

Environmental Product Declaration

In accordance with ISO14025:2006



TUBOS REUNIDOS GROUP SEAMLESS CARBON STEEL TUBES FOR MECHANICAL, INDUSTRIAL AND STRUCTURAL APPLICATIONS

Programme

The International EPD®
System

www.environdec.com

Programme operator

EPD International AB

EPD registration number

S-P-11701

Publication date

2023-12-20

Valid until

2028-12-19



Programme information

Programme:	The International EPD® System	www.environdec.com info@environdec.com
	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-Ingeniería

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 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.



Company information

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

CONTACT DETAILS

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

Geographical scope: Spain

DESCRIPTION OF THE ORGANISATION

Next Generation Tubes

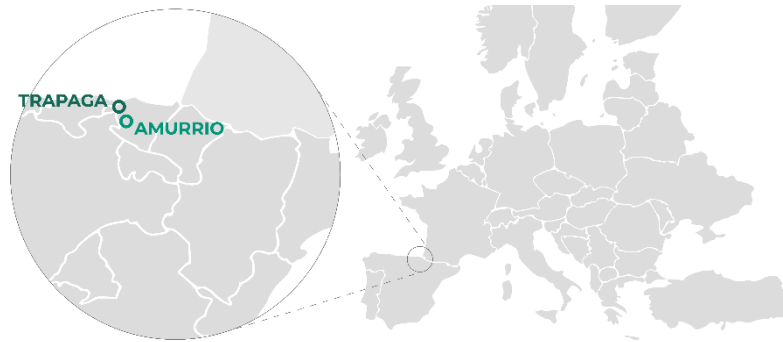
We develop and produce seamless steel tubes with special and complex requirements, designed and tailor-made for each and every customer in stainless steel as well as in high alloys, carbon grades and in Special finishings.

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.



PRODUCTOS Mill (Sestao - Trápaga site)

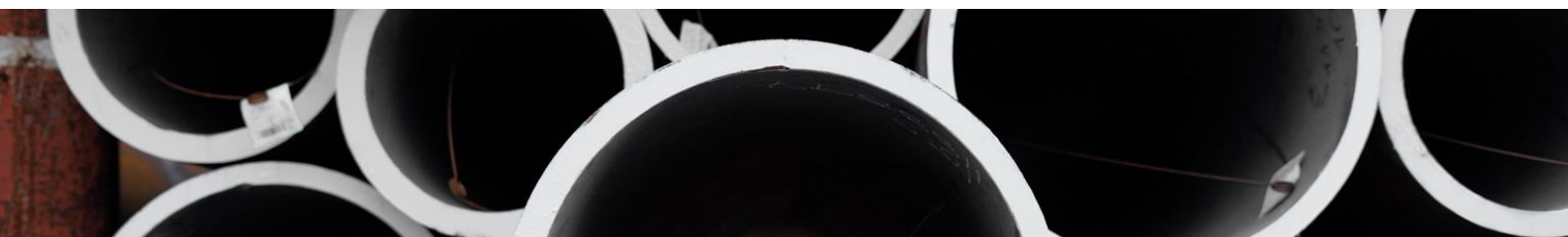
Manufactures stainless, alloy and carbon steel seamless tubes.

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"

This EPD refers to the product manufactured in Productos Mill.



Our International Network



2
R&D Centres

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 Carbon Steel Tubes and Pipes for Mechanical, Industrial and Structural applications

PRODUCT IDENTIFICATION

Seamless carbon steel tubes and pipes.

PRODUCT DESCRIPTION

This EPD describes the seamless carbon steel tubes for mechanical, industrial and structural purposes produced by TRG.

The product corresponds to a carbon steel tube cast in ingot molds, seamless, hot-rolled and with an electric furnace normalizing process. It covers the tubes for mechanical and structural purposes. These tubes may also have more general-purpose applications.

The technical characteristics of the products are according to the following standards:

- EN 10025 Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels.
- EN 10210-1/-2 Hot rolled products of structural steels - Part 2: Technical delivery conditions for non-alloy structural steels.
- EN 10216-3 Seamless steel tubes for pressure purposes - Technical delivery conditions - Part 3: Alloy fine grain steel tubes.
- EN 10225 Gas welding equipment - Marking for equipment used for gas welding, cutting and allied processes.
- EN 10225-3 Weldable structural steels for fixed offshore structures - Technical delivery conditions - Part 3: Hot finished hollow sections.
- EN 10297 Seamless circular steel tubes for mechanical and general engineering purposes - Technical delivery conditions - Part 1: Non-alloy and alloy steel tubes.

CONSTRUCTIONAL DATA

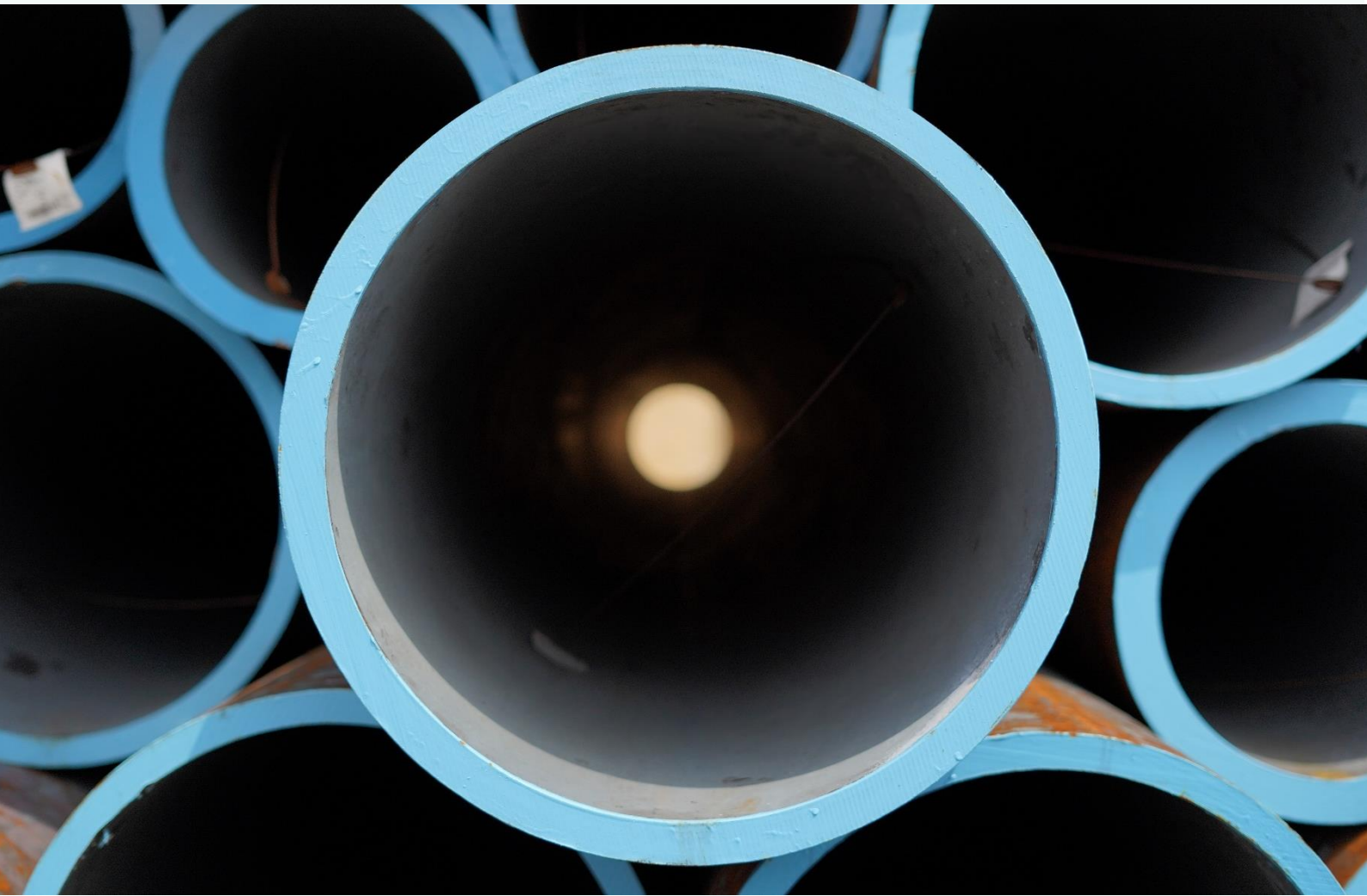
NAME	VALUE	UNIT
Yield strength at room temperature (min)	355*	N/mm ²
Tensile strength at room temperature	450 - 680	N/mm ²
Elongation at room temperature (min)	22	%
Minimum average absorbed energy	27	Joule 20°C

*For wall thickness below 16"

Next Generation Tubes

OUTSIDE DIAMETER	WALL THICKNESS	GRADE
8"-28"	0,5"-5"	EN 10025 S355J2G3 S355JR
		EN10216-3 P355N P355NH P355NL1 P355NL2
		EN10210-1-2 S355H0H S355JH2 S355K2H S355NH S355NLH
		EN10225 S355G14 S355G15
		EN10225-3 S355NHHO S355NLHHO
		EN10297 E355K2

UN CPC code: 4128 - Tube, pipes and hollow profiles of steel



LCA information

DECLARED UNIT

1 ton (1000 kg) of fabricated tube

TIME REPRESENTATIVENESS

Primary data originated by TRG, corresponds to the year 2022.

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 plants of Sestao (steel mill) and Trapaga (rolling mill). This production represents a quality of tube with a specific path of manufacturing steps, which are inventoried in the Core of the present study.

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

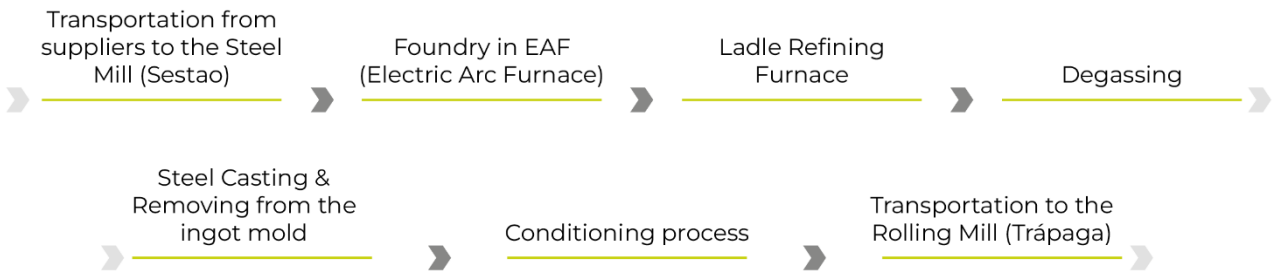
- Extraction and production of raw material for all main parts of the product.
- Recycling process of recycled material used in the product.
- Transportation of raw material to the upstream process (default information included in the indicators used).
- Generation of electricity and production of fuel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

CORE

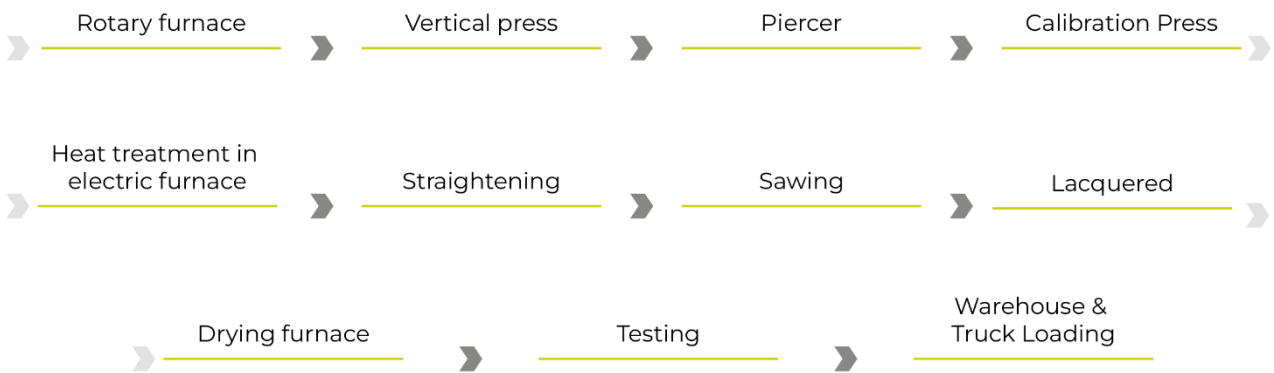
- Manufacturing process; including the inflow of auxiliary materials and energy consumptions needed for the manufacturing of the product.
- Transportation of the steel raw materials and other materials and components to the core process where the final manufacturing takes place.
- End-of-life treatment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



CORE | Sestao



CORE | Trápaga



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 tube to the retailer/consumer, the use and the end-of-life of the product have not been included.

The tubes are not packaged for its delivery, and therefore no packaging was included in the study.

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 and also a vacuum degasser to obtain the ingot bars that feed the rolling facility. The steel is produced in Sestao and the ingots are transported to Trápaga, which is 1,5 km far.



ROLLING FACILITY

The ingots get to the furnace to achieve the appropriate temperature to follow the process: vertical press, piercer and pilgering. After passing through the calibration press, we obtain the thickness rolling and diameter sizing in order to obtain the desired final dimensions.



HEAT TREATMENTS

We are working in the effectiveness of our heat treatments before the finishing lines in order to improve day by day the performance of our tubes and to be stronger in our way to a better sustainable process with less emissions, less consumptions and higher efficiency.

The heat treatment process is continually being improved, to meet the needs of the clients, to walk with them in their energy transition through innovative and sustainable tubular solutions.

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:

PRODUCT COMPONENT	SYMBOL	WT	
CARBON	C	%	0,13 - 0,18
MANGANESE	Mn	%	1,45 - 1,55
SILICON	Si	%	0,15 - 0,40
PHOSPHORUS	P	%	< 0,03
SULPHUR	S	%	< 0,01
CHROMIUM	Cr	%	< 0,30
NICKEL	Ni	%	< 0,50
MOLYBDENUM	Mo	%	< 0,08
VANADIUM	V	%	0,05 - 0,07
ALUMINIUM	Al	%	0,02 - 0,03
TITANIUM	Ti	%	< 0,01
NIOBIUM	Nb	%	< 0,03
CUPPER	Cu	%	< 0,30
TIN	Sn	%	< 0,03
NITROGEN	N	ppm	120
Ce	C.E.	%	< 0,50
Cr+Cu+Mo		%	< 0,45
Nb+Ti+V		%	< 0,12

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 is 91,73%.



91,73%
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	1,75E+02	1,22E+03	1,39E+03
Global Warming Potential (GWP) - Biogenic	kg CO2 eq	4,23E-01	1,78E+00	2,21E+00
Global warming potential (GWP) - Land use	kg CO2 eq	3,04E-01	1,46E+00	1,76E+00
Global warming potential (GWP) - Total	kg CO2 eq	1,76E+02	1,22E+03	1,40E+03
Acidification (AP)	mol H+ eq	1,40E+00	3,02E+00	4,42E+00
Eutrophication (EP), freshwater	kg P eq	7,87E-03	1,92E-02	2,71E-02
Eutrophication (EP), marine	kg N eq	2,98E-01	6,74E-01	9,72E-01
Eutrophication (EP), terrestrial	mol N eq	3,36E+00	7,42E+00	1,08E+01
Photochemical ozone creation potential (POCP)	kg NMVOC eq	1,02E+00	3,08E+00	4,10E+00
Ozone depletion (ODP)	kg CFC-11 eq	1,89E-06	3,03E-05	3,22E-05
Abiotic depletion potential (ADP) - minerals and metals	kg Sb eq	3,00E-03	1,01E-03	4,01E-03
Abiotic depletion potential (ADP)- fossil fuels	MJ	2,06E+03	2,16E+04	2,37E+04
Water deprivation potential (WDP)	m3 eq depriv.	3,04E+01	4,92E+02	5,23E+02

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	176	1.222	1.398
Climate warming potential (GWP) - Total (%)	12,6%	87,4%	100%

The total Global warming potential of 1 ton of fabricated tube is 1.398 kg CO2 eq.

RESOURCE USE INDICATORS

PARAMETER	UNIT	UPSTREAM	CORE	TOTAL	
Primary energy resources – Renewable	Use as energy carrier	MJ, net calorific value	3,99E+02	6,23E+02	1,02E+03
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	3,99E+02	6,23E+02	1,02E+03
Primary energy resources – Non-renewable	Use as energy carrier	MJ, net calorific value	2,06E+03	2,16E+04	2,37E+04
	Used as raw materials	MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific value	2,06E+03	2,16E+04	2,37E+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.

<300k

Tons of hot-rolling capacity at the Amurrio plant

<30k

Tons of cold-rolling capacity at the Amurrio plant

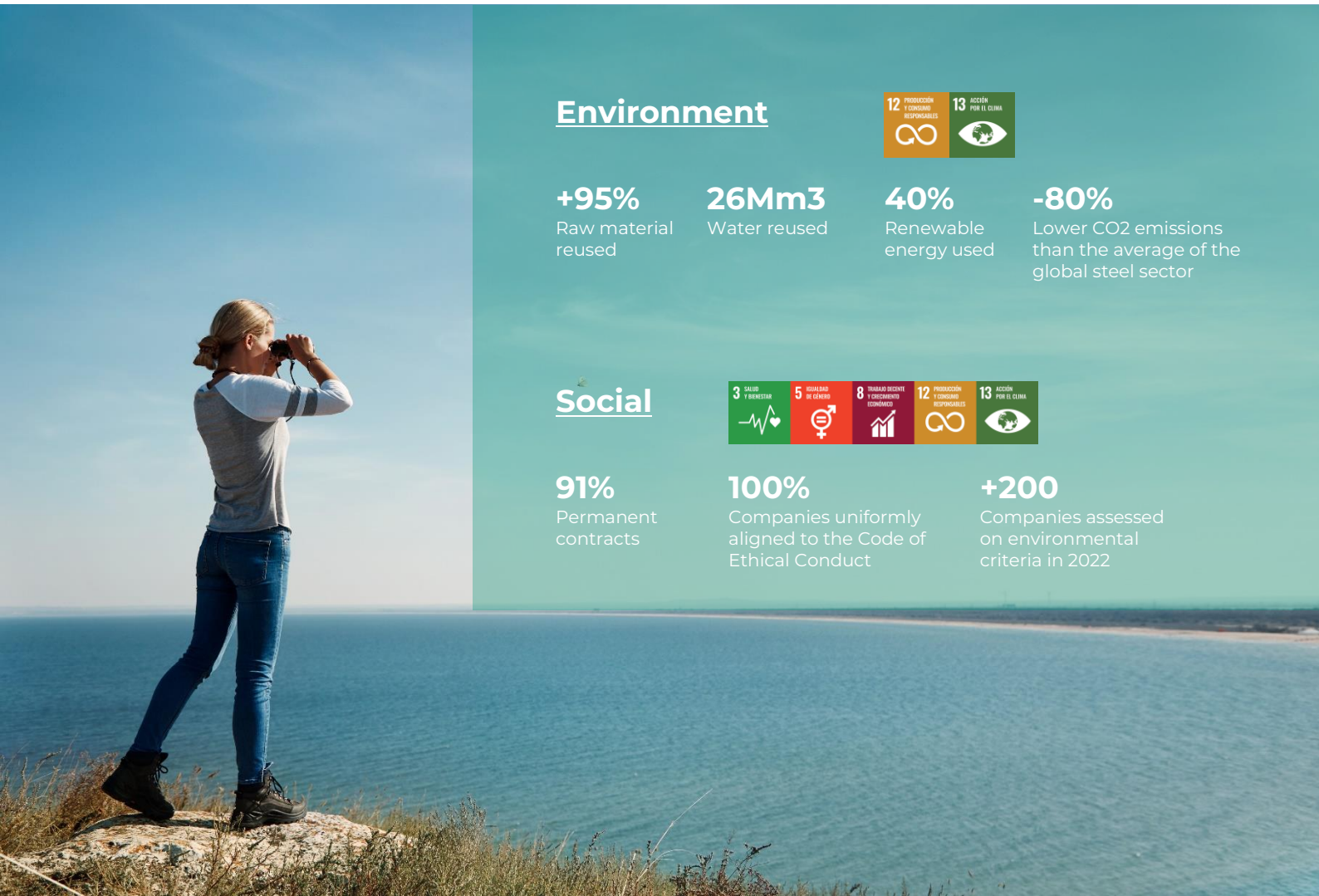
<55k

Tons of production capacity at the Trapaga plant

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 Manger.



Environment



+95%
Raw material reused

26Mm3
Water reused

40%
Renewable energy used

-80%
Lower CO2 emissions than the average of the global steel sector

Social



91%
Permanent contracts

100%
Companies uniformly aligned to the Code of Ethical Conduct

+200
Companies assessed on environmental criteria in 2022

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



VERIFICATION STATEMENT CERTIFICATE CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD09901

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:

TUBOS REUNIDOS GROUP, S.L.U.
Barrio Sagarribai, 2
01470 AMURRIO (Álava) - SPAIN

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

Seamless carbon steel tubes for mechanical, industrial and structural applications
Tubos de acero al carbono sin soldadura para aplicaciones de ingeniería mecánica, industrial y estructural

with registration number **S-P-11701** in the International EPD® System (www.environdec.com).
con número de registro **S-P-11701** en el Sistema Internacional EPD® (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 4128 Tube, pipes and hollow profiles of steel.**

Issued date / Fecha de emisión: 20/12/2023
Update date / Fecha de actualización: 20/12/2023
Valid until / Válido hasta: 19/12/2028
Serial Nº / Nº Serie: EPD0990100-E



Carlos Nazabal Alsua
Manager



This certificate is not valid without its related EPD.
Este certificado no es válido sin su correspondiente EPD.

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