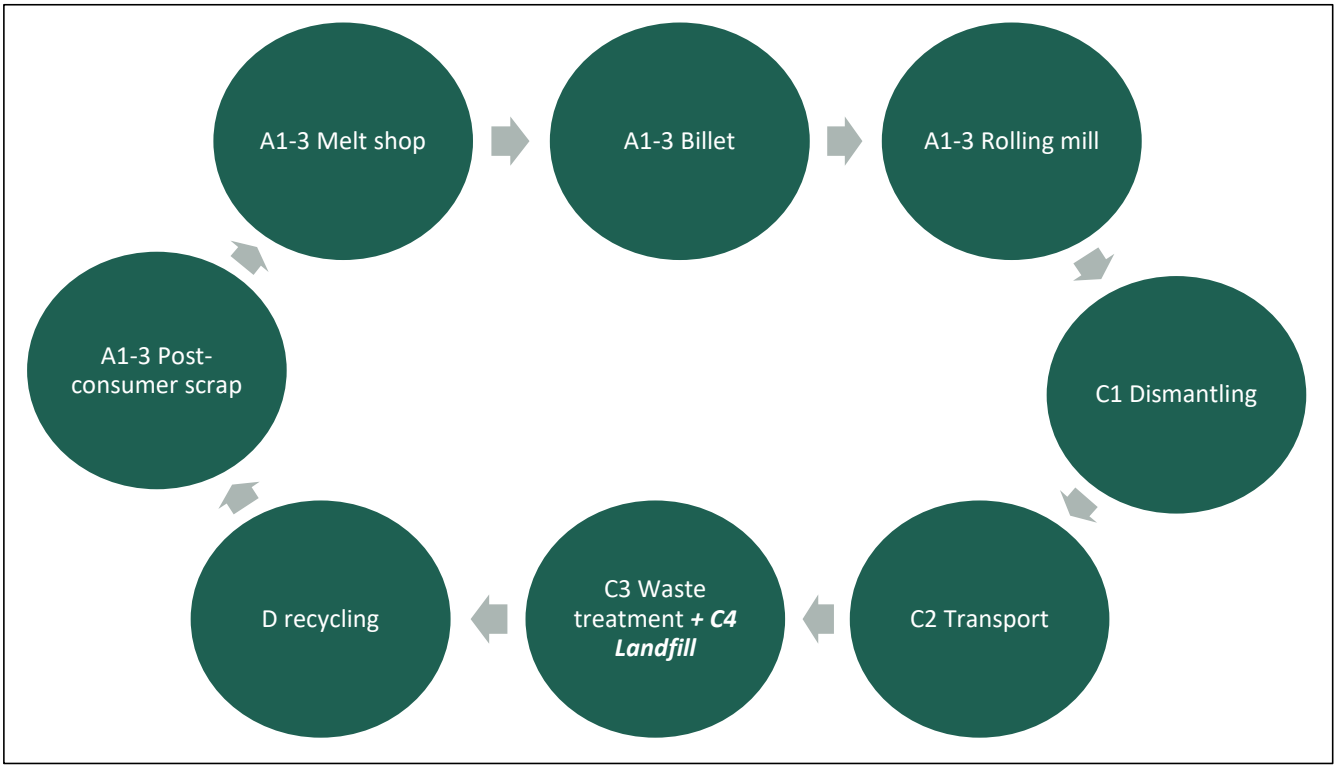
Net scrap = Amount of steel recycled at end-of-life* – Scrap input from previous product life cycles

The net recovered material and substitution of the avoided product has been considered with the process "Value of scrap" from GaBi databases. Which has been calculated with data referred to the Worldsteel Life Cycle Inventory Study for Steel Industry Products, 2021. Data collected on site by steel industry experts in accordance with the worldsteel methodology and ISO 14040 standards, and consistency-checked by worldsteel LCA-experts.

[1] M. Sansom and N. Avery, "Briefing: Reuse and recycling rates of UK steel demolition arisings," Engineering Sustainability, vol. 167, no. ES3, doi: http://dx.doi.org/10.1680/ensu.13.00026

C1 module parameters	
Diesel burned[2]	626 MJ/t
Diesel consumed	Thermal energy from light fuel oil (LFO)
C2 module parameters	
Transport by road	Truck-trailer, Euro 6 A-C, 28 - 34t gross weight / 22t payload capacity
Diesel consumed	Diesel mix at filling station
Distance to waste management	50 km
C3 module parameters	
Consumption (kwh)	Negligible. It is assumed that there is no sorting or processing required for steel sections.
C4 module parameters	
Recovery rate (recycling)	91%
Reuse rate	5%
Landfill	4%
Mass of Steel collected	1000 kg

System diagram:



The scope of the study is presented in two principal processes, corresponding to the steps of the CELSA HUTA OSTROWIEC production processes:

1. Steel billet production: This step happens in an Electric Arc Furnace (EAF) which melts scrap at 1600 ºC. Then, a ladle oven controls the steel composition with ferroalloys. Finally, the continuous casting passes through a lamination train where oxycuts are performed to produce

[2] Ecoinvent, 2021. Ecoinvent Database 3.8. http://www.ecoinvent.org/database/.

the steel billets. This step is common for all the steel products from CELSA HUTA OSTROWIEC.

2. Final product: The steel billet pass through a rolling mill where rollers process the final product (beams, merchant bars…).

More information:

Company website for more information: www.celsagroup.com

Name and contact information of LCA practitioner: UNESCO Chair in Life Cycle and Climate Change www.unescochair.esci.upf.edu/

Cut-off rules:

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 were 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".

Assumptions, limitations and considerations applied:

Next topics have not been included in the LCA:

- The construction of the plant's buildings, equipment, and other capital goods with more than 3 years of lifespan.
- Use stage (B)
- Commuting of the employees; business trips
- Research and development activities

The transport stages have been modelled with generic data from GaBi databases:

- Road transport (Transport, truck-trailer. 40 t total cap., 24.7t payload)
- Water transport (Transoceanic ship, bulk, 100,000 - 200,000 dwt payload capacity, ocean going)
- Rail transport (Transportation by rail)

The electricity source was simulated in GaBi in accordance to the suppliers of electricity for Celsa Huta Ostrowiec from year 2021.

- Biomass, 2.81%
- Wind, 8.86%
- Solar, 2.27%
- Hydropower, 1.91%
- Coal, 47.66%
- Lignite, 28.07%
- Natural gas, 8.39%
- **GWP-GHG (kg CO2 e/kwh): 0.8568**

Type and format of the report: units and quantities

The units required in the PCR are used in this report. The decimals mark are identified with points according to the SI style (English version).

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 Section Rolling 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 Section Rolling mill, an economic approach was applied to determine the allocation of environmental flows between the laminated products and the mill scale.

Data quality requirements:

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 withi 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 Sphera 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.

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	x	x	x	ND	ND	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	X
Geography	GLO	GLO	PL	-	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used	>90%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	<10%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant					-	-	-	-	-	-	-	-	-	-	-	-

ND: not declared; PL: Poland; EU: European Union; GLO: Global

Raw material supply (A1) is measured as contribution to the potential environmental impact from specifically inventoried processes.

Modes of transport and distances (A2) are specific, the data for vehicles and fuel production is generic.

Use of raw materials and energy wares (A3) are specific, the data for the generation of thermal heat on-site is generic, as is the data for producing fuels and commodities and generating electricity.

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Pre-consumer material, weight-%	Renewable material	Biogenic carbon dioxide
Iron, Fe	980	78	22	0	0
FeSi,SiMn, CuSi, FeB, Al, FeV, C & other charge additives	20	78	22	0	0
TOTAL (Functional unit)	1000				

Packaging materials	Weight, kg	Weight-% (versus the product)
Steel strap - packaging	50	0.05
TOTAL	50	

*The product does not contain hazardous substances.

*The recycled material used is defined as post consumer and pre consumer scrap in the table presented above.

Results of the environmental performance indicators

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

Mandatory impact category indicators according to EN 15804

Acronyms:

- **GWP-GHG** = Global Warming Potential Green House Gases;
- **GWP-total** = Global Warming Potential Total;
- **GWP-fossil** = Global Warming Potential fossil fuels;
- **GWP-biogenic** = Global Warming Potential biogenic;
- **GWP-luluc** = Global Warming Potential land use and land use change;
- **ODP** = Depletion potential of the stratospheric ozone layer;
- **AP** = Acidification potential, Accumulated Exceedance;
- **EP-freshwater** = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment;
- **EP-terrestrial** = Eutrophication potential, Accumulated Exceedance;
- **POCP** = Formation potential of tropospheric ozone;
- **ADP-minerals&metals** = Abiotic depletion potential for non-fossil resources;
- **ADP-fossil** = Abiotic depletion for fossil resources potential;
- **WDP** = Water (user) deprivation potential, deprivation-weighted water consumption

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[3]	kg CO_2 eq.	5.60E+02	4.08E+00	1.50E+02	7.14E+02	5.51E+01	8.06E+00	0.00E+00	4.52E-01	-1.30E+03
GWP-total	kg CO_2 eq.	5.60E+02	4.02E+00	1.50E+02	7.14E+02	5.53E+01	8.03E+00	0.00E+00	4.37E-01	-1.30E+03
GWP-fossil	kg CO_2 eq.	5.60E+02	4.04E+00	1.50E+02	7.14E+02	5.51E+01	8.01E+00	0.00E+00	4.51E-01	-1.30E+03
GWP-biogenic	kg CO_2 eq.	1.01E-01	-5.60E-02	1.91E-01	2.36E-01	1.25E-01	-2.91E-02	0.00E+00	-1.50E-02	6.64E-01
GWP-luluc	kg CO_2 eq.	4.73E-02	3.70E-02	6.12E-03	9.04E-02	1.56E-03	4.76E-02	0.00E+00	1.40E-03	-2.68E-02
ODP	kg CFC 11 eq.	2.93E-10	7.44E-13	8.22E-12	3.02E-10	2.43E-12	1.96E-12	0.00E+00	1.15E-12	-2.84E-12
AP	mol H^+ eq.	1.49E+00	2.58E-02	3.87E-01	1.90E+00	1.09E-01	9.31E-03	0.00E+00	3.20E-03	-2.79E+00
EP-freshwater	kg P eq.	2.53E-04	1.47E-05	9.08E-06	2.77E-04	1.24E-05	1.88E-05	0.00E+00	9.07E-07	-2.36E-04
EP-marine	kg N eq.	2.89E-01	1.26E-02	1.39E-01	4.41E-01	3.73E-02	3.28E-03	0.00E+00	8.26E-04	-4.91E-01
EP-terrestrial	mol N eq.	3.11E+00	1.40E-01	1.53E+00	4.78E+00	4.10E-01	3.94E-02	0.00E+00	9.09E-03	-4.31E+00
POCP	kg NMVOC eq.	8.35E-01	2.44E-02	4.19E-01	1.28E+00	1.07E-01	8.14E-03	0.00E+00	2.49E-03	-1.99E+00
ADP-minerals&metals (1)	kg Sb eq.	7.88E-05	2.65E-07	1.48E-06	8.05E-05	5.99E-07	5.73E-07	0.00E+00	2.08E-08	-3.24E-03
ADP-fossil (1)	MJ	5.63E+03	5.46E+01	1.96E+03	7.65E+03	7.35E+02	1.08E+02	0.00E+00	6.00E+00	-1.19E+04
WDP (1)	m^3	4.45E+01	4.85E-02	1.07E-01	4.46E+01	1.08E-01	4.18E-02	0.00E+00	4.95E-02	-2.41E+02

[3] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Resource use indicators

- **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials;
- **PERM** = Use of renewable primary energy resources used as raw materials;
- **PERT** = Total use of renewable primary energy resources;
- **PENRE** = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials;
- **PENRM** = Use of non-renewable primary energy resources used as raw materials;
- **PENRT** = Total use of non-renewable primary energy re-sources;
- **SM** = Use of secondary material;
- **RSF** = Use of renewable secondary fuels;
- **NRSF** = Use of non-renewable secondary fuels;
- **FW** = Use of net fresh water

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.15E+03	4.07E+00	5.39E+00	1.16E+03	3.30E+00	7.25E+00	0.00E+00	9.78E-01	7.52E+02
PERM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.15E+03	4.07E+00	5.39E+00	1.16E+03	3.30E+00	7.25E+00	0.00E+00	9.78E-01	7.52E+02
PENRE	MJ	5.63E+03	5.48E+01	1.96E+03	7.65E+03	7.35E+02	1.08E+02	0.00E+00	6.00E+00	-1.19E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	5.63E+03	5.48E+01	1.96E+03	7.65E+03	7.35E+02	1.08E+02	0.00E+00	6.00E+00	-1.19E+04
SM	kg	8.02E+02	0.00E+00	0.00E+00	8.02E+02	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	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	0.00E+00	0.00E+00	0.00E+00
FW	m^3	2.26E+00	4.38E-03	5.49E-03	2.27E+00	6.28E-03	6.45E-03	0.00E+00	1.52E-03	-5.45E+00

Waste indicators

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	-2.50E-08	1.47E-10	3.15E-07	2.91E-07	1.57E-09	1.83E-10	0.00E+00	1.31E-10	-9.22E-08
Non-hazardous waste disposed	kg	2.93E+00	8.44E-03	5.02E-01	3.44E+00	2.08E-01	1.62E-02	0.00E+00	3.00E+01	1.81E+02
Radioactive waste disposed	kg	3.32E-02	1.14E-04	5.93E-04	3.39E-02	4.99E-04	1.43E-04	0.00E+00	6.83E-05	1.48E-03

Output flow indicators

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**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	5.00E+01	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	1.91E+02	1.91E+02	0.00E+00	0.00E+00	9.10E+02	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	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	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Potential environmental impact. Additional indicators according to EN 15804

- **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;

Results per functional or declared unit										
Indicator	**Unit**	**A1**	**A2**	**A3**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PM (1)	Disease inc.	1.49E-05	9.73E-08	1.73E-06	1.68E-05	6.18E-07	6.59E-08	0.00E+00	3.93E-08	-3.95E-05
IRP (2)	kBq U235 eq	3.70E+00	1.64E-02	6.68E-02	3.79E+00	3.86E-02	1.53E-02	0.00E+00	7.89E-03	2.92E+01
ETP-fw (1)	CTUe	1.59E+03	3.88E+01	2.53E+01	1.66E+03	6.54E+02	7.82E+01	0.00E+00	3.31E+00	-7.35E+02
HTP-c (1)	CTUh	6.61E-08	7.95E-10	1.35E-07	2.02E-07	1.67E-08	1.57E-09	0.00E+00	5.04E-10	-5.31E-07
HTP-nc (1)	CTUh	2.61E-06	4.51E-08	1.52E-05	1.79E-05	6.00E-07	8.00E-08	0.00E+00	5.54E-08	-1.75E-05
SQP (1)	dimensionless	1.53E+03	2.28E+01	7.48E+00	1.56E+03	4.48E+00	3.85E+01	0.00E+00	1.46E+00	1.44E+02

Additional environmental information

The EPD of construction products may not be comparable if they do not comply with the requirements of comparability set in EN 15804. EPDs within the same product category but from different programmes may not be comparable.

- Exclusion of small amounts follow the rules of Product Category Rules of Construction Materials, and include the infrastructure, construction, production equipment and tools that are not directly consumed in the production process, and personnel related impacts. These are deemed negligible.
- The scenarios included are currently in use and are representative for one of the most likely scenarios alternatives.
- 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 environmental performance for steel beams and merchant bars in year 2021 is being declared

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VERIFICATION STATEMENT CERTIFICATE

CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD08616

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 HUTA OSTROWIEC SP. Z O.O. (CELSA Group™)
Samsonowicza 2
27-400 OSTROWIEC ŚWIĘTOKRZYSKI - POLAND

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

STEEL BEAMS AND STEEL MERCHANT BARS
PERFILES ESTRUCTURALES Y BARRAS Y PERFILES COMERCIALES DE ACERO

with registration number **S-P-08504** in the International EPD® System *(www.environdec.com).*
*con número de registro **S-P-08504** 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 v.4.0.**
- **PCR 2019:14 Construction products v.1.2.5**
- **UN CPC 4124 beams (Bars and rods, hot-rolled, of iron or steel)**
- **UN CPC 4125 merchants (angles and shapes).**

Carlos Nazabal Alsua
Manager

Issued date / *Fecha de emisión:*	24/04/2023
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Valid until / *Válido hasta:*	18/04/2028
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CERTIFICACIÓN ISO 17065 Nº125 / C-PR283

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