

# Environmental Product Declaration



In accordance with ISO 14025:2006 for:

## STAINLESS STEEL COLD - DRAWN BAR (GRADE 1.4305 / AISI 303)

from

**Aceros Inoxidables Olarra, S.A.**



Programme:	The International EPD® System, <a href="http://www.environdec.com">www.environdec.com</a>
Programme operator:	EPD International AB
EPD registration number:	S-P-13535
Publication date:	2024-05-08
Valid until:	2029-05-06

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## Programme information

<b>Programme:</b>	The International EPD <sup>®</sup> System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
<b>E-mail:</b>	<a href="mailto:info@environdec.com">info@environdec.com</a>

<b>Accountabilities for PCR, LCA and independent, third-party verification</b>
<b>Product Category Rules (PCR)</b>
PCR: Fabricated Metal Products, Except Construction Products, 2023:01, version 1.0.2
PCR review was conducted by: The Technical Committee of the International EPD <sup>®</sup> System. A full list of members is available at <a href="http://www.environdec.com">www.environdec.com</a> . The review panel may be contacted via <a href="mailto:info@environdec.com">info@environdec.com</a> Chair of the PCR review: Hüdai Kara
<b>Life Cycle Assessment (LCA)</b>
LCA accountability: IK-Ingenieria
<b>Third-party verification</b>
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: <input checked="" type="checkbox"/> EPD verification by accredited certification body Third-party verification: <i>Tecnalia R&amp;I Certification, SL</i> Auditor: Eva Larzabal Aperribay <a href="mailto:info@tecnaliacertificacion.com">info@tecnaliacertificacion.com</a> Accredited by: ENAC n°125/C-PR283 accreditation
Procedure for follow-up of data during EPD validity involves third-party verifier: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> 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 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 ISO 14025.

## Company information

**Owner of the EPD:** Aceros Inoxidables Olarra, S. A.

CONTACT DETAILS
Camino Larrabarri (Elotxelerri) 1, 48180 Larrondo (Loiu) Bizkaia, Spain (+34) 944711300 info@olarra.com

### Description of the organisation

Aceros Inoxidables Olarra began manufacturing steel in 1955. The company is characterised by its high technological level, which has allowed it to adapt fluidly to customer demands. The products of Aceros Inoxidables Olarra are synonymous of a constant quality that has favoured their use in several sectors; chemical, food, petrochemical industry, among others.

The company was a pioneer in Europe in the manufacture of stainless steels by the AOD Argon-Oxygen-Decarburising process (the most used nowadays by most of the stainless-steel manufacturers). Nowadays Aceros Inoxidables Olarra is the world leader in the manufacture of stainless steels by Horizontal Continuous Casting.

Olarra has a tailor-made production that allows it to satisfy the demands of its customers with a product with personalised characteristics. To this end, we have a qualified team that analyses each order in search of the most suitable product. Elements such as the AOD converter allow the chemical composition of the steel to be precisely adjusted to our customers' requirements. The wide variety of heat treatments, finishes and sizes are adapted to customer requirements, achieving optimum performance of the final product.

At each stage of the process, the Olarra team monitors the product from the reception of the order and its study, to the verification of the final product and its delivery to the customer.

For the environmental management of Aceros Inoxidables Olarra, environmental criteria are applied in all stages of production: from the selection of raw materials, as well as in the management of energy consumption necessary for the manufacture of components, to the management of waste and greenhouse gas emissions in the product use phase.

It is important to highlight the company's commitment to respond to the interested parties as far as environmental behaviour is concerned. Aceros Inoxidables Olarra S.A. is certified under the UNE-EN-ISO 14001:2015 Standard, having an Environmental Management System that provides a structured process for the achievement of improvements based on a PDCA continuous improvement cycle.

Since 2021, the company has solar panels to produce energy for self-consumption.

The Production facility of Aceros Inoxidables Olarra is located in Loiu.



## Product information

**Product name:**

STAINLESS STEEL COLD - DRAWN BAR (GRADE 1.4305 / AISI 303)

**Product identification:**

STAINLESS STEEL COLD DRAWN BAR WITH HIGH CONTENT SULPHUR FOR MACHINING PROCESS.

GRADE UNDER EUROPEAN STANDARD: 1.4305

GRADE UNDER AMERICAN STANDARD: AISI 303

**Product description**

The 1.4305 / AISI 303 Stainless Steel bar is an austenitic grade with a high sulphur content designed to offer improved performance during the machining process. This improvement is achieved by intentionally created micro inclusions that help to lubricate the cutting tool.



Typical applications for this steel bar are very small parts such as nuts, bolts and screws, but it is also used for the production of gears, shafts...

Some of its properties are the following

- Austenitic structure stable at all temperatures
- Good cold and hot forming properties
- Better machinability
- Non-magnetic

The grades and technical characteristics of the product analysed are in accordance with the following standards:

- Quality 1. 4305 according to European standard EN 10088 Stainless steels - Part 1: List of stainless steels
- Quality AISI 303 according to American standard ASTM A582/ A582M-22 Standard Specification for Free-Machining Stainless Steel Bars

**UN CPC code:** UN CPC 412 - Products of iron or steel

**Geographical scope:** Spain

## LCA information

### Declared unit

1 tonne (1.000 kg) of fabricated bar

### Time representativeness

Primary data originated by Aceros Inoxidables Olarra, corresponds to the year 2022

### Database(s) and LCA software used

The database used was Ecoinvent 3.9 and the software used was SIMAPRO 9.5.01.

### Description of system boundaries

The system boundaries established in this study have been defined following the guidelines of the PCR 2023:01 version 1.0.2 Fabricated metal products, except construction products, applying the "cradle-to-gate" criterion.

### System diagram

The scope of life cycle of assessment (LCA) is cradle-to-gate, and therefore, this study includes the information from the Upstream and Core stages.

#### Upstream

- Extraction and production of raw material for all main parts of the product including packaging
- Recycling process of recycled material used in the product
- Production of consumer packaging
- Transportation of raw material to the upstream process (default information included in the indicators used)
- Generation of electricity and production of fuel (default information included in the indicators used)

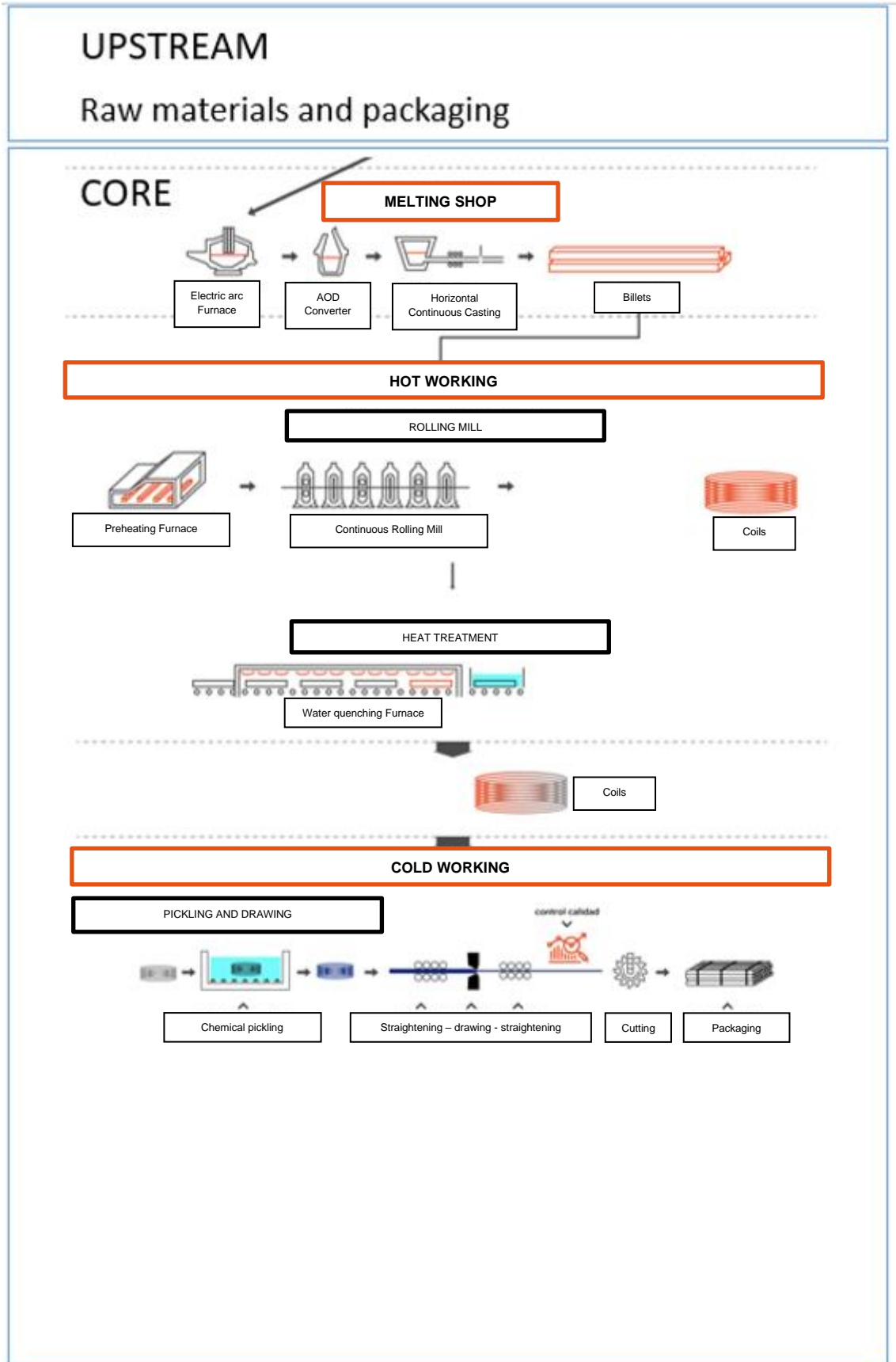
#### Core

- Manufacturing process; including the inflow of auxiliary materials and energy consumptions needed for the manufacturing of the product
- Transportation of the steel and other materials and components to the core process where the final manufacturing takes place
- End-of-life treatment of manufacturing waste
- Generation of electricity and production fuels, steam and other energy carries used

### Excluded lifecycle stages

The Downstream phase has not been included as the scope used for the study is "cradle-to-gate"; therefore, the transportation of the product to the retailer/consumer, the use and the end-of-life of the product have not been included.

**Manufacturing process**



## Content declaration

### Product

The bar is made of 100% stainless steel and its chemical composition corresponds to the quality 1.4305 according to EN 10088.

CHEMICAL COMPOSITION ACCORDING TO EN 10088		
	Min.	Max.
C		0,10
Si		1,00
Mn		2,00
P		0,045
S	0,15	0,35
Cr	17,0	19,0
Cu		1,00
Ni	8,0	10,00
N		0,10

None of the components are classified as dangerous.

### Packaging

The distribution packaging of the bar considered for this calculation is:

MATERIAL	%
Paper	32%
LDPE	68%
Total	100%

### Recycled material

The steel used for the manufacturing of the bar is 90% recycled since is mostly produced from scrap iron (pre- and post-consumer), and also includes recycled ferronickel.

The packaging has 92% recycled content.

## Results of the environmental performance indicators

### Impact category indicators

ENVIRONMENTAL IMPACT 1 tonne of fabricated bar		UPSTREAM	CORE	TOTAL
Global warming potential (GWP) - Fossil	kg CO2 eq	9,26E+02	1,12E+03	2,05E+03
Global Warming Potential (GWP) - Biogenic	kg CO2 eq	5,80E+00	5,46E+00	1,13E+01
Global warming potential (GWP) - Land use	kg CO2 eq	1,15E+00	9,90E-01	2,14E+00
<b>Global warming potential (GWP) - Total</b>	<b>kg CO2 eq</b>	<b>9,33E+02</b>	<b>1,13E+03</b>	<b>2,06E+03</b>
Ozone depletion (ODP)	kg CFC-11 eq	1,02E-05	3,60E-05	4,62E-05
Acidification (AP)	mol H+ eq	1,30E+01	2,97E+00	1,60E+01
Eutrophication (EP), freshwater	kg P eq	4,56E-02	2,06E-02	6,62E-02
Eutrophication (EP), marine	kg N eq	9,96E-01	6,26E-01	1,62E+00
Eutrophication (EP), terrestrial	mol N eq	1,12E+01	7,07E+00	1,83E+01
Photochemical ozone creation potential (POCP)	kg NMVOC eq	4,30E+00	2,91E+00	7,21E+00
Abiotic depletion potential (ADP) - minerals and metals	kg Sb eq	2,74E-02	1,75E-03	2,92E-02
Abiotic depletion potential (ADP)- fossil fuels	MJ	1,13E+04	1,83E+04	2,97E+04
Water deprivation potential (WDP)*	m3 eq depriv	3,09E+02	5,07E+02	8,16E+02

\* Disclaimer: 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.

The results for the Total Global Warming Potential (GWP-total) impact for 1 tonne of fabricated bar are:

ENVIRONMENTAL IMPACT 1 tonne of fabricated bar	UPSTREAM	CORE	TOTAL
Global warming potential (GWP) - Total (Kg CO2 eq)	933,10	1.127,93	2.061
Global warming potential (GWP) - Total (%)	45,27%	54,73%	100%

The total Global warming potential of 1 tonne of fabricated bar is 2.061 kg CO2 eq.

### Resource use indicators

Parameter 1 tonne of fabricated bar		UNIT	UPSTREAM	CORE	TOTAL
Primary energy resources – Renewable	Used as energy carrier	MJ	2,74E+03	1,90E+03	4,64E+03
	Used as raw materials	MJ	4,37E+00	0,00E+00	4,37E+00
	<b>TOTAL</b>	<b>MJ</b>	<b>2,74E+03</b>	<b>1,90E+03</b>	<b>4,64E+03</b>
Primary energy resources – Non-renewable	Used as energy carrier	MJ	1,13E+04	1,83E+04	2,96E+04
	Used as raw materials	MJ	2,42E+01	0,00E+00	2,42E+01
	<b>TOTAL</b>	<b>MJ</b>	<b>1,13E+04</b>	<b>1,83E+04</b>	<b>2,97E+04</b>

## References

- ISO 14040:2006. Environmental management — Life cycle assessment — Principles and framework.
- ISO 14044:2006. Environmental management — Life cycle assessment — Requirements and guidelines.
- ISO 14025:2006: Environmental labels and declarations. Type III environmental declarations. Principles and procedures.
- General Programme Instructions of the International EPD<sup>®</sup> System. Version 4.0
- Product Category Rules (PCR) 2023:01 Version 1.0.2: Fabricated Metal Products, Except Construction Products: UN CPC 412 - Products of iron or steel
- Aceros Inoxidables Olarra: <https://www.olarra.com/>

## VERIFICATION STATEMENT CERTIFICATE CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD10401

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:

**ACEROS INOXIDABLES OLARRA, S.A.**  
**Camino Larrabarri, 1**  
**48180 LOIU (Bizkaia) - SPAIN**

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

**STAINLESS STEEL COLD DRAWN BAR (GRADE 1.4305 / AISI 303)**  
**BARRA ESTIRADA EN FRÍO DE ACERO INOXIDABLE (CALIDAD 1.4305 / AISI 303)**

with registration number **S-P-13535** in the International EPD® System ([www.environdec.com](http://www.environdec.com)).  
con número de registro **S-P-13535** en el Sistema Internacional EPD® ([www.environdec.com](http://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 2023:01 Fabricated metal products, except construction products v 1.0.2**
- **UN CPC 412 Products of iron or steel.**

Issued date / Fecha de emisión:	07/05/2024
Update date / Fecha de actualización:	07/05/2024
Valid until / Válido hasta:	06/05/2029
Serial N° / N° Serie:	EPD1040100-E



Carlos Nazabal Alsua  
Manager

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