

Environmental Product Declaration

In accordance with ISO 14025 for:
**Special Steel wire rod produced
in Electric Arc Furnace**

From:
GLOBAL STEEL WIRE

Programme:

The International
EPD® System,
www.environdec.com

Programme operator:

EPD International AB

EPD registration number:

S-P-06129

Publication date:

2022-06-01

Revision date:

2023-12-11 (version 1.2)

Valid until:

2028-04-20



Embracing a sustainable future

Index

p. **03**

1. Programme information

p. **05**

2. Company information

p. **09**

3. Product information

p. **13**

4. LCA information

p. **17**

5. Content declaration

p. **19**

6. Environmental performance

p. **23**

7. Differences with previous version

p. **24**

8. References

1. Programme information

Programme:

The International EPD® System,
www.environdec.com

EPD International AB
Box 210 60
SE-100 31 Stockholm
Sweden

www.environdec.com
info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

PCR 2015:03 Basic iron or steel products & special steels, except construction steel products, version 2.0; UN CPC 4112 AND 412.

PCR review was conducted by:
The International EPD® System
Technical Committee

Visit www.environdec.com for full list of members.

Chair of the PCR review: Hudai Kara.
The review panel may be contacted via
info@environdec.com

Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Rubén Carnerero - IK Ingeniería

Approved by: The International EPD® System

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 from different programmes may not be comparable.

For more information on comparability see ISO 14025.



2. Company information

Owner of the EPD:

GLOBAL STEEL WIRE, SA
Nueva Montaña S/N
39011 Santander (Cantabria) Spain

[+34] 942 200 200
www.globalsteelwire.com

Name and location of production site:

Global Steel Wire (GSW)
Nueva Montaña S/N
39011 Santander
Cantabria
Spain

Product-related or management system-related certifications

UNE-EN-ISO 14001:2015, EMAS, ISO 45001:2018,
UNE-EN-ISO 9001: 2015, IATF 16949, SUSTSTEEL,
SOSTENIBILIDAD SIDERURGICA

Description of the organisation:

Global Steel Wire is a European leading supplier of high-grade wire rod, present in all sectors with high technological demands, with a growing presence in the mobility sector.

About the company

Global Steel Wire Group is the European leader in high value-added wire rod and Europe's largest downstream integrated group.

The Global Steel Wire Group consists of Global Steel Wire, which includes a modern electric furnace melt shop and a rolling mill; and the Wire Works Division, with six integrated downstream companies for the processing of wire rod.

The Group, located in Spain, has its own port and international warehouses that allow us to supply customers offering great strategic and competitive advantages in all the technologically demanding sectors in which we operate.

Additionally, Global Steel Wire Group is part of CELSA Group™, the largest European manufacturer of circular steel with 8 million tons of scrap recovered annually and an annual transformation and sale of 7 million tons of steel.

In Global Steel Wire Group and the entire CELSA Group™, steel is only manufactured from recycling scrap in electric arc furnaces, the most energy and environmentally efficient steel manufacturing process, which allows CELSA Group™ to produce steel with low CO2 emissions.



GSW Group, with the firm commitment to the circular economy, allows waste to be returned into the economic cycle, valorizing 98% of the waste generated in the steel manufacturing. These by-products are used as secondary raw material for processes such as road construction or reused back in the steel manufacturing process.

3. Product information

Product name:

Hot-rolled steel wire rod

Product identification:

Hot-rolled special steel wire manufactured in electric arc furnace based on scrap.

Product description

Global Steel Wire is one of Europe's leading suppliers of high grade wire rod, with an extensive range of grades and diameters ranging from 5.5 mm up to 52 mm, manufactured in accordance with international standards and tailored to our customers' technical specifications.

Wire rod is available in low, medium and high carbon steels (between 0.05% and 1.25%) with different alloy grades (Al, B, Cr, Mn, Mo, P, Si, S, among others), depending on its composition and characteristics.

In addition, wire rod can be supplied in round or hexagonal section, in different coil formats and with a wide variety of heat and surface treatments. Among its extensive range of products, Global Steel Wire specialises in wire rods for cold heading, tyre reinforcement, suspension springs, free cutting and cold drawing, as well as low, medium and high carbon steels.

Global Steel Wire is present in all sectors where wire rod based products are manufactured, and has become one of the European leaders in sectors with high technological demands, especially in the automotive sector.



Range of diameters

Round section:

5.5	10.5	16.0	23.0	34.0
6.0	11.0	16.5	24.0	36.0
6.5	11.5	17.0	25.0	37.0
7.0	12.0	17.5	26.0	38.0
7.5	12.5	18.0	27.0	40.0
8.0	13.0	19.0	28.0	42.0
8.5	13.5	20.0	29.0	44.0
9.0	14.0	21.0	30.0	47.0
9.5	14.5	21.5	31.0	52.0
10.0	15.0	22.0	32.0	

Hexagonal section:

23.5	25.5	28.5	31.5	33.5
------	------	------	------	------



Steel Product Ranges:

- Cold heading
- Case Hardening
- Tyre reinforcement
- Carbon steels
- Free cutting
- Chains
- Suspension springs
- Cold drawing
- Welding
- Micro-alloyed

UN CPC code:

4124

Geographical scope:

Global

4. LCA information

Declared unit:

1 Tonne (1000 kg) of hot-rolled wire rod steel product, including packaging

Time representativeness:

Production data are from 2022.

Database(s) and LCA software used:

Ecoinvent 3.8 and Environmental Footprint 2.0 database. Software SimaPro 9.4.0.2

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.
- Average regionalised data
- The data should be as up to date as possible.

Description of system boundaries:

The EPD covers the upstream and core process stages

Upstream:

- Extraction and production of raw materials
- Transport of raw materials to the production plant
- Production of primary and secondary packaging and its transport to the plant

Core:

- Steel wire rod manufacturing process
- Wastes generated during the manufacturing process and their transport and treatment
- Emissions to air and water during the manufacturing process
- Impacts due to the production of the energy consumed
- Production and transport of auxiliary materials to the production plant

The polluter pays principle and the modularity principle (environmental burdens are assigned to the stage where the impact occurs) have been followed.

The EPD covers the phases from cradle to gate.

The remaining phases of the life cycle are highly dependent on particular scenarios and are best developed for each specific product.

Name and contact information of LCA practitioner:

Abaleo S.L.
José Luis Canga Cabañes
Phone: (+34) 639 901 043
jlcanga@abaleo.es / info@abaleo.es

Cut-off criteria:

In accordance with the PCR criteria, 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 considered.

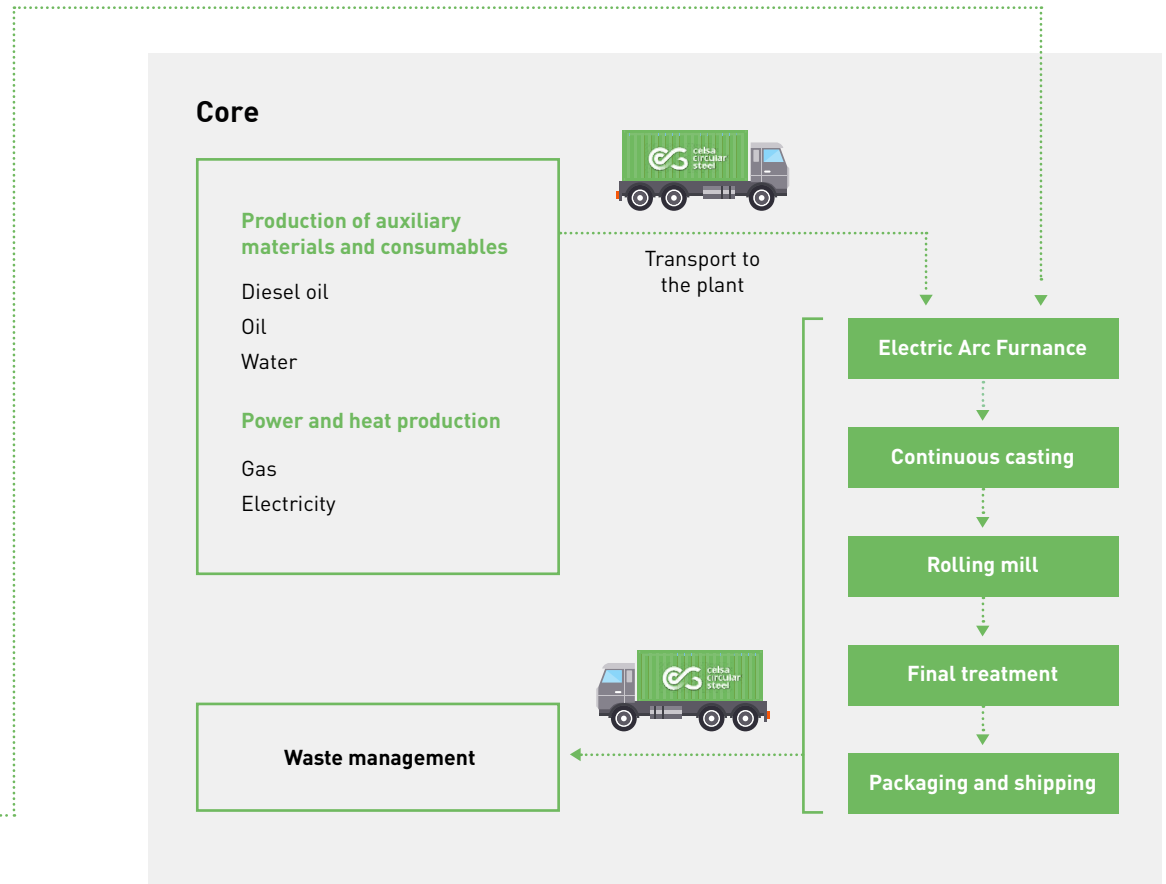
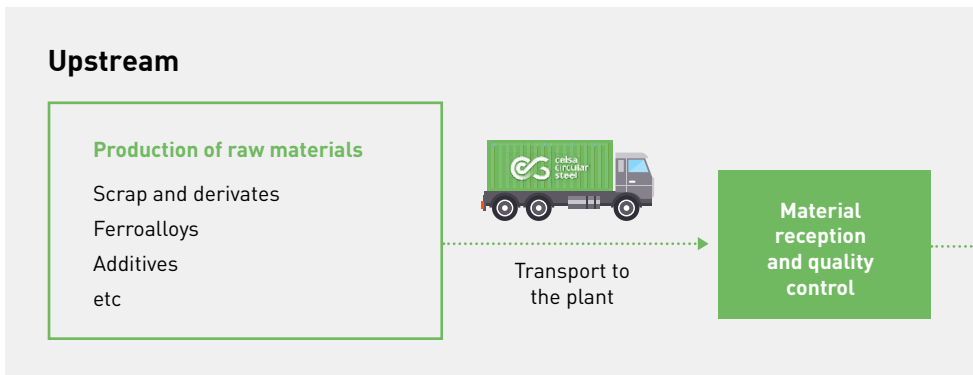
There has been no exclusion of energy consumption.

System diagram:

Upstream and core stages of the production of wire rod in an electric furnace have been studied. The system boundaries studied in the Life Cycle Assessment are shown below in the diagram of GSW's wire rod production.

Data quality assessment:

To assess the quality of the primary data used, the semi-quantitative data quality assessment criteria proposed by the European Union in its Guide to the Environmental Footprint of Products and Organisations were applied, resulting in a Data Quality Rating (DQR) = 1.33, which indicates that the quality of the data is excellent.



5. Content declaration

Packaging

Primary packaging relevant to the shipment of the product (distribution packaging) has been included in the study.

Product:

Steel is a material in which iron is the predominant element (more than 95%), with a carbon content generally lower than 2% and also containing other minority elements (UNE-EN 10020 Definition and classification of steel grades).

The chemical composition and properties of wire rod are set out in the following product standards:

- UNE-EN ISO 683-1, UNE-EN ISO 683-2, UNE-EN ISO 683-3
- UNE-EN ISO 16120-1, UNE-EN ISO 16120-2, UNE-EN ISO 16120-3
- UNE-EN 10089

Some product families manufactured by GSW use substances listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorisation" in a percentage greater than 0.1% and less than 0.3% by weight of the product.

Recycled material

Provenience of recycled materials (pre-consumer or post-consumer) in the product:

Recycled materials come from scrap and derivatives used in the manufacturing process, with a proportion of 22,53% post-consumer and 66% pre-consumer.



6. Environmental performance

The different environmental parameters obtained from the Life Cycle Assessment (LCA) for the production of 1 tonne of GSW steel wire rod in the environmental impact categories requested by the PCR in the two stages of the life cycle are included below:

Round section:

1.000 kg of GSW steel wire rod					
Parameter		Unit	Upstream	Core	TOTAL
Global warming potential (GWP)	Fossil (GWP-fossil)	kg CO2 eq.	241	323	564
	Biogenic (GWP-biogenic)	kg CO2 eq.	4,41E-01	5,28E-01	9,69E-01
	Land use and land use change (GWP-lucuc)	kg CO2 eq.	3,52E-01	1,15	1,50
	Total (GWP-total)	kg CO2 eq.	242	325	567
Depletion Potential of the stratospheric ozone layer (ODP)		kg CFC 11 eq.	5,00E-06	8,53E-06	1,35E-05
Acidification potential, accumulated exceedance (AP)		mol H+ eq.	9,05E-01	9,07E-01	1,81
Eutrophication potential (EP)	Freshwater (EP-freshwater)	kg P eq.	2,88E-02	3,95E-03	3,27E-02
	Marine (EP-marine)	kg N eq.	2,56E-01	2,18E-01	4,75E-01
	Terrestrial (EP-terrestrial)	mol N eq.	2,32	2,12	4,44
Photochemical ozone creation potential (POCP)		kg NMVOC eq.	8,56E-01	8,90E-01	1,75
Abiotic depletion potential - non-fossil resources (ADPE)		kg Sb eq.	2,87E-03	2,25E-05	2,89E-03
Abiotic depletion potential - fossil resources (ADPF)		MJ, net calorific value	3.850	3.890	6.730
Water (user) deprivation potential (WDP)		m ³ world eq. deprived	-38,3	250	212

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.

Use of resources:

1.000 kg of GSW steel wire rod					
Parameter		Unit	Upstream	Core	TOTAL
Primary energy resources – Renewable	Use as energy carrier (PERE)	MJ, net calorific value	213,15	830,26	1.043,41
	Used as raw materials (PERM)	MJ, net calorific value	0,00	0,00	0,00
	TOTAL (PERT)	MJ, net calorific value	213,15	830,26	1.043,41
Primary energy resources – Non-renewable	Use as energy carrier (PENRE)	MJ, net calorific value	2,52	3,34E-01	2,86
	Used as raw materials (PENRM)	MJ, net calorific value	3.038,67	7.319,67	10.358,34
	TOTAL (PENRT)	MJ, net calorific value	3.041,19	7.320	10.361,2
Use of Secondary material (SM)		kg	0,00	0,00	1,03
Use of Renewable secondary fuels (RSF)		MJ, net calorific value	0,00	0,00	0,00
Use of Non-renewable secondary fuels (NRSF)		MJ, net calorific value	0,00	0,00	0,00
Net use of fresh water (FW)		m3	2,25	3,27	5,51

Waste production and output flows:

Waste production:

1.000 kg of GSW steel wire rod				
Parameter	Unit	Upstream	Core	TOTAL
Hazardous waste disposed (HWD)	kg	1,08E-02	1,54E-02	2,62E-02
Non-hazardous waste disposed (NHWD)	kg	106,89	3,92	110,80
Radioactive waste disposed (RWD)	kg	2,98E-03	4,79E-02	5,09E-02

Note: The materials generated during the production process that are considered waste are those sent to landfill for final disposal (materials that are not reused, recycled and/or recovered).

Output flows:

1.000 kg of GSW steel wire rod				
Parameter	Unit	Upstream	Core	TOTAL
Components for reuse (CRU)	kg	0,00	0,00	0,00
Materials for recycling (MFR)	kg	0,00	2,41	2,41
Materials for energy recovery (MER)	kg	0,00	0,00	0,00
Exported electrical energy (EEE)	MJ, net calorific value	0,00	0,00	0,00
Exported thermal energy (EET)	MJ, net calorific value	0,00	0,00	0,00

7. Differences with previous version

2022-06-01 Version 1.0
First publication of the EPD

2023-04-21 Version 1.1
Update of the LCA, production data 2022
In general, the values in version 1.1 are lower than in version 1.0. This is due to the increased use of scrap in the steelmaking process.

2023-12-11 Version 1.2
Editing errors corrected

8. References

- PCR 2015:03 Basic iron or steel products & special steels, except construction steel products, version 2.0. UN CPC 4112 and 412. DATE 2020-03-27. VALID UNTIL: 2024-03-27
- EPD International (2017). General Programme Instructions for the International EPD® System. Version 3.0 date 2017-12-11, based on ISO 14025 and ISO 14040/14044.
- Life Cycle Assessment Report for the environmental product declaration of steel wire rod of Global Steel Wire S.A., carried out by Abaleo S.L. March 2023. Version 1.1
- Environmental impact databases and methodologies applied through SimaPro 9.4.0.2.
- Standard UNE-EN ISO 14025:2010. Environmental labels and declarations. Type III environmental declarations. Principles and procedures. (ISO 14025:2006).
- Standard UNE-EN ISO 14040:2006/A1:2021. Environmental Management. Life Cycle Analysis. Principles and reference framework. Amendment 1. (ISO 14040:2006/Amd 1:2020).
- Standard UNE-EN ISO 14044:2006/A1:2021. Environmental management. Life cycle assessment. Requirements and guidelines. Amendment 2. (ISO 14044:2006/Amd 2:2020).



www.celsagroup.com

EPD[®]



www.environdec.com