

# GlobalEPD

A VERIFIED ENVIRONMENTAL DECLARATION



Environmental  
Product  
Declaration

EN ISO 14025:2010  
UNE 36904-1:2018  
EN 15804:2012+A2:2019/AC:2021

# AENOR

## Hot-rolled electric arc furnace hot-rolled steel sections

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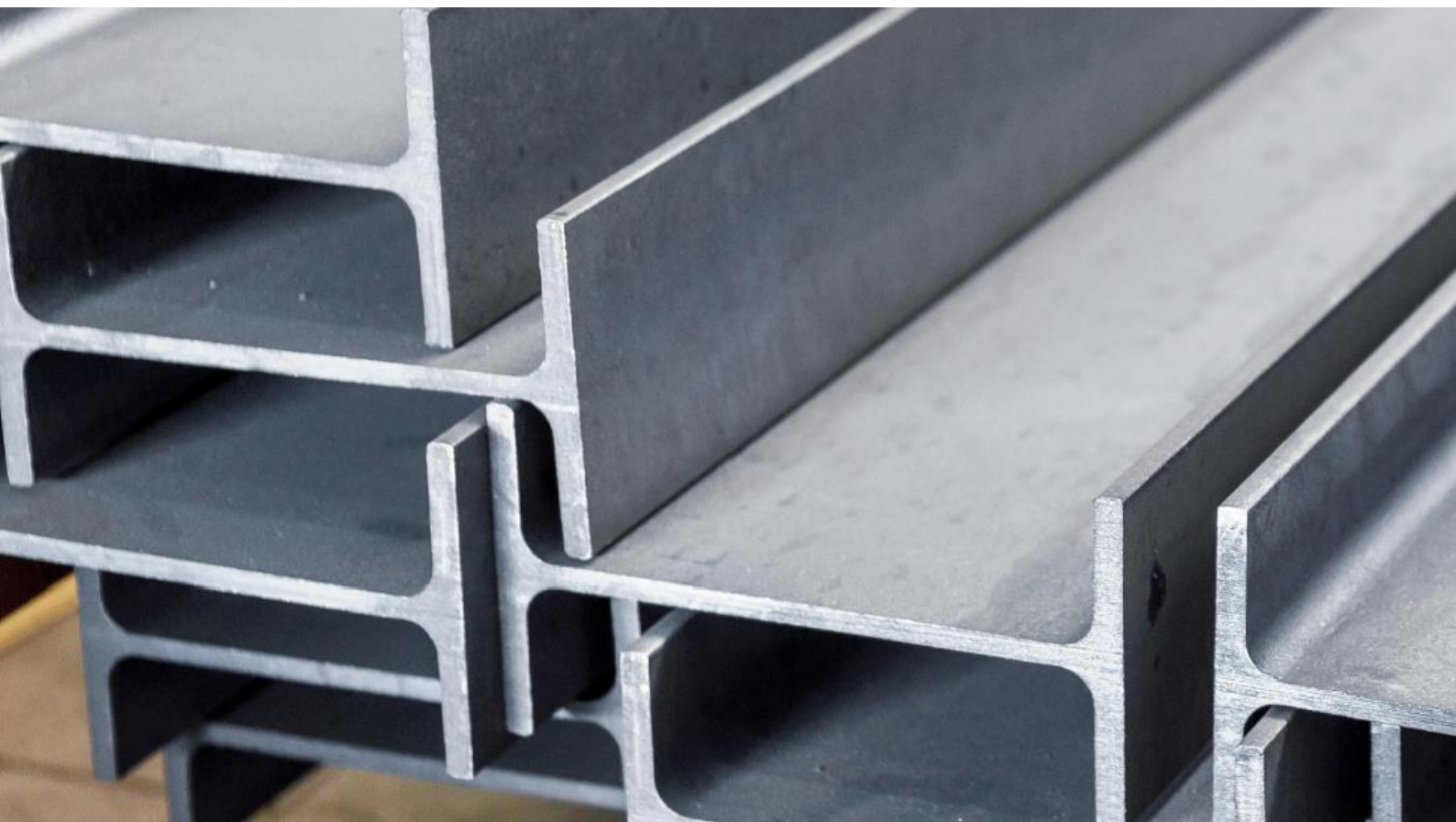
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SIDERÚRGICA

# BALBOA

ACERO PARA CONSTRUIR FUTURO

## SIDERURGICA BALBOA S.A.



The holder of this Declaration is responsible for its content, as well as for keeping the supporting documentation that justifies the data and statements included during the period of validity.

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AENOR is a founding member of ECO Platform, the European Association of Environmental Product Declaration Verification Programmes.

UNE 36904-1:2018

The European Standard EN 15804:2012+A2:2019 serves as the basis for the CPR.

Independent verification of the declaration and data in accordance with EN ISO 14025:2010

☐ Internal ☒ External

Verification body

**AENOR**

Product certification body accredited by ENAC with accreditation No. 1/C-PR468.

## 1. General information

### 1.1. The organisation

Siderurgica Balboa is a company that started its activity in 2008 with a production capacity of 1.2 MTn per year of steel diversified in structural sections, wire rod and spooler.

It is part of CL Grupo Industrial, one of the most important corporations in Spain whose objective is to strengthen the industrial fabric and generate synergies between different sectors.

Siderurgica Balboa is a reference in the iron and steel sector in Europe, with cutting-edge technology that guarantees the quality of its products. It is worth highlighting the certification in the N mark of AENOR product, as well as having implemented the Quality Management System (ISO 9.001) and the Health and Safety at Work system (ISO 45.001).

The company's management is committed to environmental responsibility through various certifications:

- Environmental Management System (ISO 14.001).
- Energy Management System (ISO 50.001).
- Steel Sustainability Management System (UNE 36901:2018).

The facilities include a steel mill and two rolling mills which produce and distribute a wide range and variety of steel products to meet the needs of each customer.

Siderurgica Balboa recycles approximately 1 million tonnes of ferrous scrap every year.

### 1.2. Scope of the Declaration

This environmental product declaration describes the environmental information related to the life cycle of the cradle to gate

with options and modules C and D (A1 - A3, A4, C and D of the steel profile manufactured by Siderúrgica Balboa S.A. at its plant in Jerez de los Caballeros (Badajoz).

The function performed by the product system studied is the production of profiles for use as a structural elements in the construction sector.

### 1.3. Life cycle and compliance.

This EPD has been developed and verified in accordance with UNE-EN ISO 14025:2010, UNE 36904-1:2018 and EN 15804:2012+A2:2019 and EN 15804:2012+A2:2019/AC:2021.

**Table -11 . Product Category Rule**

<b>Title</b>	Steel industry. Environmental product declarations. Product category rules. Structural steel products. Part 1: Basic products.
<b>Registration/version</b>	UNE 36904-1
<b>Date of issue</b>	2018
<b>Administrator</b>	AENOR

This EPD includes the life cycle stages listed in table 1-2. This EPD is of the cradle-to-gate type with modules C and D (A1-A3, A4, C1-C4, D).

**Table -12** System boundaries. Information modules considered

Product stage	A1	Supply of raw materials	X
	A2	Transport to the factory	X
	A3	Manufacturing	X
Construction	A4	Transport to site	X
	A5	Installation / construction	MNE
Stage of use	B1	Use	MNE
	B2	Maintenance	MNE
	B3	Repair	MNE
	B4	Replacement	MNE
	B5	Rehabilitation	MNE
	B6	In-service energy use	MNE
	B7	In-service water use	MNE
End of life	C1	Deconstruction / demolition	X
	C2	Transport	X
	C3	Waste treatment	X
	C4	Elimination	X
	D	Potential for reuse, recovery and/or recycling	X

X = Module included in the LCA;  
 NR = Module not relevant;  
 MNE = Module not evaluated

This EPD may not be comparable with those developed in other Programmes or according to different reference documents; in particular it may not be comparable with Declarations not developed and verified according to EN 15804.

Similarly, WTPs may not be comparable if the source of the data is different (e.g. databases), not all relevant information modules are included, or if they are not based on the same scenarios.

The comparison of construction products shall be made on the same function, applying the same declared unit and at the level of the building (or architectural or engineering work), i.e. including the performance of the product over its entire life cycle, as well as the specifications of section 6.7.2 of EN ISO 14025.

#### 1.4. Differences with previous versions of this EPD.

There are no previous versions of this EPD.

## 2. The product

### 2.1. Product identification

This EPD is applicable for hot-rolled construction steel sections from electric arc furnace produced by Siderúrgica Balboa S.A. at its plant in Jerez de los Caballeros (Badajoz).

CPC code: 4124 - Bars, rods and wire, hot-rolled, of iron or steel .

### 2.2. Product performance

**Table -21 . Regulations**

Dimensions
UNE-EN 10365:2018: Hot-rolled steel U-, I- and H-sections. Dimensions and masses
UNE-EN 10034:1994: I and H sections of structural steel. Dimensional and shape tolerances
UNE 36522:2018 Steel products. Hot rolled normal U sections (UPN). Dimensions and masses
UNE-EN 10279:2001 Hot rolled steel U sections. Dimensional, shape and mass tolerances.
UNE 36524:2018 Steel products. HE profiles with wide flanges and parallel faces made of hot rolled steel. Dimensions and masses
UNE 36521-2018: Steel products. Hot-rolled steel I-sections with inclined flanges (IPN). Dimensions and masses
UNE 36526:2018: Steel products. Hot rolled steel I-sections with parallel flanges (IPE). Dimensions and masses
ASTM A6/A6M-24A: Standard Specification for General Requirements for Structural Steel Bars, Plates, Shapes, Sections and Sheet Piles of Rolled Structural Steel
Steel quality
UNE-EN 10025-1:2006 Hot rolled structural steel products. Part 1: General technical delivery conditions
UNE-EN 10025-2:2020 Hot rolled structural steels. Part 2: Technical delivery conditions for non-alloy structural steels.
UNE-EN 10025-5:2020 Hot rolled structural steels. Part 5: Technical conditions of supply of structural steels with improved resistance to atmospheric corrosion.
ASTM A36/A36M-19: Standard Specification for Structural Carbon Steel
ASTM A992/A992M-22: Standard Specification for Structural Steel Shapes
ASTM A572/A572M-21e1: Standard Specification for High-Strength Low Alloy Niobium-Vanadium Structural Steel
Surface condition
UNE-EN 10163-3: 2007 Conditions of supply relating to the surface finish of hot-rolled steel sheets, strips, wide flats and sections. Part 3: Profiles

**Table -22** . Characteristics according to UNE-EN 10025-2

UNE-EN 10025-2										
QUALITY	S235JR / S235J0 / S235J2			S275JR / S275J0 / S275J2			S355JR / S355J0 / S355J2 / S355K2			
Yield strength Re <sup>(a)</sup> (MPa)	e≤16	16<e≤40		e≤16	16<e≤40		e≤16	16<e≤40		
	minimum	minimum		minimum	minimum		minimum	minimum		
	235	225		275	265		355	345		
Tensile strength Rm (MPa)	minimum	maximum		minimum	maximum		minimum	maximum		
	360	510		410	560		470	630		
Elongation (%)	minimum			minimum			minimum			
	26			23			22			
Charpy (J)	minimum 20°C	at minimum 0°C (J0)	at minimum at -20°C (J2)	minimum 20°C	at minimum 0°C (J0)	at minimum at -20°C (J2)	minimum 20°C	at minimum 0°C (J0)	at minimum at -20°C (J2)	minimum at -20°C (K2) <sup>b</sup>
	27	27	27	27	27	27	27	27	27	40

**Table -23** . Characteristics according to UNE-EN 10025-5/UNE-EN 10025-2

UNE-EN 10025-5			UNE-EN 10025-2	
QUALITY	S355J0W / S355J2W		S460JR	
Yield strength Re <sup>(a)</sup> (MPa)	e≤16	16<e≤40	e≤16	16<e≤40
	minimum	minimum	minimum	minimum
	355	345	460	440
Tensile strength Rm (MPa)	minimum	maximum	minimum	maximum
	470	630	550	720
Elongation (%)	minimum		minimum	
	22		17	
Charpy (J)	minimum at 0°C (J0W)	minimum at -20°C (J2W)	minimum at -20°C	
	27	27	27	

**Table -24 .** Characteristics

STANDARD / QUALITY	A36 Grade 36		A992 Grade 50		A572 Grade 50		A572 Grade 65	
Yield strength Re <sup>(a)</sup> (MPa)	minimum		minimum	maximum	minimum		minimum	
	250		345	450	345		450	
Tensile strength Rm (MPa)	minimum	maximum	minimum		minimum		minimum	
	400	550	450		450		550	
Elongation (%)	A <sub>(2)</sub>	A <sub>8</sub>	A <sub>2</sub>	A <sub>8</sub>	A <sub>2</sub>	A <sub>8</sub>	A <sub>2</sub>	A <sub>8</sub>
	21	20	21	18	21	18	17	15

### 2.3. Product composition

The manufacturer declares the following composition:

**Table -25 .** Steel composition

Material	% by weight
Post-consumer scrap	94 - 95 %
Pre-consumer scrap	5 - 6 %

No hazardous substances listed in the Candidate List of Substances of Very High Concern (SVHC) for authorisation are used during the product life cycle in a percentage greater than 0.1% by weight of the product.



### 3. Information on LCA

#### 3.1. Life cycle analysis

The Life Cycle Assessment Report for the WTPs of the steel products of Siderúrgica Balboa S.A., dated May 2025, has been carried out by the company Abaleo S.L.

The study was carried out using data from the plant where the product is manufactured, located in Jerez de los Caballeros (Badajoz).

The LCA study follows the recommendations and requirements of the international standards ISO 14040:2006, ISO 14044:2006, UNE 36904-1:2018 and the European Standard EN 15804:2012+A2:2019/AC:2021.

#### 3.2. Scope of the study.

The scope of this DAP is the cradle to gate production with options and modules C and D (modules A1-A3, A4, C and D) of the steel profile.

The specific data of the production process come from the Siderurgica Balboa plant, and correspond to the production data for the year 2022, which is considered representative.

It has not been included in the LCA:

- The manufacture of certain water treatment products used in the plant, as there is no representative process. These materials account for 0.00043% of the weight of the product studied. Their transport from the supplier to the facilities where they are used has been considered.
- All equipment with a useful life of more than 3 years.

- The construction of plant buildings and other capital goods.
- Staff travel to and from work; and staff travel to and from work.
- Research and development activities.

#### 3.3. Declared unit.

The declared unit is one tonne (1,000 kg) of steel profile from electric arc.

#### 3.4. Assignment criteria .

In accordance with the criteria of the reference standard, the allocation of the inputs and outputs of the system based on economic values has been applied due to the fact that the difference between the income from the product and the co-products is very high. This allocation criterion has been applied for general plant consumption (consumption of raw materials and energy), emissions, transport and waste .

#### 3.5. Cutting ruler

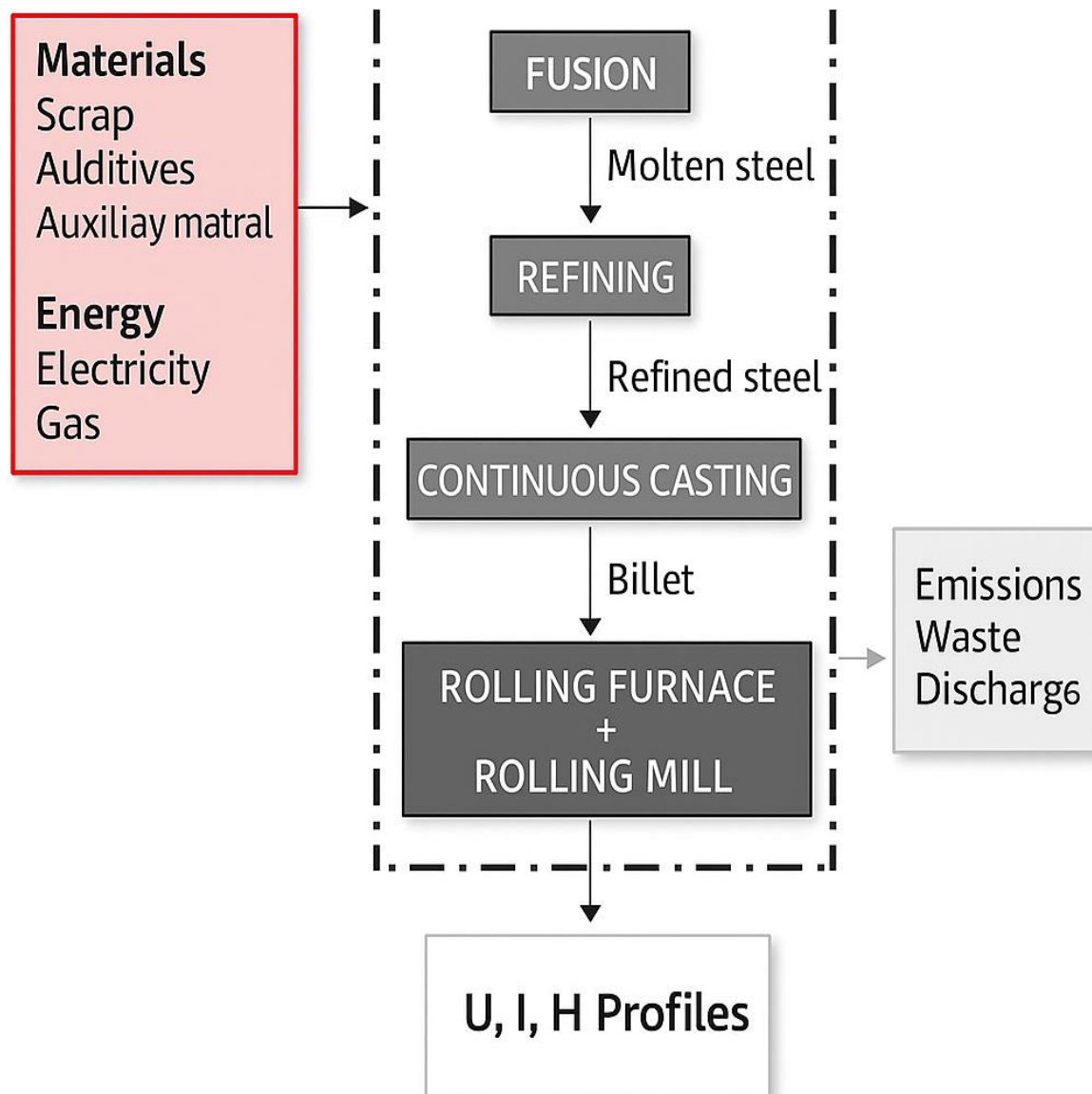
The gross weight/volume of all materials used in the manufacturing process has been included in the LCA, so that at least 99% of the weight of the product unit is obtained.

There has been no exclusion of material or energy consumption.

#### 3.6. Diagram of the manufacturing process.

The manufacturing process of the products studied is summarised in the following process diagram:





### 3.7. Representativeness, quality and selection of data .

To model the manufacturing process of the product studied, the production data of the Jerez de los Caballeros plant for the year 2022 were used, which was considered representative of current manufacturing conditions. The following data have been obtained for this facility: consumption of materials, fuels and energy; distances from suppliers; emissions and discharges; and waste generation and its transport to a waste manager.

The electricity and natural gas consumptions for the year under study have been obtained as an average for the years 2021, 2023 and 2024, as the year 2022 has anomalous operating conditions.

Where necessary, use was made of the Ecoinvent 3.11 database (March 2025), which is the latest version available at the time of the LCA. For the inventory data, for modelling the LCA and for calculating the environmental impact categories required by the reference standard, SimaPro 10.2.0.0 software was used, which is the

most up-to-date version available at the time of the study.

The following criteria were used to select the most representative processes:

- The data must be representative of the technological development actually applied in the manufacturing processes. If no information was available, a data representative of an average technology has been chosen.
- Geographic data should be as close as possible and, where appropriate, regionalised means.
- Data should be as up to date as possible.

To assess the quality of the primary data used in the LCA, the semi-quantitative data quality assessment criteria proposed by the European Union in its Guide to the Environmental Footprint of Products and Organisations are applied. The results obtained are as follows:

- Very good integrity. Score 1.
- Methodological appropriateness and good coherence. Score 2.
- Very good temporal representativeness. Score 1.
- Good technological representation. Score 2.
- Very good geographical representativeness. Score 1.
- Low data uncertainty. Score 2.

Based on the above data, the Data Quality Rating (DQR) takes the following value:  $8/6 = 1.5$ , indicating that the data quality is excellent.

For a better understanding of the data quality assessment carried out, it is indicated that the score for each of the criteria varies from 1 to 5 (the lower the score, the higher the quality) and that the following table is applied to obtain the final score:

Overall Data Quality Score (DQR)	Overall level of data quality
$\leq 1,6$	Excellent quality
1,6 a 2,0	Very good quality
2,0 a 3,0	Good quality
3 a 4,0	Reasonable quality
$> 4$	Insufficient quality

## 4. System limits, scenarios and additional technical information.

The product system studied in the Life Cycle Assessment of the steel profile from electric arc is from the cradle to the gate with options and modules C and D. The following phases of production have been studied:

### Module A1: Raw material production .

This module includes the production process of raw materials, which considers:

- The extraction of resources and production of raw materials.
- Transport of raw materials to processing/production centres.
- Energy and fuel consumption during the production of raw materials.
- Consumption of other resources (e.g. water) during the production of raw materials.
- The generation of waste and emissions to air and discharges to water and soil during the production of raw materials.
- The generation of electricity used in the manufacturing process.

### Module A2: Transport.

The transport by lorry of all the raw materials from the production sites (suppliers) to the Siderurgica Balboa plant has been considered. The transport distances of the raw materials have been provided by those responsible for the plant, knowing the location of the suppliers' facilities.

### Module A3: Manufacturing.

In this stage, we considered the consumption of auxiliary materials for production (auxiliary materials and general plant consumption); the production of the packaging necessary for the distribution of the product to the customer and its

transport to the plant; emissions into the air and water, and the transport to the waste manager of the waste generated during this stage of the life cycle. The waste transport distances have been provided by those responsible for the plant, knowing the location of the facilities of their waste managers.

### Module A4 - Transport to the place of use.

The transport of the finished product from the plant where the steel is produced to the customer has been considered, with data from the year 2022, distinguishing the means of transport used: truck, ship or train.

**Table -41 .** Parameters of module A4

Parameter	Value (per unit declared)
Litres of diesel:	
- EURO 6 truck (MMA. 15,79 t)	0.0436 l/tkm
- Ship	0.0026 l/tkm
- Train	0.0129 l/tkm
Average distance	
- EURO 6 truck	816.22 km
- Ship	2,540.32 km
- Train	220.00 km
Occupancy rate (including empty return)	50 %
Bulk density of transported products	-
Useful capacity factor	-

### Module C1 - Deconstruction / demolition.

In the LCA it has been assumed that 100% of the processed steel product has been used as concrete reinforcement, i.e. integrated into other structures. A generic process from the Ecoinvent 3.11 database has been used to represent the demolition process.

## Module C2: Transport to the waste treatment/recovery site.

It is considered that, at the end of its useful life, the product studied is transported to the waste management point by road. The

average transport of scrap received at the plant, which is authorised as a waste treatment facility for recovery operations (R4 - recycling or recovery of metals and metal compounds), has been considered.

**Table -42 .** Stages and information modules of the Life Cycle according to UNE-EN 15804.

Life Cycle Information													Additional information		
A1 to 3			A4 - A5		B1 to 7					C1 to 4				D	
Product stage			Stage Construction process		Stage of use					End-of-life stage				Benefits and burdens beyond the system	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	C1	C2	C3	C4	D	
X	X	X	X	ND	ND	ND	ND	ND	ND	X	X	X	X	X	
Supply of raw materials	Transport	Manufacturing	Transport	Construction / installation process	Use	Maintenance	Repair	Replacement	Rehabilitation	Deconstruction, demolition	Transport	Waste treatment	Waste disposal	Reuse, recovery and recycling potential	
			Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario	Scenario		
					B6. In-service energy use										
					Scenario					ND					
					B7. In-service water use										
					Scenario					ND					

X: Module evaluated

ND: Undeclared module

**X:** Module evaluated

**ND:** Undeclared module

### Module C3 - Waste treatment, and Module C4 - Waste disposal.

To determine the recycling and landfill and incineration rates of the products studied, the criteria of Part C of Annex 2 V2.1 (May 2020) of the Circular Footprint Formula of the European Union Environmental Footprint methodology (*COMMISSION RECOMMENDATION (EU) 2021/2279 of 15 December 2021 on the use of environmental footprint methods to measure and communicate the environmental performance of products and organisations throughout their life cycle*) are applied.

**Table -43 .** Parameters of module C1-C4

Parameter	Value (per unit declared)
Demolition	0.626 MJ
Recovery system, specified by type	0 kg for reuse 950 kg for recycling.
Elimination, specified by type	27.5 kg for final disposal (landfill) 22,5 kg for incineration
Scenario development assumptions (transport of waste to waste manager)	Average distance - EURO 6 lorry: 312.65 km

### Module D: Benefits and burdens beyond the system.

The steel under study is produced 100% from scrap, and therefore, Module D has a value of zero.

Waste undergoing recovery or recycling during the product stage is not included in the system boundaries of this module as it accounts for less than 1% of the functional unit.

## 5. LCA and LCI environmental parameter statements.

The estimated impact results are relative and do not indicate the final value of the impact categories, nor do they refer to threshold values, safety margins or risks.

### Environmental impact parameters for 1 tonne of profile

**Table - .51** Mandatory environmental indicators according to EN 15804 (reference package EF 3.1 )

Parameter	Profile Declared unit: 1 ton									
	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GWP-total	3,22E+02	9,40E+00	1,67E+02	4,98E+02	1,56E+02	5,92E+01	4,69E+01	4,81E+00	2,66E-01	0,00E+00
GWP-fossil	3,20E+02	9,39E+00	1,67E+02	4,96E+02	1,56E+02	5,92E+01	4,69E+01	4,79E+00	2,66E-01	0,00E+00
GWP-biogenic	3,95E-01	3,71E-04	7,52E-02	4,71E-01	5,58E-03	2,97E-03	1,63E-03	7,47E-03	3,19E-04	0,00E+00
GWP-luluc	1,71E+00	2,21E-04	5,42E-03	1,72E+00	2,92E-03	2,44E-03	7,41E-04	9,66E-03	8,49E-06	0,00E+00
ODP	6,60E-06	1,92E-07	2,30E-07	7,03E-06	3,34E-06	9,02E-07	1,06E-06	7,29E-08	5,37E-09	0,00E+00
AP	1,20E+00	3,46E-02	2,03E-01	1,44E+00	1,01E+00	5,47E-01	5,82E-02	3,02E-02	1,96E-03	0,00E+00
EP-freshwater	8,87E-03	6,73E-06	1,39E-03	1,03E-02	1,01E-04	5,58E-05	2,89E-05	3,18E-04	9,00E-07	0,00E+00
EP-marine	2,48E-01	1,43E-02	1,77E-01	4,39E-01	2,74E-01	2,58E-01	1,31E-02	9,07E-03	9,04E-04	0,00E+00
EP-terrestrial	2,76E+00	1,57E-01	9,48E-01	3,86E+00	3,03E+00	2,83E+00	1,43E-01	9,99E-02	9,92E-03	0,00E+00
POFP	1,24E+00	5,68E-02	4,77E-01	1,77E+00	1,02E+00	8,44E-01	1,14E-01	3,03E-02	3,03E-03	0,00E+00
ADP-minerals&metals <sup>2</sup>	6,93E-05	2,71E-07	3,80E-06	7,33E-05	3,64E-06	2,08E-06	1,22E-06	2,67E-07	8,82E-09	0,00E+00
ADP-fossil <sup>2</sup>	9,83E+03	1,24E+02	1,11E+02	1,01E+04	2,05E+03	7,75E+02	6,23E+02	9,64E+01	3,52E+00	0,00E+00
WDP <sup>2</sup>	1,04E+02	5,57E-02	7,54E+01	1,80E+02	6,54E-01	5,78E-01	1,99E-01	6,94E-01	4,31E-03	0,00E+00

**GWP - total (kg CO<sub>2</sub>eq)**: Global warming potential; **GWP - fossil (kg CO<sub>2</sub>eq)**: Global warming potential from fossil fuels; **GWP - biogenic (kg CO<sub>2</sub>eq)**: Biogenic global warming potential; **GWP - luluc (kg CO<sub>2</sub>eq)**: Global warming potential from land use and land use change; **ODP (kg CFC-11 eq)**: Stratospheric ozone depletion potential; **AP (mol H<sup>+</sup> eq)**: Acidification potential, cumulative surplus; **EP-freshwater (kg P eq)**: Eutrophication potential, fraction of nutrients reaching the final freshwater compartment; **EP-marine (kg N eq)**: Eutrophication potential, fraction of nutrients reaching the final marine water compartment; **EP-terrestrial (mol N eq)**: Eutrophication potential, cumulative surplus; **POFP (kg NMVOC eq)**: Tropospheric ozone formation potential; **ADP-minerals&metals (kg Sb eq)**: Abiotic resource depletion potential for non-fossil resources; **ADP-fossil (MJ, v.c.n)**: Abiotic resource depletion potential for fossil resources; **WDP (m<sup>3</sup>)**: Water deprivation potential (user), weighted water deprivation consumption.

Table - .52 Additional environmental indicators .

Parameter	Profile Declared unit: 1 ton									
	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
GWP-GHG* GWP-GHG	3,22E+02	9,40E+00	1,67E+02	4,98E+02	1,56E+02	5,92E+01	4,69E+01	4,81E+00	2,66E-01	0,00E+00
PM	2,17E-05	1,16E-06	9,21E-07	2,38E-05	8,99E-06	1,58E-05	2,81E-06	4,66E-07	7,28E-08	0,00E+00
IRP <sup>1</sup>	7,04E+01	1,15E-02	2,79E-01	7,07E+01	1,90E-01	6,44E-02	5,98E-02	6,73E-01	3,74E-04	0,00E+00
ETP-fw <sup>2</sup>	5,41E+02	4,20E+00	1,20E+02	6,65E+02	8,61E+01	2,22E+01	2,25E+01	6,68E+00	5,16E+00	0,00E+00
HTP-c <sup>2</sup>	2,63E-07	5,57E-10	1,51E-07	4,15E-07	1,14E-08	3,16E-09	2,90E-09	4,26E-10	3,65E-10	0,00E+00
HTP-nc <sup>2</sup>	9,58E-07	4,64E-08	1,60E-05	1,70E-05	8,75E-07	5,82E-08	3,13E-07	1,80E-08	1,48E-09	0,00E+00
SQP <sup>2</sup>	6,24E+02	1,74E-01	1,38E+01	6,38E+02	2,61E+00	1,32E+00	7,92E-01	8,65E+00	3,42E+00	0,00E+00

**GWP-GHG:** Global warming potential excluding biogenic carbon; **PM (disease incidence):** Potential for disease incidence due to emissions of particulate matter; **IRP (kBq U235 eq):** Exposure efficiency of human potential relative to U235; **ETP-fw (CTUe):** Ecosystem toxic unit comparative potential - freshwater; **TPH-c (CTUh):** Ecosystem toxic unit comparative potential - carcinogenic effects; **TPH-nc (CTUh):** Ecosystem toxic unit comparative potential - non-carcinogenic effects; **SQP (Pt):** Soil quality potential index.

*Notice 1. This impact category deals mainly with the potential impacts of low doses of ionising radiation on human health from the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents or occupational exposure due to the disposal of radioactive waste in underground facilities. Ionising radiation potential from soil, from radon or from some building materials is also not measured in this parameter.*

*Warning 2. The results of this environmental impact indicator should be used with caution as the uncertainties of the results are high and experience with this parameter is limited.*

*\*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.*



**Resource use for 1 tonne of profile****Table -53** Parameters describing resource use.

Parameter	Profile Declared unit: 1 ton									
	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
PERE	4,64E+02	2,94E-01	6,37E+00	4,71E+02	4,85E+00	1,66E+00	1,53E+00	1,65E+01	1,18E-02	0,00E+00
PERM	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	0,00E+00
PERT	9,85E+03	1,25E+02	1,12E+02	1,01E+04	2,06E+03	7,74E+02	6,27E+02	9,54E+01	3,53E+00	0,00E+00
PENRE	9,83E+03	1,24E+02	1,11E+02	1,01E+04	2,05E+03	7,75E+02	6,23E+02	9,64E+01	3,52E+00	0,00E+00
PENRM	4,60E-01	0,00E+00	4,29E-02	5,03E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	9,83E+03	1,24E+02	1,11E+02	1,01E+04	2,05E+03	7,75E+02	6,23E+02	9,64E+01	3,52E+00	0,00E+00
SM	1,21E+03	0,00E+00	0,00E+00	1,21E+03	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	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	0,00E+00
NRSF	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	0,00E+00
FW	2,01E+00	2,82E-03	4,68E-01	2,48E+00	3,87E-02	2,35E-02	1,21E-02	4,54E-02	1,67E-04	0,00E+00

**PERE (MJ, v.c.n.):** Uso de energía primaria renovable excluyendo los recursos de energía primaria renovable utilizada como materia prima; **PERM (MJ, v.c.n.):** Uso de energía primaria renovable utilizada como materia prima; **PERT (MJ, v.c.n.):** Uso total de la energía primaria renovable; **PENRE (MJ, v.c.n.):** Uso de energía primaria no renovable, excluyendo los recursos de energía primaria no renovable utilizada como materia prima; **PENRM (MJ, v.c.c.n.):** Use of non-renewable primary energy used as feedstock; **PENRT (MJ, e.c.n.):** Total use of non-renewable primary energy; **SM (kg):** Use of secondary materials; **RSF (MJ, e.c.n.):** Use of renewable secondary fuels; **NRSF (MJ, e.c.n.):** Use of non-renewable secondary fuels; **FW (m<sup>3</sup>):** Net use of flowing water resources.

### Waste categories for 1 tonne profile

**Table -54** Parameters describing waste generation.

Profile Declared unit: 1 ton										
Parameter	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
HWD	3,28E-02	8,35E-04	2,25E-03	3,59E-02	1,31E-02	5,32E-03	4,14E-03	2,88E-04	2,30E-05	0,00E+00
NHWD	1,33E+01	4,26E-03	1,05E+00	1,43E+01	6,38E-02	2,77E-02	2,10E-02	4,95E-02	4,23E+01	0,00E+00
RWD	4,51E-02	6,99E-06	2,14E-04	4,54E-02	1,18E-04	3,61E-05	3,76E-05	5,53E-04	2,34E-07	0,00E+00

**HWD (kg):** Hazardous waste disposed of; **NHWD (kg):** Non-hazardous waste disposed of; **RWD (kg):** Radioactive waste disposed of.

### Outflows for 1 tonne of profile

**Table -55** Parameters describing the outflows.

Profile Declared unit: 1 ton										
Parameter	A1	A2	A3	A1-A3	A4	C1	C2	C3	C4	D
CRU	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	0,00E+00
MFR	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	9,50E+02	0,00E+00	0,00E+00
MER	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	0,00E+00
EEA	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	0,00E+00
EET	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	0,00E+00

**CRU (kg):** Components for reuse; **MFR (kg):** Materials for recycling; **MER (kg):** Materials for energy recovery; **EEE (MJ):** Electrical energy exported; **EET (MJ):** Thermal energy exported.

## 6. Additional environmental information.

### 6.1. Other indicators.

The manufacture of Siderurgica Balboa's profile generates the following co-products:

**Table -61** . Co-products

Parameter	Kg (per declared unit)
Black scum	1,40E+02
Refractory material	6,56E-01
Ferrous waste	1,05E+02
Non-ferrous waste	2,06E-01
Flakes/shells	5,70E+01

### 6.2. Indoor air emissions.

The manufacturer declares that the studied steel does not generate emissions to indoor air, during its lifetime.

### 6.3. Emissions to soil and water.

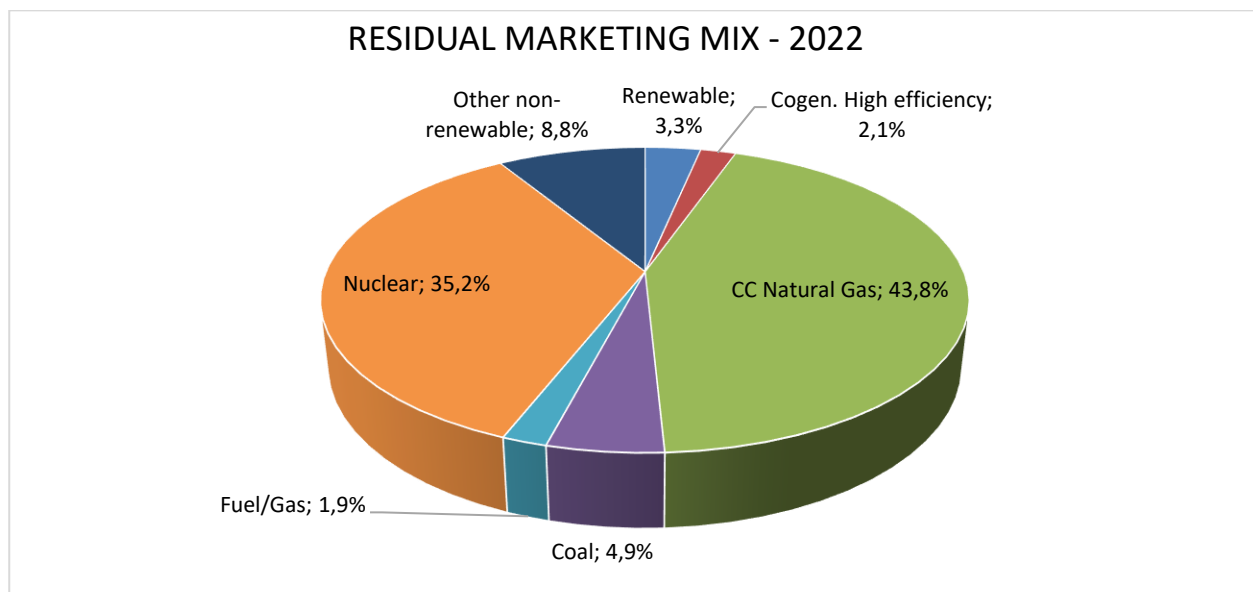
The manufacturer declares that the studied steel does not generate significant emissions to soil or water, during its lifetime.

### 6.4. Biogenic carbon content

The manufacturer declares that neither the tested steel nor its packaging contains materials with biological content.

### 6.5. Electrical mix used

The electricity mix used for the characterisation of electricity for the year 2022 is the residual of the trading company, obtained from the annual report of the Comisión Nacional de los Mercados y la Competencia (CNMC: GWP - IPCC 2021: 0.272 kgCO<sub>2</sub>e/kWh).



## References

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- [8] Databases and environmental impact assessment methodologies applied through SimaPro 10.2.0.0.

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