



GLOBAL
BRIGHT BARS



Environmental Product Declaration

In accordance with ISO 14025 for:
**High quality cold drawn steel
bright bars produced with 100%
renewable energy**

From:
GLOBAL BRIGHT BARS

Programme:

The International EPD® System, www.environdec.com

Programme operator:

EPD International AB

EPD registration number:

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celsa
circular
steel

Embracing a sustainable future

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1. Programme information

Programme:

The International EPD® System,
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Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

PCR 2014:10 Fabricated steel products, except construction products, machinery and equipment, version 2.12. UN CPC 412, 422, 429.

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: Massimo Marino.
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 14025:2010, 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 BRIGHT BARS
Polígono Industrial Nueva Montaña S/N
39011 Santander (Cantabria)

Phone.: (+34) 608 395 782
<https://www.globalbrightbars.com/>

Name and location of the production site:

Global Bright Bars (GBB)
Polígono Industrial Nueva Montaña S/N
39011 Santander
Cantabria
Spain

Certifications related to the product or management system:

UNE-EN-ISO 9001: 2015; IATF 16949:2016.

Description of the organisation:

Global Bright Bars is a new division of Global Special Steel Products of CELSA Group™, exclusively focused on producing high quality bright bars for the automotive industry.

About the company

Global Bright Bars is the Global Special Steel Products division of CELSA Group™ dedicated exclusively to the production of high quality bright bars for the automotive industry.

The production of Global Bright Bars focuses on drawing and cold turning diameters of between 10 and 42 mm that it produces within the industrial enclosure of Global Steel Wire, manufacturer of carbon wire rods, and which is in turn the main supplier of GBB.

Global Bright Bars has the IATF 16949:2016 certification and has the most modern manufacturing systems for this type of product, allowing it to obtain a quality that meets the highest market requirements and the most demanding standards.

Its strategic location allows it to access its natural markets with maximum efficiency. Likewise, its proximity to Bilbao and Santander ports, place GBB at a clear advantage to send its products to the most distant countries.



Additionally, GBB is integrated within CELSA Group™, the first European circular steel manufacturer with 8 million tons of scrap recovered annually and an annual transformation and sale of 7 million tons of steel.



3. Product information

Product name:

High quality bright steel bars.

Product identification:

Bright steel bars with a diameter between 10 and 42 mm, with or without turning process, and a length (according to customer request) between 0.2 and 7 meters.

Product composition

The chemical composition and properties of steel bars can be established according to customer specifications, although in general they follow the following international standards:

- UNE-EN ISO 683-1, UNE-EN ISO 683-2, UNE-EN ISO 683-3.
- UNE-EN ISO 10277.
- UNE-EN ISO 10278.
- UNE-EN 10083; UNE-EN 10088.

Steel grades:

Steel grades	
Alloys	42CrMo4, 16MnCr5
Free Cutting	11SMnPb30, 44Smn28, 46S20...
Steel for shock absorbers carbon	C35, C35Pb, C40, C45 y C45Pb
Suspension spings & Torsion bars	55Cr3, 54SiCrV6, 61SiCr7, 50CrV4, 50CrV4, C42 (Mod), 28Mn6
Case Hardening Steel	16MnCrS5, 16MnCrSPb5 y C15R
Cold Heading for Forging	35B4 y C15R
Hardening & Tempering Steels	25CrMoS4 y 42CrMoS4

Technical description of the product:

CPC code: 4126. / **Geographical scope:** Global.

Steel grades:

Profile	Operation	Range
	Drawing + C	10-42 mm
	Peeling + SH	10-41 mm
	Length	150-7,000 mm
	Drawing + C	10-32 mm
	Length	150-7,000 mm

Steel grades:

Profile	Operation	Range
	Cold drawing / Peeling	Up to h8
	Standard	+20mm length
	Special	±0.5 mm length
	Cold drawing / Peeling	Up to h10
	Standard	+20mm length
	Special	±0.5 mm length

4. LCA information

Name and contact information of LCA author:

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Declared unit:

1 ton (1,000 kg) of wire steel, including packaging.

Temporal representativeness:

Production data are from 2021.

Databases and ACL software used:

Ecoinvent 3.8 database.
Software SimaPro 9.3.0.3

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

- The data must be representative of the technological development 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.



System diagram:

Upstream and core process of the production of bright steel bars have been studied.

The system boundaries studied in the Life Cycle Assessment are shown below in the diagram of GBB's bright steel bars.

Upstream

Raw materials

Steel wire rod

Packaging

Wood, labels, strips...



Transportation

Materials
reception
and quality
control

Core

Auxiliary materials and consumables

Energy

Electricity



Transportation

Waste transportation
& management



Straightening (H + V)

Blasting

Drawing

Pre-straightening /
surface flaw detector

Cutting

Straightening & Polishing

Packaging & expedition

The production process of the calibrated bars consists of drawing and peeling in cases where the customer demands it.

The drawing process begins with the introduction of the wire rod in the double winding machine where it is unrolled and, with a robot that takes the tip of the roll, it is taken to the mill pointer machine, where the tip of the roll is peeled to facilitate the entry of the wire rod into the die without efforts. At this point, a horizontal and vertical pre-straightening of the roll is performed, breaking the memory of the material so that it cannot return to its initial curved position.

After this phase, the shot blasting machine is responsible for removing the calamine or surface layer that the rolls bring and that can damage the material as it passes through the row; subsequently, the Push Pointing hydraulic system helps to introduce the tip into the row, where the calibration system of the drawing machine makes the wire rod pass through the row at a constant speed.

Once inserted, the rollers of the vertical intermediate straightener are responsible for breaking the memory of the roll. During the process, a non-destructive test (Eddy Current) is carried out with the aim of detecting 100% of the material and separating the bars that present surface defects outside the specifications; subsequently, the demagnetator eliminates the magnetism produced by the induced currents of the detection equipment.

Then the wire passes through the horizontal intermediate straightener that, through a set of horizontal rollers, has the purpose of breaking the memory of the roll in that direction.

Finally, through of the shear cutting system (in cold by impact) the bar lengths requested by the client are obtained and passed through a system of guides to the polisher or straightening machine, where two hyperbolic rollers act by friction and pressure to achieve the final finish. Once drawn, the evacuation system takes the bars to the exit bench, where it can proceed, if the customer requests, to restrain and / or chamfer the ends of the bars to improve the typical deformations of the cut.

The subsequent peeling, which is carried out only at the customer's request, is initiated by introducing the batches of bars on the loading table. Here, four rollers pull the bar towards the lathe head that rotates at high revolutions with cutting blades that tear off the surface of the bar as chips. After a laser measurement to ensure that the diameter does not deviate from the target value, the bars reach the polisher and finally the outlet bench.

Additionally, cuts can be made to a specific length requested by the customer. This process is carried out in the cutting machine, where the shear supports diameters up to 28 mm.

During the year 2021, the Global Steel Wire Group purchased renewable energy with GdO for a part of the production of all the companies of the Group, including GBB.

Description of system boundaries:

The EPD covers the upstream and core process stages using 100% renewable electricity with Guarantee of Origin (GoO).

Upstream:

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

Core:

- Bright steel bars manufacturing process.
- Transportation of raw materials to the production plant.
- Waste 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 transportation 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 scenarios and are best developed for each specific product.



Cut-off rules:

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.

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 Organizations were applied, resulting in a Data Quality Rating (DQR) = 1.33, which indicates that the quality of the data is excellent.

5. Content declaration



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). In steel for the bright bars made of GBB, hexagonal or round section, the carbon content is less than 1%.

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.

Packaging

Packaging for the shipment of the product (distribution packaging) has been included in the study.

Recycled material

GBB bars are obtained from steel wire rod, manufactured from scrap from 23.56% post-consumer and 53.66% pre-consumer.



6. Environmental performance

In the table below are presented the different environmental parameters requested by the PCR, obtained from the Life Cycle Assessment (LCA) of production of 1 ton of GBB bright bar, for the two stages of the life cycle.

Potential environmental impact:

Declared unit: 1,000 kg of GBB bright bar					
Parameter		Unit	Upstream	Core	TOTAL
Global warming potential (GWP)	Fossil	kg CO2 eq.	500.15	5.34	505.49
	Biogenic	kg CO2 eq.	5.17	1.44E-02	5.19
	Land use and land use change	kg CO2 eq.	4.67E-01	4.72E-03	4.71E-01
	TOTAL	kg CO2 eq.	505.79	5.36	511.15
Ozone Depletion Potential (ODP)		kg CFC 11 eq.	6.19E-05	2.11E-06	6.40E-05
Acidification potential (AP)		mol H+ eq	1.83	2.99E-02	1.86
Eutrophication potential (EP)		kg P eq	1.57E-02	2.70E-04	1.60E-02
Photochemical oxidant creation potential (POCP)		kg NMVOC eq.	1.47	6.81E-02	1.54
Abiotic depletion potential (ADP) for non-fossil resources		kg Sb eq.	3.15E-03	5.55E-06	3.16E-03
Abiotic depletion potential (ADP) for fossil resources		MJ, net calorific value	6,083.58	165.53	6,249.11
Water deprivation potential (WDP)		m3 eq.	144.17	7.75	151.92

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:

Declared unit: 1,000 kg of GBB bright bar					
Parameter		Unit	Upstream	Core	TOTAL
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3,227.18	393.66	3,620.83
	Used as raw materials	MJ, net calorific value	0.00	0.00	0.00
	TOTAL	MJ, net calorific value	3,227.18	393.66	3,620.83
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	6,894.84	181.78	7,076.62
	Used as raw materials	MJ, net calorific value	0.00	0.00	0.00
	TOTAL	MJ, net calorific value	6,894.84	181.78	7,076.62
Secondary material		kg	841.49	0.00	841.49
Renewable secondary fuels		MJ, net calorific value	0.00	0.00	0.00
Non-renewable secondary fuels		MJ, net calorific value	0.00	0.00	0.00
Net use of fresh water		m3	13.46	1.49E-01	13.61

Waste production and output flows:

Waste production:

Declared unit: 1,000 kg of GBB bright bar				
Parameter	Unit	Upstream	Core	TOTAL
Hazardous waste disposed	kg	1.00E-02	3.16E-04	1.03E-02
Non-hazardous waste disposed	kg	140.84	1.70	142.54
Radioactive waste disposed	kg	2.01E-02	1.07E-03	2.11E-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:

Declared unit: 1,000 kg of GBB bright bar				
Parameter	Unit	Upstream	Core	TOTAL
Components for reuse	kg	0,00	9.20E-02	9.20E-02
Material for recycling	kg	0,00	7.81E-04	7.81E-04
Materials for energy recovery	kg	0,00	0,00	0,00
Exported energy, electricity	MJ	0,00	0,00	0,00
Exported energy, thermal	MJ	0,00	0,00	0,00

7. References



- PCR 2014:10 Fabricated steel products, except construction products, machinery and equipment. version 2.12. UN CPC 412, 422,429. DATE: 2019-09-06. VALID UNTIL: 2022-10-04.
- S-P-06129 Special Steel wire rod produced in Electric Arc Furnace. EPD International AB. Publication date 2022-06-01; Valid until: 2027-05-31.
- EPD International (2019). General Programme Instructions for the International EPD® System. Version 3.1. Date 2019-09-18, based on ISO 14025 and ISO 14040/14044.
- Life Cycle Assessment Report for the environmental product declaration of bright steel bars of Global Bright Bars, carried out by Abaleo S.L. July 2022. Version 1.0.
- Environmental impact databases and methodologies applied through SimaPro 9.3.0.3.
- 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).



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