

ENVIRONMENTAL PRODUCT DECLARATION STEEL BILLETS

BASED ON

PCR 2015:03 v2.1

PROGRAMME

The International EPD System
www.environdec.com

In accordance with
ISO 14025

REGISTRATION NUMBER

EPD-IES-0015253

REGISTRATION DATE

(first issue)
09/09/2024

VALID UNTIL

09/09/2029

CPC CODE

411

MANUFACTURING SITE

TRAVI E PROFILATI DI
PALLANZENO SPA
Via Sempione, 7 28884
San Zeno (BS) - ITALY

GENERAL INFORMATION

EPD REFERENCES

EPD OWNER: Part of Duferco Travi e Profilati SpA Via Armando Diaz, 248 25010 San Zeno Naviglio (BS) ITALY

PROGRAM OPERATOR: EPD international ab, box 21060, Se-100 31 Stockholm, Sweden; info@environdec.com

INDEPENDENT VERIFICATION

The declaration has been developed referring to the International EPD® System, following the General Programme Instructions v3.0. Further information and the document itself are available at: www.environdec.com.

EPD document valid within the following geographical area: Europe according to sales market conditions

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)

Product Category Rules (PCR): PCR 2015:03 Basic iron v2.1 - CPC Code 411: PCR review conducted by: The Technical Committee of the International EPD® System - www.environdec.com/TC.
Review chair: Gorka Benito Alonso, IK INGENIERIA, g.benito@ik-ingenieria.com. The review panel may be contacted via the Secretariat at www.environdec.com/contact.

Product-related or management system-related certifications:

[e.g. ISO 14024 Type I environmental labels, ISO 9001- and 14001-certificates, EMAS-registrations, SA 8000, supply chain management and social responsibility]

Name and location of production sites: San Zeno Naviglio (BS)

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

☒ EPD verification by accredited certification body

THIRD PARTY VERIFIER: RINA Services S.p.A. - ACCREDIA (Registration number 0002VV)
Is an approved certification body accountable for the third-party verification.

The certification body is accredited by: ACCREDIA (Registration number 0002VV)

Approved by: The Technical Committee of the International EPD® System

Procedure for follow-up during EPD validity involves third party verifier:

☐ YES ☒ NO

CONTACTS

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Technical support to Duferco was provided by Life Cycle Engineering, Italy
(info@studiolce.it, www.lcengineering.eu).



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.

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.

THE COMPANY

Description of the organisation

Duferco Travi e Profilati S.p.A. (DTP) is a leading steel group that specializes in the production of beams, special quality steels, special profiles, and long products.

The Company's history

The Company's history originates with the former Ferdofin Siderurgica, a renowned Italian steel manufacturer, which was acquired by the Duferco Group in 1996.

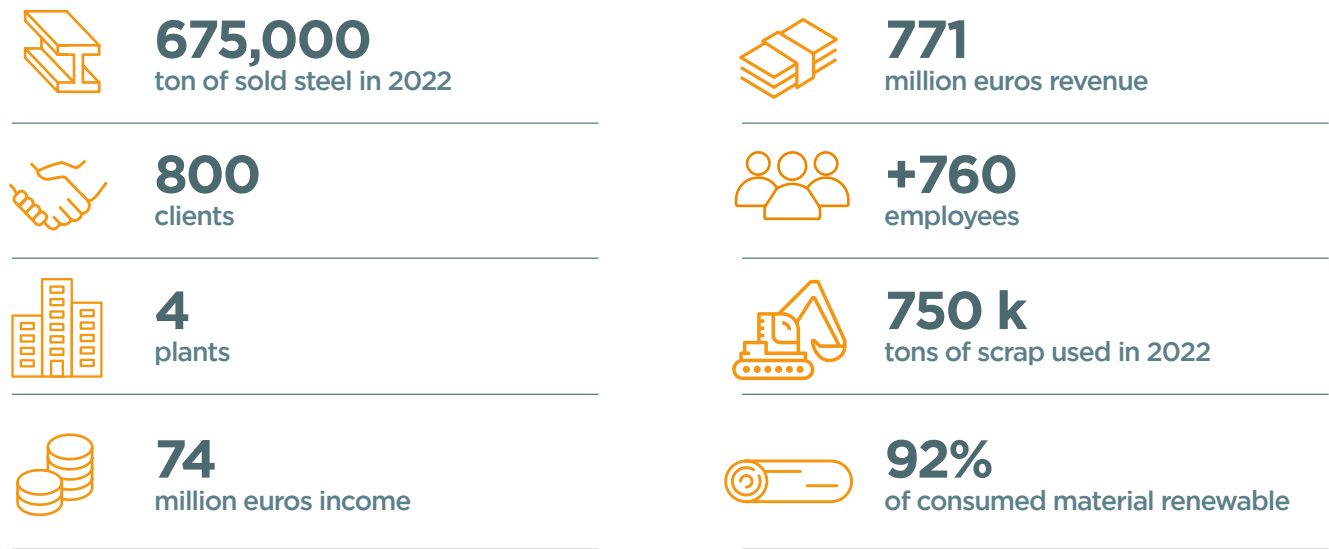
Leveraging its extensive industry expertise, Duferco took control of operations in all Company's sites and renamed the Company as Duferdofin. In 2008, Duferco Group established a strategic alliance with Nucor, a global player in the steel sector. This partnership created a real benchmark in Italy, Europe, and North Africa.

In December 2020, the partnership concluded, and the Company is now entirely owned by Duferco and operates as Duferco Travi e Profilati. DTP now boasts an extensive customer portfolio, serving approximately 800 customers across 60 countries worldwide. Through a skillful combination of know-how, advanced technologies, and a dedicated workforce, a strong and interconnected system of companies has been established within Duferco Travi e Profilati. Together, these companies form an integrated group that leverages synergies in the production of rolled products. This integration allows for competitive costs and minimal environmental impact.

The Group has **four plants** for the different stages of production of steel products. **San Zeno Naviglio**, near Brescia, is where the steel mill is located, the melting of ferrous scrap takes place for the production of semi-finished products intended to be processed in the rolling mills of **Pallanzeno** (Verbania, North Italy) and **Giammoro** (Messina, South Italy). The first one specialized in small and medium range and the second is specialized in medium and large sized range. **San Giovanni Valdarno** (Tuscany) is the mechanical division of the Group, the rolled products of the other plants become track shoes for earth moving machines.

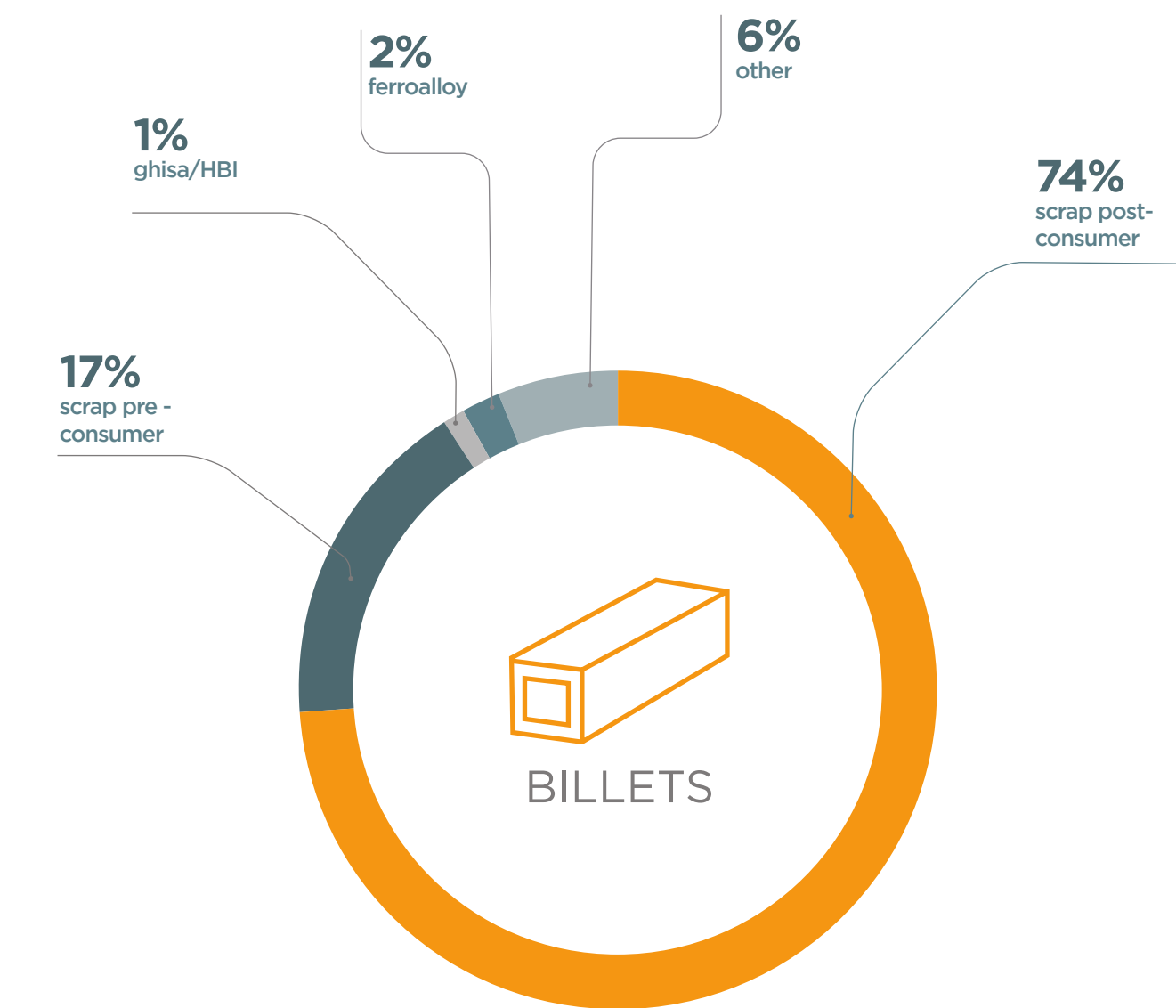


Numbers



PRODUCT INFORMATION

UN CPC CODE: 411 Basic iron and steel
GEOGRAPHICAL SCOPE: Europe



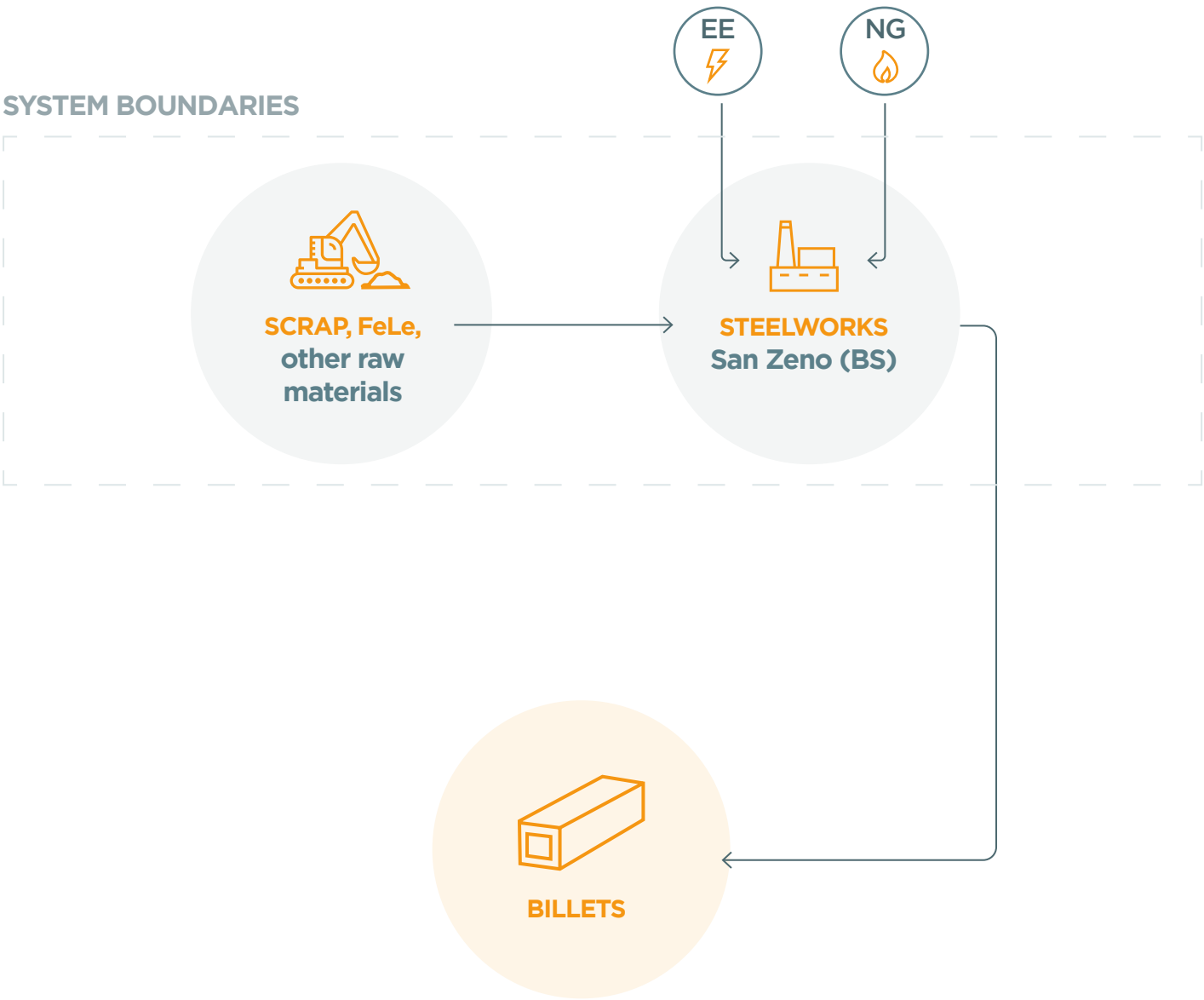
The product does not contain substances dangerous to the senses of REACH*.

Minimum content of 74% of post-consumer recycled material, ISO 14021 method, IGQ cert. n. C090, 20XX-XX-XX

*Regulation (EC) n.1907/2006 of the European Parliament and of Council of 18 December 2006 on registration, evaluation, Authorization and restriction of chemicals.

INFORMATION	DESCRIPTION
PRODUCT IDENTIFICATION	Steel billets, blooms and rounds
PRODUCT FEATURES	Steel in different qualities: Structural steel, Carbon steel, Alloy steels for quenching and tempering, Low Alloy steel, Case-hardening steel, Boron steel, steel for pressure purposes, Special steel.
PRODUCT PROPERTIES	Semi-finished products are produced in San Zeno Naviglio steel plant through a continuous casting process.
	Size of products (mm): Square section: 160x160, 200x200, 230x230, 260x260, 280x280. Rectangular section: 300x400 Dog bone: 520x400 Round section: Ø 220, 280, 350, 405, 500.
	Billets and blooms are produced for our rolling mills of Pallanzeno, Giammoro and San Zeno as well as dedicated to the sale to third party customers. Final applications may vary from constructions to hot and cold forming, from Oil & Gas to renewable energy, from mechanics to automotive.
PLANT FEATURES	The steel plant in San Zeno Naviglio is the main plant of the Group, with an extension of roughly 475.000 m2 and a production capacity of about 950.000 tons of steel per year. The plant includes an electric furnace, two refining furnaces, a vacuum degasser, two continuous casting machines and related auxiliary services.

PRODUCTION PROCESS



ENVIRONMENTAL RESULTS

The detailed environmental performance (in terms of use of resources, waste generation, potential environmental impacts) is presented for the two phases required by reference PCR:

UPSTREAM Process, CORE Process

According to PCR 2015:03 the values in the Total column are the sum of columns related to Upstream and Core modules

Declared unit (D.U.)

1 ton of steel billets

ENVIRONMENTAL IMPACTS			STEEL BILLETS		
PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Global Warming Potential (GWP)	Fossil	kg CO ₂ eq	3,40E+02	2,61E+02	6,01E+02
	Biogenic	kg CO ₂ eq.	5,91E-01	4,67E-01	1,06E+00
	Land use and land trasformation	kg CO ₂ eq.	2,04E-01	1,20E-02	2,16E-01
	TOTAL	kg CO ₂ eq.	3,41E+02	2,62E+02	6,02E+02
Acidification Potential (AP)		kg SO ₂ eq.	1,37E+00	6,61E-01	2,03E+00
Eutrophication Potential (EP)		kg PO ₄ ³ eq.	3,92E+00	1,62E+00	5,53E+00
Photochemical Ozone Creation Potential (POCP)		kg NMVOC eq.	1,44E+00	6,89E-01	2,13E+00
Abiotic Depletion Potential - Elements (ADPe)		kg Sb eq.	2,04E-03	2,94E-06	2,04E-03
Abiotic Depletion Potential - Fossil Fuels (ADPF)		MJ, net calorific value	4,15E+03	3,72E+03	7,86E+03
Water Scarcity Potential (WDP)		m ³ eq	1,45E+02	5,58E+01	2,00E+02

ENVIRONMENTAL RESULTS

USE OF RESOURCES			STEEL BILLETS		
PARAMETER		UNIT	UPSTREAM	CORE	TOTAL
Primary Energy Resources (PERE) Renewable	Use as energy carrier	MJ, net calorific vakue	4,53E+02	1,10E+03	1,55E+03
	Used as raw materials	MJ, net calorific vakue	0,00E+00	0,00E+00	0,00E+00
	TOTAL	MJ, net calorific vakue	4,53E+02	1,10E+03	1,55E+03
Primary energy resources (PENRE) Not Renewable	Use as energy carrier	MJ, net calorific vakue	4,98E+03	4,32E+03	9,30E+03
	Used as raw materials	MJ, net calorific vakue	1,11E+02	0,00E+00	1,11E+02
	TOTAL	MJ, net calorific vakue	5,09E+03	4,32E+03	9,42E+03
Secondary Material (SM)		kg	1,13E+03	0,00E+00	1,13E+03
Renewable Secondary Fuels (RSF)		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Non - Renewable Secondary Fuels (NRSF)		MJ, net calorific value	0,00E+00	0,00E+00	0,00E+00
Net Use of Fresh Water (NUFW)		m ³ eq	4,35E+00	1,65E+00	5,99E+00

*The trapped carbon in the steel is in such minimal quantity that is not relevant

ENVIRONMENTAL RESULTS

WASTE PRODUCTION AND OUTPUT FLOWS		STEEL BILLETS		
IMPACT CATEGORY	UNIT	UPSTREAM	CORE	TOTAL
Hazardous Waste Disposed (HWD)	kg	3,14E-02	1,28E-02	4,42E-02
Non-Hazardous Waste Disposed (NHWD)	kg	6,34E+01	6,31E+01	1,26E+02
Radioactive Waste Disposed (RWD)	kg	8,98E-03	5,04E-03	1,40E-02
Components for Re-Use (CRU)	kg	0,00E+00	0,00E+00	0,00E+00
Material for Recycling (MFR)	kg	0,00E+00	0,00E+00	0,00E+00
Materials for Energy Recovery (MER)	kg	0,00E+00	2,55E+01	2,55E+01
Exported Energy Electricity (EEE)	MJ	0,00E+00	0,00E+00	0,00E+00
Exported Energy Thermal (EET)	MJ	0,00E+00	0,00E+00	0,00E+00

SYSTEM BOUNDARIES

DECLARED UNIT: 1 ton of steel billets
TIME REPRESENTATIVENESS: 2023
DATABASE AND LCA SOFTWARE USED: SimaPro 9.5.0.0 and Ecoinvent 3.9, method compliant EF3.1
DESCRIPTION OF SYSTEM BOUNDARIES: Cradle-to-gate

THE LCA STUDY INCLUDES ALL THE PROCESSES ACCORDING TO PCR 2015:03



LCA METHODOLOGY

The site-specific data of the billet and profile production phase were provided by **SAN ZENO DEL NAVIGLIO (BS), DUFERCO TRAVI E PROFILATI DI PALLANZENO SpA.**

The **upstream and downstream processes** were modeled based on data from the Ecoinvent 3.9 database. The contribution of proxy data on the final results is less than 10% for each impact category. Packaging of raw materials and auxiliaries, infrastructure and business travels are excluded.

The electricity mix used in this study is partially covered by Guarantees of Origin and partially comes from Italy residual mix from Ecoinvent 3.9, the final GWP-GHG is 0,345 kgCO₂e/kWh.

CALCULATION RULES

UPSTREAM
PROCESS



CORE
PROCESS



STEEL SCRAP
COLLECTION



RAW MATERIAL
TRANSPORTATION TO
MANUFACTURING SITE



PRE TREATMENT OF
SCRAP INTERNALLY
PRODUCED



TREATMENT OF WASTE
GENERATED BY UPSTREAM
PROCESSES

CALCULATION RULES

UPSTREAM
PROCESS



CORE
PROCESS



SCRAP MELTING
IN THE EAF



PROCESS ENERGY,
INCLUDING HIGH
VOLTAGE GRID
ELECTRICITY AND
NATURAL GAS



STEEL PRODUCTION
AND BILLETS
CHEMISTRY REFINING

SUPPLEMENTARY INFORMATIONS

121 000 MWh Guarantee of Origins have been purchased in 2024 to cover most of the steel shop electricity consumptions with renewables.

In addition to the foregoing, 150.000 MWh Guarantee of Origins have been purchased in 2023 to ensure that all electricity consumption will be covered next year.

Due to these facts, it is possible to estimate that the Global Warming Potential total will be dropped down of about 50% for modules A1:A3 switching to approx. 410 kgCO₂e/t of product.

REFERENCES

- General Programme Instructions of the International EPD® System. Version 3.1.
- PCR 2015:03 basic iron or steel products & special steels, except construction steel products v2.1.1
- ISO 14040:2006/Amd 1:2020
- ISO 14044:2006/Amd 1:2017/Amd 2:2020
- ISO 14025:2010
- Bo P. Weidema & Gregory A. Norris, “Avoiding co-product allocation in the metals sector”, 2002
- AA. VV., A methodology to determine LCI of steel industry co-products, 2014
- www.ecoinvent.org
- Studio LCA rev.1 del 31.05.2024



www.dufercotp.com