

Environmental Product Declaration

In accordance with ISO14025:2006



TUBOS REUNIDOS GROUP

SEAMLESS LOW ALLOY STEEL TUBE FOR OIL COUNTRY TUBULAR GOODS (O.C.T.G.) APPLICATIONS, PLAIN END (NOT THREADED)

Programme

The International EPD®
System
www.environdec.com

Programme operator
EPD International AB

**EPD registration
number**
EPD-IES-0015558

Publication date
2024-07-26

Revision date
2024-09-18

Valid until
2029-07-25



THE INTERNATIONAL EPD® SYSTEM



An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com.

Programme information

Programme: The International EPD® System www.environdec.com
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 EPD International AB
 Box 210 60
 SE-100 31 Stockholm
 Sweden

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

Product Category Rules (PCR)

PCR: Fabricated Metal Products, Except Construction Products, 2023:01, version 1.0.2

Product category classification: UN CPC 4128

PCR review was conducted by: The Technical Committee of the International EPD® System. A full list of members is available at www.environdec.com. The review panel may be contacted via info@environdec.com

Chair of the PCR review: Hüdai Kara

Life Cycle Assessment (LCA)

LCA accountability: IK-Ingenieria

Independent 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 verification: Tecnalia R&I Certification, SL

Auditor: Eva Larzabal Aperribay

info@tecnaliacertificacion.com

Accredited by: ENAC n°125/C-PR283 accreditation

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 of the EPD. EPDs within the same product category but from different programs 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison.



Company information

Owner of the EPD: **Tubos Reunidos Group SLU**

CONTACT DETAILS

Sagarribai s/n 01470 Amurrio, Álava, Spain
(+34) 945 89 71 00
www.tubosreunidosgroup.com

Geographical scope: Spain

DESCRIPTION OF THE ORGANISATION

Next Generation Tubes

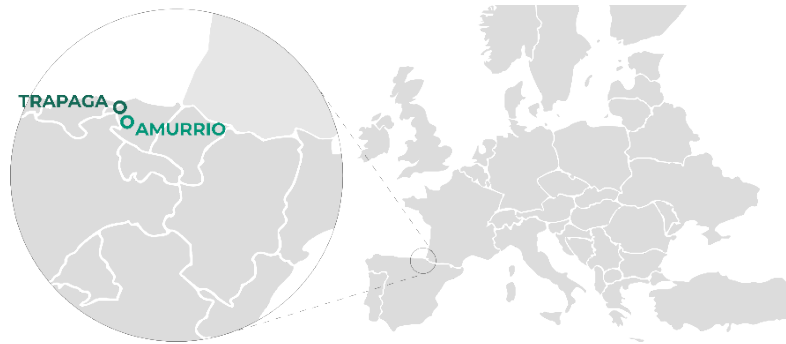
We develop and produce seamless steel tubes with special and complex requirements, designed and tailor-made for each and every customer in stainless steel as well as in high alloys, carbon grades and in Special finishings.

We meet and even exceed all the industrial processes and requirements of the energy sector (bioenergy, solar, wind, CCUS, hydrogen...), and we are also present in other sectors such as handling and lifting machinery, mobility and other industrial mechanical applications.

Our international presence in more than 100 countries and our vocation for excellence in service allows us to be closer to the needs of each client. We also combine 130 years of experience with an outstanding desire for innovation in products as well as in flexible and in integrated processes and management.

We are committed to sustainable development and work towards reducing our environmental footprint and to boosting our process circularity while providing solutions aimed to promote projects for the transition towards a decarbonized economy.





TUBOS Mill (Amurrio site)

Manufactures hot-rolled and cold-drawn seamless carbon and alloy steel tubes up to 13% Cr., for Energy industries like Oil&Gas, Petrochemical, Chemical, Power generation and energy transition industries as Hydrogen, CCUS, Biothermal, Biofuels. As well as other applications like Mobility, Construction and Mechanical Engineering.

Range of products

- **Hot rolled**, 26,7 mm to 180 mm in Ø and up to 25,1 m in length.
- **Cold drawn**, 15 mm to 118 mm in Ø and up to 20,1 m in length.

We also provide special finishing operations / conditions as: "U" bent, studded, finned tubes, coatings, etc.

This EPD refers to the product manufactured in Tubos Mill.



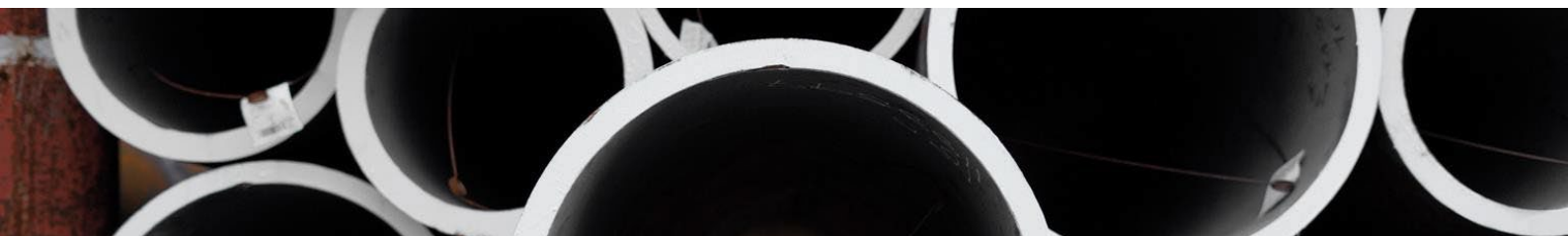
PRODUCTOS Mill (Sestao - Trápaga site)

Manufactures stainless, alloy and carbon steel seamless tubes.

We are manufacturers of Hot rolled Seamless Steel Tubes specialized in big sizes and heavy wall, mainly for structural and mechanical engineering, oil and gas, hydrogen, powergen, refineries, chemical, petrochemical and fertilizer plants, nuclear, offshore wind, among other.

Range of products

- **Outside diameter** 193 mm - 711 mm. 7 1/2" - 28"
- **Wall Thickness** 6,35 mm - 125 mm. 1/4" - 5"



Our International Network



2
R&D Centers

10
Countries with Sales Office

18
Countries with Sales Agency

Our Markets

ENERGY



Bioenergy



Hydrogen



Nuclear



Carbon Capture



Geothermal



Oil & Gas

INDUSTRY



Offshore Wind



Solar



Construction



Mobility



Engineering

Product information

PRODUCT NAME

Seamless Low Alloy Steel Tube for Oil Country Tubular Goods (O.C.T.G.) Applications, plain end (no threaded)

PRODUCT IDENTIFICATION

Seamless low alloy steel tubes for O.C.T.G.

PRODUCT DESCRIPTION

This EPD describes the seamless low alloy steel tube for oil country tubular goods applications, plain end (no threaded) produced by TRG.

The product corresponds to a low alloy steel tube continuously cast, seamless, and quenched and tempered. It covers the tubes for oil country tubular goods applications.

The technical characteristics of the products are according to standard specification **API 5CT**:

This standard specifies the technical delivery conditions for steel pipes (casing, tubing) and coupling stock.

CONSTRUCTIONAL DATA		
NAME	VALUE	UNIT
Yield strength at room temperature	>552	MPa
Tensile strength at room temperature	>655	MPa
Hardness	< 23	HRC
Impact test: absorbed energy	> 20	J

Next Generation Tubes

OUTSIDE DIAMETER	WALL THICKNESS	GRADE
60,3 - 200 mm	4 - 24,5 mm	API 5CT
Proprietary grades		
L80 1%Cr		
P110 MS1		
P110 MS2		



LCA information

DECLARED UNIT

1 ton (1000 kg) of fabricated tube

TIME REPRESENTATIVENESS

Primary data originated by TRG, corresponds to the year 2023.

The declared unit of "1 ton (1000 kg) of fabricated tube" has been calculated having into account all the annual inputs and outputs of the manufacturing process in the steel mill and rolling mill in Amurrio. This production represents a quality of tube with a specific path of manufacturing steps, which are inventoried in the Core of the present study.

For this study, 3 steel qualities have been taken into account for the fabricated tube, taking into account that the manufacturing site and the production processes involved are the same. Given that the variation of the environmental impact categories of these 3 qualities are greater than 10%, for each environmental impact category the highest result has been declared in accordance with the requirements set by the reference PCR.

DATABASE(S) AND LCA SOFTWARE USED

The database used was Ecoinvent 3.9.1 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
- 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 raw materials 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.

Additional technical information

General Manufacturing Specification

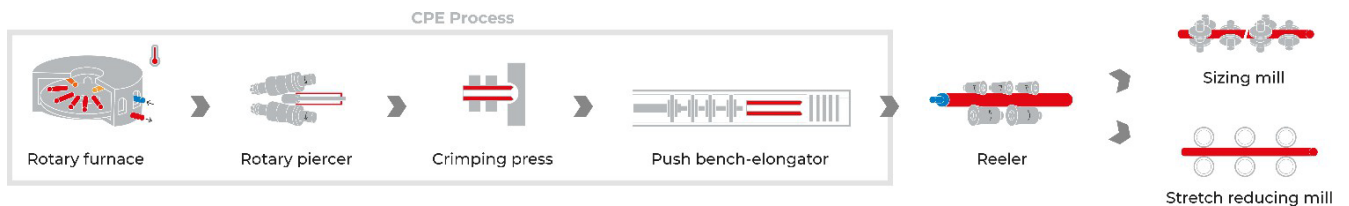
STEEL PRODUCTION

The steel used by TRG is produced in our own steel shops and comes from the melt of high-quality scrap; we have an electric process with EAF. From the furnace, the steel is transported to a ladle furnace to obtain the billets that feed the rolling facility.



ROLLING FACILITY

The billet gets to the furnace to achieve the appropriate temperature to follow the process: rotary piercer, crimping press, push bench elongator, reeler and finally to the walking beam furnace. After passing through the calibration press, we obtain the thickness rolling and diameter sizing in order to obtain the desired final dimensions.



FINISHING AND PACKING



The data for electricity generation for production were obtained from the specific electricity mix of the retailer, obtained from information published by the Comisión Nacional de los Mercados y la Competencia (CNMC), <https://gdo.cnmc.es/CNE/accesoEtiquetado.do>, and represent the company's energy consumption profile.

Content declaration

The tube is made from 100% steel, with following chemical composition for the qualities taking into account:

PRODUCT COMPONENT	SYMBOL	WT %
Carbon	C	<= 0,43
Manganese	Mn	<= 1,90
Silicon	Si	<= 0,45
Sulphur	S	<= 0,03
Phosphorus	P	<= 0,03
Chromium	Cr	<= 1,5
Nickel	Ni	<= 0,25
Copper	Cu	<= 0,35

The product does not contain, or release substances classified as hazardous according to Regulation (EC) No. 1907/2006 (REACH), and no component of the product is classified as hazardous according to Regulation (EC) No. 1272/2008 (CLP)

RECYCLED MATERIAL

TRG uses scrap steel as a raw material for this product, and the content of recycled material taking into account the steel qualities included in the EPD is 91,3% - 93,4%.

The packaging of the product does not contain recycled material.



Results of the environmental performance indicators

IMPACT CATEGORY INDICATORS

Results for the life cycle assessment per declared unit: "1 ton (1000 kg) of fabricated tube"

ENVIRONMENTAL IMPACT	UNIT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP) - Fossil	kg CO2 eq	1,93E+02	1,39E+03	1,58E+03
Global Warming Potential (GWP) - Biogenic	kg CO2 eq	-4,45E-02	2,98E+00	2,94E+00
Global warming potential (GWP) - Land use	kg CO2 eq	2,43E-01	2,35E+00	2,59E+00
Global warming potential (GWP) - Total	kg CO2 eq	1,93E+02	1,39E+03	1,59E+03
Acidification (AP)	mol H+ eq	2,34E+00	3,93E+00	6,27E+00
Eutrophication (EP), freshwater	kg P eq	2,97E-02	2,48E-02	5,45E-02
Eutrophication (EP), marine	kg N eq	4,60E-01	8,66E-01	1,33E+00
Eutrophication (EP), terrestrial	mol N eq	6,29E+00	9,39E+00	1,57E+01
Photochemical ozone creation potential (POCP)	kg NMVOC eq	1,60E+00	3,90E+00	5,50E+00
Ozone depletion (ODP)	kg CFC-11 eq	2,77E-06	3,31E-05	3,59E-05
Abiotic depletion potential (ADP) - minerals and metals*	kg Sb eq	1,32E-01	1,45E-03	1,33E-01
Abiotic depletion potential (ADP)- fossil fuels*	MJ	2,35E+03	2,70E+04	2,94E+04
Water deprivation potential (WDP)*	m3 eq depriv.	9,21E+01	6,16E+02	7,09E+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) impact for 1 ton of fabricated tube are:

ENVIRONMENTAL IMPACT	UPSTREAM	CORE	TOTAL
Global warming potential (GWP) - Total	193	1.395	1.588
Climate warming potential (GWP) - Total (%)	12,2%	87,8%	100%

The total Global warming potential of 1 ton of fabricated tube is 1.588 kg CO2 eq.

RESOURCE USE INDICATORS

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3,23E+02	1,42E+03	1,74E+03
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	3,23E+02	1,42E+03	1,74E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	2,35E+03	2,70E+04	2,94E+04
	Used as raw materials	MJ, net calorific value	1,14E+00	0,00E+00	1,14E+00
	TOTAL	MJ, net calorific value	2,35E+03	2,70E+04	2,94E+04

Additional environmental information

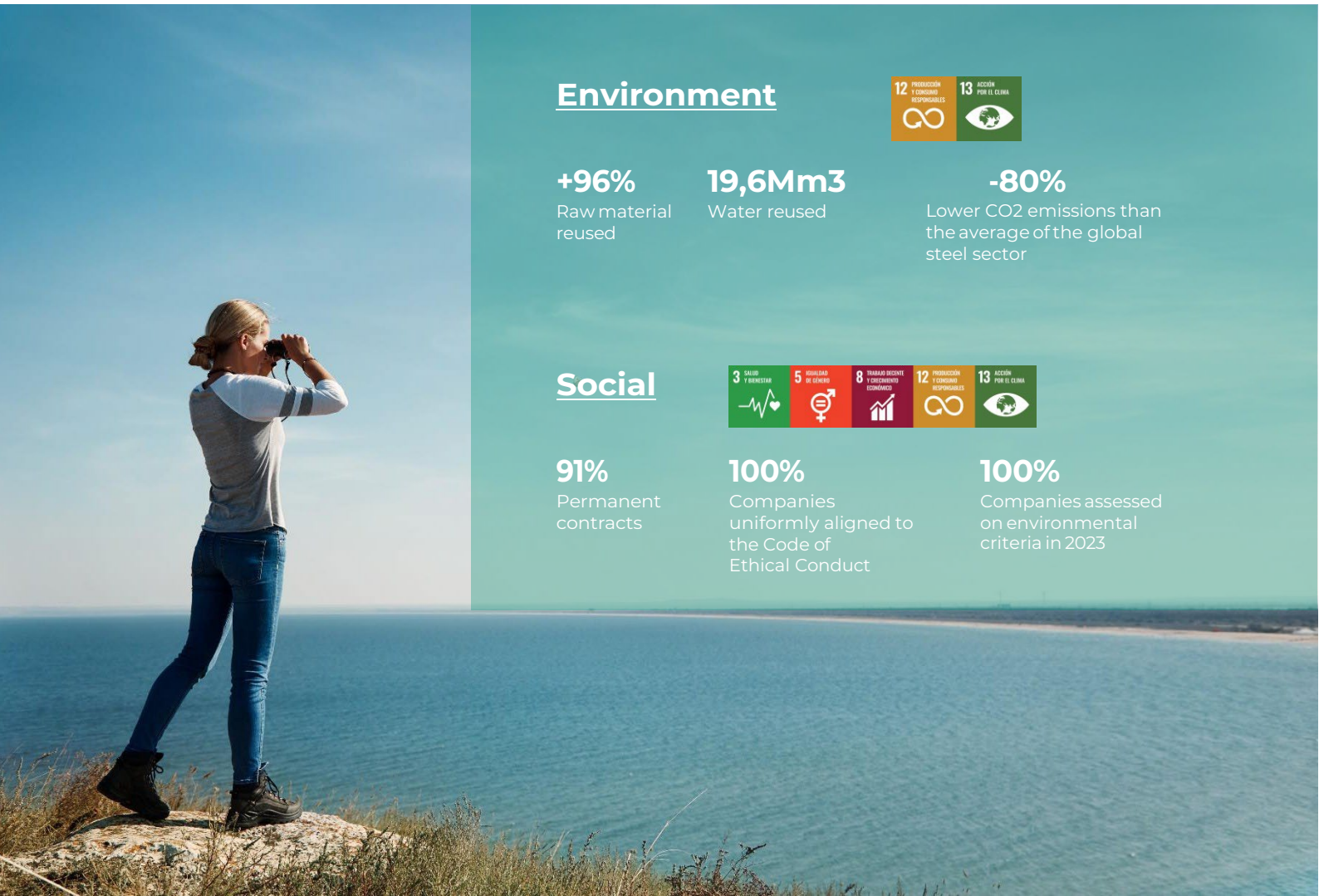
EAF base integrated Steel and Rolling seamless tube mills, in a sustainable, flexible and efficient process, enable us to offer tailor made solutions for each customer in the most demanding market applications.

<p><300k</p> <p>Tons of hot-rolling capacity at the Amurrio plant</p>	<p><30k</p> <p>Tons of cold-rolling capacity at the Amurrio plant</p>	<p><55k</p> <p>Tons of production capacity at the Trapaga plant</p>
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TRG is building a very strong management system for the improvement of all the processes based on a sustainable master plan that feeds the TRG Strategic Plan. This match reflects the common pathway of the Group that shares production and environmental culture, with focus on safety and security.

TRG is focused in strategic KPIs to follow all the objectives that must be considered for the correct development of the Sustainable Pathway, that has a longer route than the Strategic Plan currently set on the Company.

The Group is hardly working in the development of efficiency processes, renewable energy, waste valorisation and other environmental topics, that are monitored by the General Manager.



Environment



<p>+96%</p> <p>Raw material reused</p>	<p>19,6Mm3</p> <p>Water reused</p>	<p>-80%</p> <p>Lower CO2 emissions than the average of the global steel sector</p>
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Social



<p>91%</p> <p>Permanent contracts</p>	<p>100%</p> <p>Companies uniformly aligned to the Code of Ethical Conduct</p>	<p>100%</p> <p>Companies assessed on environmental criteria in 2023</p>
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Differences versus previous versions

The differences versus previous versions are:

- Revision date paragraph among first publication and valid until. We include the Revision Date 2024.09.18
- Elimination the duplicate “steel casting” that has been included twice (page 9)
- Correction of word “hidraulic” to “hydraulic” (page 9)

References

- TRG: <https://www.tubosreunidosgroup.com/es/home>
- 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® System. Version 4.0
- Product Category Rules (PCR) 2023:01 Version 1.0.2: Fabricated Metal Products, Except Construction Products: UN CPC 4128 – Tubes, pipes and hollow profiles of steel



