



ENVIRONMENTAL PRODUCT DECLARATION

EN

In accordance with
UNI EN ISO 14025 and
EN 15804:2012+A2:2019 for:

**STAINLESS STEEL HOT ROLLED &
COLD ROLLED PRODUCTS**

From
Marcegaglia Specialties S.p.A.

Programme:

The International EPD® System
www.environdec.com

Programme operator:

EPD International AB

EPD registration number:

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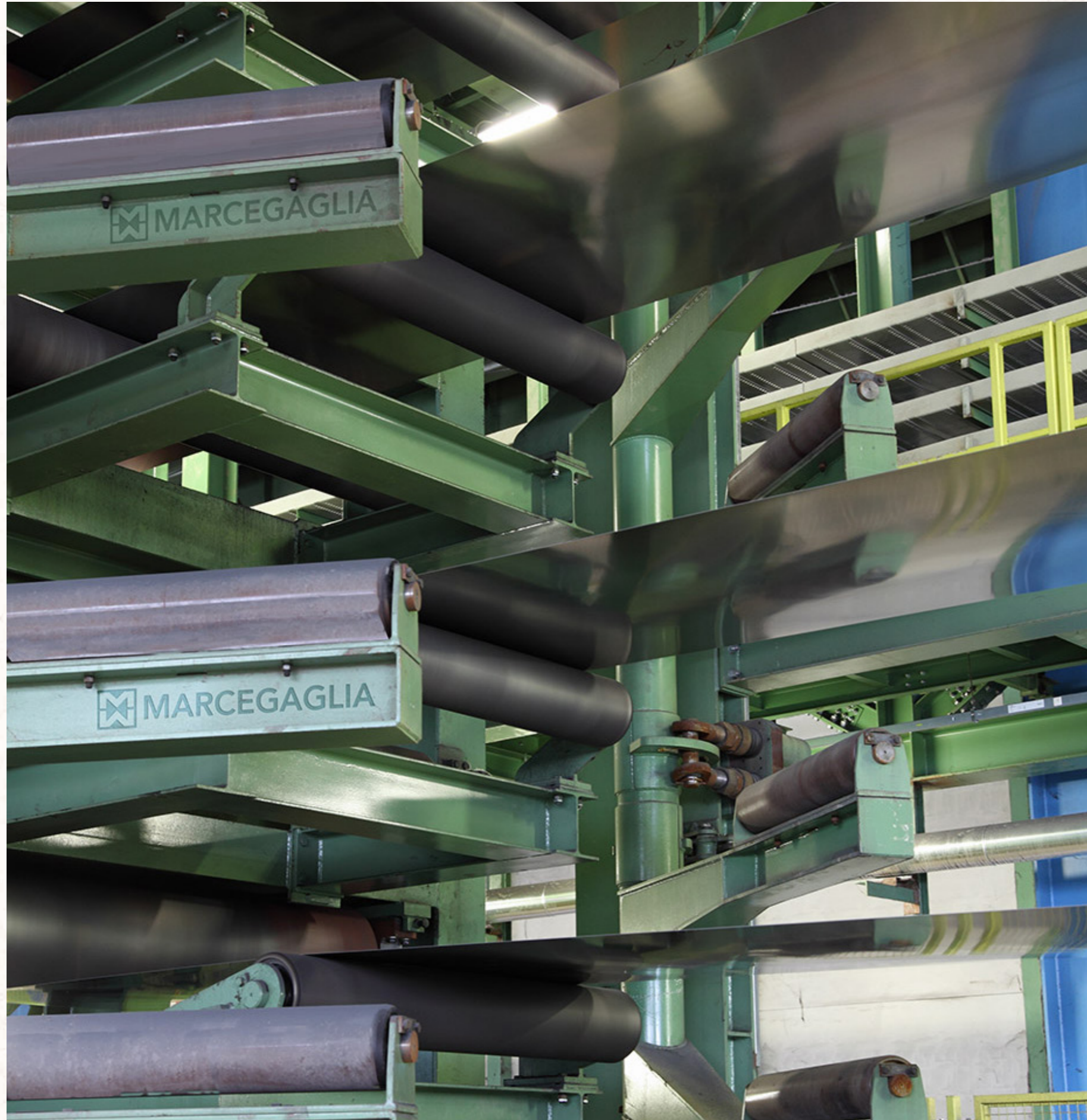
Valid until:

2028-06-26

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



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General information

PROGRAMME INFORMATION

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Web site:	www.environdec.com
E-mail:	info@environdec.com

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

Product category rules (PCR):
Construction products (EN 15804:A2), 2019:14, UN CPC 54, version 1.11 valid until 01-08-2023

PCR review was conducted by:
The Technical Committee of the International EPD® System. Review chair: Claudia A. Peña
- Contatto tramite il segretariato www.environdec.com/contact

Independent third-party verification of the declaration and data, according to ISO 14025:2010, via:

certification of process EPD EPD verification

Third-party verifier:
Bureau Veritas

The certification body is accredited by:
International EPD® System Technical Committee,

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. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

COMPANY INFORMATION

Owner of the EPD:

Marcegaglia Specialties S.p.A.
www.specialties.marcegaglia.com

Contact:

To obtain more information about this Environment Product Declaration are available this contact:

Technical Support

Mail: technicalsupportmb@marcegaglia.com

Tel.: +39 0143 7761 / +39 0230 7041

Company description:

Marcegaglia Specialties S.p.A. sell the rolled products made the plant of Gazoldo degli Ippoliti (MN) controlled by Marcegaglia Gazoldo Inox S.p.A. The plant produces, from raw stainless-steel coils many different rolled products: Coils, Sheet Tape and Rod.

Product/system certifications:

- Quality Management System by UNI EN ISO 9001:2015 (n° 32906/15/S – valid until 14/01/2025);
- Environmental Management System UNI EN ISO 14001:2015 (n° EMS-262/S – valid until 25/07/2025);
- Health & Safety Management System UNI ISO 45001:2018 (n° OHS-260 – valid until 25/09/2025);
- Energy Management System UNI EN ISO 50001:2018 (n° MS-137 – valid until 14/12/2023);
- Ethics Management System SA8000:2014 (n° SA-2040 – valid until 7/04/2025);

Production site's Name and localization:

- Via Bresciani, 16 – 36040 Gazoldo Degli Ippoliti (MN).

PRODUCTS INFORMATION

Product name:

Hot rolled and cold rolled stainless steel products.

Product identification:

Long & plane products of stainless steel.

Product description:

Stainless steel rolled products with different thickness and dimensions for general and structural application or for pressure vessel.

The product in made in the site are:

- Coils
- Tape
- Sheet
- Rod

Related by the end thickens the products are realize by hot rolling or by cold rolling.

From the company web site is possible download the catalogue whit the technical information of each product.

Coils

Type	Thickness [mm]	Width [mm]
Hot rolled	2,0	1000
		1250
		1500
	3,0	1000
		1250
		1500
	4,0	1000
		1250
		1500
	5,0	1000
		1250
		1500
	6,0	1000
		1250
		1500
8,0	1000	
	1250	
	1500	
10,0	1000	
	1250	
	1500	
12,0	1000	
	1250	
	1500	
Cold rolled	0,8	1000
		1250
		1500
	1,0	1000
		1250
		1500
	1,2	1000
		1250
		1500
	1,5	1000
		1250
		1500
	2,0	1000
		1250
		1500
2,5	1000	
	1250	
	1500	
3,0	1000	
	1250	
	1500	
4,0	1000	
	1250	
	1500	
5,0	1000	
	1250	
	1500	

Tape

Type	Thickness [mm]	Width [mm]
Hot rolled	3,0	from 40 to 1500
	4,0	from 40 to 1500
	5,0	from 40 to 1500
	6,0	from 40 to 1500
	0,8	from 40 to 1500
Cold rolled	1,0	from 40 to 1500
	1,5	from 40 to 1500
	2,0	from 40 to 1500
	2,5	from 40 to 1500
	3,0	from 40 to 1500
4,0	from 40 to 1500	

Sheet

Type	Thickness [mm]	Width [mm]
Hot rolled	3,0	1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
		2000x4000
	4,0	1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
		2000x4000
5,0	2000x6000	1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
		2000x4000
	6,0	2000x6000
		1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
8,0	2000x4000	2000x6000
		1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
	10,0	2000x4000
		2000x6000
		1000x2000
		1250x2500
		1250x3000
		1500x4000
12,0	1500x6000	
	2000x4000	
	2000x6000	
	1000x2000	
	1250x2500	
	1250x3000	
Cold rolled	0,8	1250x2500
		1250x3000
		1500x4000

Rod

Type	Thickness [mm]	Width [mm]
Hot rolled	0,8	1500x4000
		1500x6000
		1000x2000
		1250x2500
		1250x3000
		1500x4000
	1,0	1500x6000
		1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
Cold rolled	1,2	1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
		1000x2000
	1,5	1250x2500
		1250x3000
		1500x4000
		2000x4000
		1500x6000
		2000x6000
2,0	1000x2000	1250x2500
		1250x3000
		1500x4000
		1500x6000
		2000x4000
		2000x6000
	2,5	1250x2500
		1250x3000
		1500x4000
		2000x4000
		1500x6000
		2000x6000
3,0	1000x2000	1250x2500
		1250x3000
		1500x4000
		1500x6000
		2000x4000
		2000x6000
	4,0	1000x2000
		1250x2500
		1250x3000
		1500x4000
		1500x6000
		2000x4000
5,0	2000x4000	
	2000x6000	
	1000x2000	
	1250x2500	
	1250x3000	
	1500x4000	
6,0	1500x4000	
	1500x6000	
	2000x4000	
	2000x6000	
	1000x2000	
	1250x2500	

Type	Thickness [mm]	Width [mm]
Hot rolled	3,0	10
		12
		15
		20
		25
		30
	4,0	35
		40
		45
		50
		60
		65
5,0	70	75
		80
		100
		10
		12
		15
	6,0	20
		25
		30
		35
		40
		45
Hot rolled	8,0	50
		60
		65
		70
		75
		80
	10,0	90
		100
		120
		12
		15
		20
Hot rolled	8,0	25
		30
		35
		40
		45
		50
	10,0	60
		65
		70
		75
		80
		90
Hot rolled	10,0	100
		120
		140
		150
		160
		180

Type	Thickness [mm]	Width [mm]
		60
		65
		70
		75
		80
		90
	10,0	100
		120
		125
		140
		150
		160
		180
		200
Hot rolled		30
		40
		50
		60
		65
		70
		75
	12,0	80
		100
		120
		125
		140
		150
		160
		180
		200

LCA INFORMATION

Functional unit / declared unit:
The functional unit is 1 ton of rolled product.

Reference service life – RSL:
The RLS of the rolled products are estimate around of 50 years [Rif.: Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)].

Time representativeness:
All the data use for this LCA analysis are referred by the 2021.

Data Quality
The primary data came from the company and the secondary data came from Ecoinvent database.

Database e software:
Ecoinvent database v.3.9.1, January 2023 / Software SimaPro rel. 9.5

Description of system boundaries:
The study is referred “from cradle to gate with options (A1 - A3 + C1 - C4 + D)”, like the follow table (rif: PCR 2019:14 “Construction products” version 1.11, valid until 01/08/2023).

The modules A1-A3 describe the raw materials, the transport until the production’s site and the production’s process.

The modules C1-C4 describe the transport, the demolition process, and the end life of the products. These operations aren’t under company’s control. For this reason, was used the literature data from the building sectors. And considered an average distance of 50 km from the site and the waste disposal center.

The module D describe the benefis due the recicling of the stainless steel and the calculation of this is based on the document “Product Category Rules for Type III environmental product declaration of construction products to EN 15804:2021 – Par. 6.3.5.6. Benefits and loads beyond the product system boundary, information Module D”.



More information

DESCRIPTION OF PRINCIPAL'S ACTIVITIES

The production site Gazoldo degli Ippoliti produces stainless steel rolled products with different thickness and dimensions for general and structural application or for pressure vessel.

The production begins with the arrival of raw materials at the plant by road, but the journey between the starting steel mill and the Gazoldo degli Ippoliti plant can be by intermodal transport using mainly ships and trains.

The raw materials are:

- Coils from Scandinavian steel mill by trains;
- Coils from Italian steel mill by road;
- Coils from Asiatic steel mill by ship until the Marcegaglia Ravenna S.P.A. plants, and by train until the Piadena station.

Following there are the phases of the production:

Pickling

Pickling is a chemical process of removing metal oxides, which is usually followed by a passivation step. This process can be carried out in various ways depending on the intended use of the product and the type of material undergoing the process (stainless steel, carbon steel, etc.). In the case of stainless steel, the process is carried out by immersing the metal to be pickled in a tank containing a bath of hydrogen peroxide (a substitute for nitric acid) and hydrofluoric acid. The former exerts an oxidizing action the latter an aggressive action. Passivation of the surface is carried out with sulfuric acid. Finally, the pickled metal is washed with water and dried. This process is made possible by the addition of a suitable stabilizer based on organic and inorganic acids that allows hydrogen peroxide to remain stable even in the presence of high concentrations of dissolved metal salts in the pickling tanks.

Cold rolling

The cold rolling process, which is intended to reduce the thickness of the strip, produces an increase in strength characteristics and a decrease in stemability characteristics to a greater extent the higher the degree of reduction. During the rolling stage, in order to reduce friction between rolling rolls and coils, oil emulsion is

used. The rolled coils are placed in the special magazine for cooling and a second pass in the pickling.

Skinpass

The coil after cold rolling and pickling treatment needs slight variable surface reduction to improve surface quality and appearance.

Tape cutting

Pickled or skinpassed coils, depending on the physical characteristics of the obtainable product, are sent to cutting lines. These machines produce a longitudinal cutting action to obtain coils of various widths that will follow a diversified processing cycle to obtain welded tubes, open profiles, sheets, strips according to the desired production.

Flattening for sheets

Flat sheets of numerous formats are obtained, from coils, by means of machines called flattening machines. The machine is equipped with rollers and counter rollers to obtain perfect flatness. A special cutter obtains the required lengths from a minimum of 400 mm to a maximum of 1300 mm. (transportable materials). Bundling of the sheet metal sheets is done in line with a special mechanical stacker. Next, weighing of the packs and manual strapping with Signode equipment takes place.

Satining

If requested by the customer, the cold-processed coils pass through a satin-finishing machine that allows almost all surface imperfections to be removed before being sheared or flattened to obtain satin-finished strips and satin-finished sheets.

Rod cutting

Bars of numerous sizes are obtained from hot-rolled strips by means of machines called Bar Cutters. The machine is equipped with rollers and counter rollers to obtain perfect flatness. A special cut obtains the required lengths. Bundling of the bars is done in line with a special mechanical stacker. Then the weighing of the packs and manual strapping with Signode equipment takes place.

ALLOCATION'S RULES

Was done a mass allocation of the energy and water consumption, polluted emission, and waste.

Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and data variation:

Module	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse - Recovery - Recycling potential
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	GLO	GLO	IT	-	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	IT
Specific data	> 90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variations-product	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variations-site	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = Considered

ND = Not considered

GLO = Global

IT = Italy



Environmental information

All the performance indicators are referred of 1 ton of rolled.

ENVIRONMENTAL IMPACT

Impact category	Abb.	Unit
Climate change - total	GWP - t	kg CO ₂ eq
Climate change - Fossil	ODP	kg CFC11 eq
Climate change - Biogenic	GWP - fossil	kg CO ₂ eq
Climate change - Land use and LU change	GWP - biogenic	kg CO ₂ eq
Climate change - Greenhouse Gases	GWP - luluc	kg CO ₂ eq
Ozone depletion	GWP - GHG	kg CO ₂ eq.
Photochemical ozone formation	POCP	kg NMVOC eq
Acidification of land and water	AP	mol H+ eq
Eutrophication	EP - freshwater	kg P eq
	EP - marine	kg N eq
	EP - terrestrial	mol N eq
Water use	WDP	m ³ depriv.
Resource use, fossils	ADP - F	MJ
Resource use, minerals, and metals	ADP - MM	kg Sb eq



RESOURCE USE

Impact category	Abb.	Unit
Use of renewable primary energy excluding renewable primary energy resources used as raw materials	PERE	MJ
Use of renewable primary energy resources used as raw materials	PERM	MJ
Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PERT	MJ
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials	PENRE	MJ
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ
Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)	PENRT	MJ
Use of secondary material	SM	kg
Use of renewable secondary fuels	RSF	MJ
Use of non-renewable secondary fuels	NRSF	MJ
Use of net fresh water	FW	m ³

WASTE PRODUCTION

Impact category	Abb.	Unit
Hazardous waste disposed	HW	kg
Non-hazardous waste disposed	NHW	kg
Radioactive waste disposed	RW	kg

OUTPUT FLOWS

Impact category	Abb.	Unit
Reuse	REUSE	kg
Materials for recycling	RECYCLE	kg
Materials for energy recovery	EN-REC	kg
Exported energy-electricity	EE-E	MJ
Exported energy-thermal	EE-T	MJ

HOT ROLLED PRODUCTS

Abb.	Unit	A1-A3	C1-C4	D
GWP - t	kg CO ₂ eq	3.86E+03	2.99E+01	-2.31E+03
GWP - fossil	kg CO ₂ eq	3.82E+03	2.94E+01	-2.29E+03
GWP - biogenic	kg CO ₂ eq	3.99E+01	4.73E-01	-2.39E+01
GWP - luluc	kg CO ₂ eq	4.14E+00	7.02E-03	-2.44E+00
GWP - GHG	kg CO ₂ eq	3.83E+03	2.95E+01	-2.30E+03
ODP	kg CFC-11 eq	3.58E-03	6.41E-07	-2.31E-05
POCP	kg NMVOC eq	1.38E+01	1.17E-01	-8.42E+00
AP	mol H+ eq	2.22E+01	9.79E-02	-1.31E+01
EP - freshwater	kg P eq	1.62E+00	3.07E-03	-7.85E-01
EP - marine	kg N eq	4.31E+00	2.57E-02	-2.36E+00
EP - terrestrial	mol N eq	4.56E+01	2.75E-01	-2.50E+01
WDP	m ³ depriv.	1.26E+03	4.56E+00	-4.58E+02
ADP - F	MJ	4.78E+04	4.39E+02	-2.54E+04
ADP - MM	kg Sb eq	5.75E-01	4.74E-05	-5.82E-02
PERE	MJ	9.71E+03	1.23E+01	-6.01E+03
PERM	MJ	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	9.71E+03	1.23E+01	-6.01E+03
PENRE	MJ	5.46E+04	4.33E+02	-2.94E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	5.46E+04	4.33E+02	-2.94E+04
SM	kg	7.57E+02	3.20E-02	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00
FW	m ³	2.86E+01	1.35E-01	-1.06E+01
HW	kg	7.52E+01	2.98E-02	0.00E+00
NHW	kg	6.58E+00	1.17E-03	0.00E+00
RW	kg	5.95E-01	3.80E-03	0.00E+00
REUSE	kg	0.00E+00	0.00E+00	0.00E+00
RECYCLE	kg	1.26E+01	4.70E-02	0.00E+00
EN-REC	kg	0.00E+00	0.00E+00	0.00E+00
EE-E	MJ	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	0.00E+00

COLD ROLLED PRODUCTS

Abb.	Unit	A1-A3	C1-C4	D
GWP - t	kg CO ₂ eq	4.75E+03	3.10E+01	-2.40E+03
GWP - fossil	kg CO ₂ eq	4.69E+03	3.05E+01	-2.37E+03
GWP - biogenic	kg CO ₂ eq	5.06E+01	4.91E-01	-2.47E+01
GWP - luluc	kg CO ₂ eq	4.96E+00	7.28E-03	-2.53E+00
GWP - GHG	kg CO ₂ eq	4.68E+03	3.04E+01	-2.37E+03
ODP	kg CFC-11 eq	4.62E-03	6.64E-07	-2.40E-05
POCP	kg NMVOC eq	1.77E+01	1.21E-01	-8.73E+00
AP	mol H+ eq	2.54E+01	1.02E-01	-1.35E+01
EP - freshwater	kg P eq	2.17E+00	3.19E-03	-8.14E-01
EP - marine	kg N eq	5.29E+00	2.67E-02	-2.45E+00
EP - terrestrial	mol N eq	5.53E+01	2.85E-01	-2.59E+01
WDP	m ³ depriv.	1.59E+03	4.73E+00	-4.75E+02
ADP - F	MJ	5.81E+04	4.55E+02	-2.63E+04
ADP - MM	kg Sb eq	7.25E-01	4.92E-05	-6.04E-02
PERE	MJ	1.10E+04	1.27E+01	-6.23E+03
PERM	MJ	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.10E+04	1.27E+01	-6.23E+03
PENRE	MJ	6.77E+04	4.49E+02	-3.05E+04
PENRM	MJ	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	6.77E+04	4.49E+02	-3.05E+04
SM	kg	7.74E+02	3.32E-02	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00
FW	m ³	3.82E+01	1.40E-01	-1.10E+01
HW	kg	1.04E+02	3.09E-02	0.00E+00
NHW	kg	7.31E+00	1.21E-03	0.00E+00
RW	kg	7.04E-01	3.94E-03	0.00E+00
REUSE	kg	0.00E+00	0.00E+00	0.00E+00
RECYCLE	kg	1.47E+01	4.87E-02	0.00E+00
EN-REC	kg	0.00E+00	0.00E+00	0.00E+00
EE-E	MJ	0.00E+00	0.00E+00	0.00E+00
EE-T	MJ	0.00E+00	0.00E+00	0.00E+00



Additional information

It is shown that the indicator deviations of the 4 hot-rolled products is less than 10%, it is the same for the 5 cold-rolled products.

Quite the opposite, the variation of all the indicator between hot-rolled and cold-rolled products are greater than 10%.

The impact of the input raw material, corresponds to 94% of the total impacts for hot rolled products and 90% of the total impacts for cold re-rolled products.

SUSTAINABILITY

It should be noted that at the end of its useful life, the product is destined for recycling. In particular, the amount of steel destined for recycling is 88% in line with what is indicated in the "Special waste report" of ISPRA - No. 344/2021.

All emissions generated by processing are conveyed into the atmosphere and where necessary are equipped with adequate abatement systems before they are released into the environment.

The products manufactured by the plant of Gazoldo degli Ippoliti are characterized by a recycled content of 65,1% for hot-rolled products, and 64,1% for cold-rolled products.

These percentages are calculated as average of the value associated with the incoming raw material and derived from both Type III environmental declarations as well as self-declarations in accordance with UNI EN ISO 14021.

The materials used for the packaging of the final products consist of plastic and / or metal straps, wooden saddles, and polyester bands. The quantities of these packaging compared to one ton of final product identify a value of less than 1%.

The products do not contain hazardous substances from the SVHC Candidate List for Authorization in quantities greater than 0,1%.

MANAGEMENT SYSTEM

With reference to the management systems used by the company, it is emphasized that the presence of an environmental management system (certified pursuant to UNI EN ISO 14001: 2015) and safety (certified pursuant to UNI ISO 45001: 2018) testify to the company's commitment to pursue the continuous improvement of its environmental and safety performance. Within the environmental management system there is also a specific data management procedure for the study of the product life cycle. Year after year, the company plans new improvement objectives aimed at increasing its performance. The company has implemented an energy management system certified in accordance with the UNI CEI EN ISO 50001: 2018 standard to identify the most relevant plants in terms of energy as well as define opportunities for improvement in order to reduce the energy consumption determined by the carrying out its business.

Reference

General Programme Instructions of the International EPD® System. Version 3.01;

PCR 2019:14 - Version 1.11 "CONSTRUCTION PRODUCTS";

BRE Global Product Category Rules (PCR) for Type III EPD of construction products to EN 15804+A2;

Ecoinvent database v.3.9.1 - Gennaio 2023;

<http://unstats.un.org/unsd/default.htm>;

UNI EN ISO 14025: 2010 "Etichette e dichiarazioni ambientali - Dichiarazioni ambientali di Tipo III - Principi e procedure";

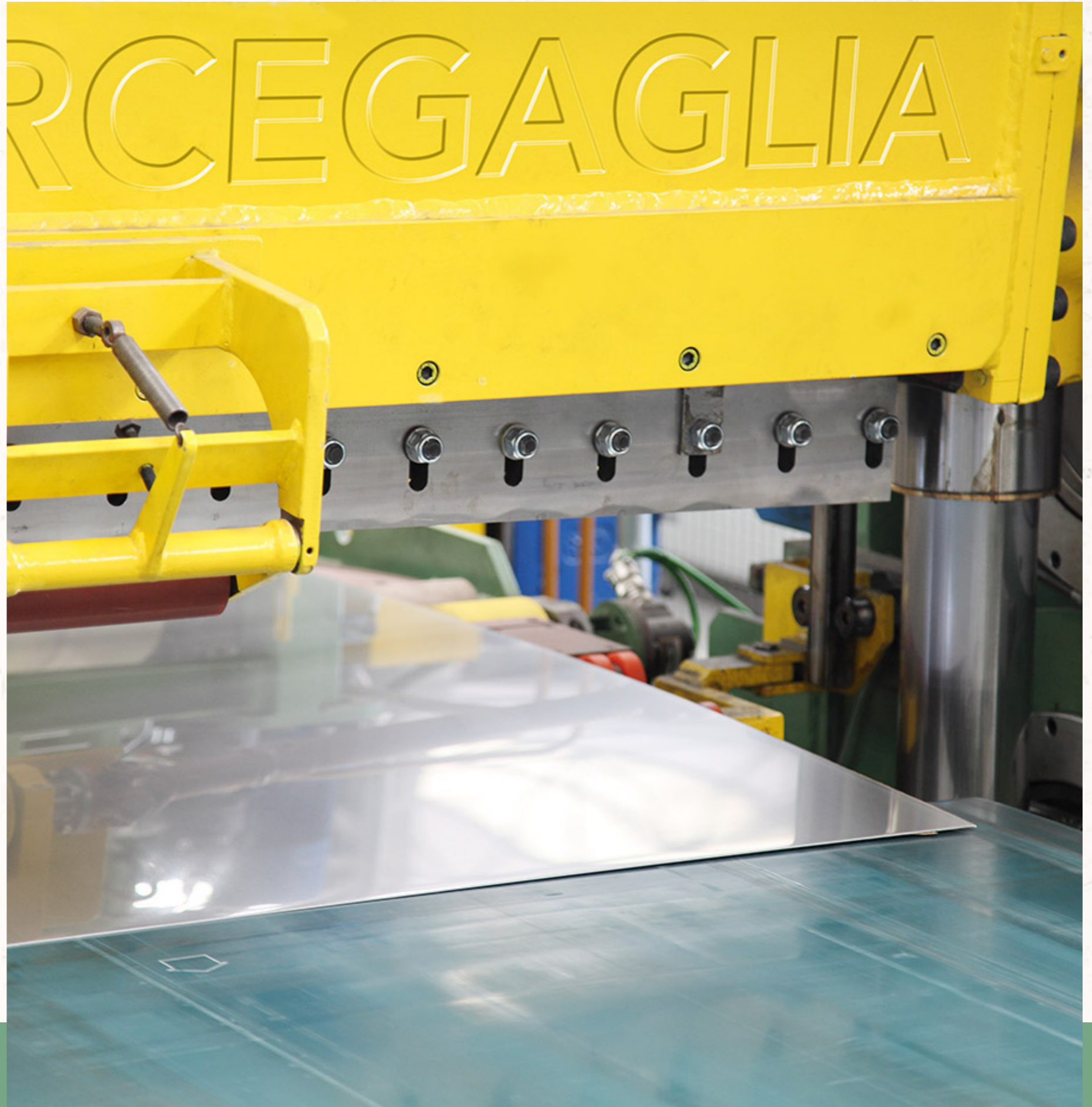
UNI EN ISO 14040: 2021 "Gestione ambientale - Valutazione del ciclo di vita - Principi e quadro di riferimento";

UNI EN ISO 14044:2021 "Gestione ambientale - Valutazione del ciclo di vita - Requisiti e linee guida";

UNI EN ISO 15804:2021 "Sostenibilità delle costruzioni - Dichiarazioni ambientali di prodotto - Regole quadro di sviluppo per categoria di prodotto";

European Residual Mixes 2021 Association of Issuing Bodies "European Residual Mixes Results of the calculation of Residual Mixes for the calendar year 2021" - version 1.0, 2022-05-31;

ISPRA "Rapporto rifiuti speciali" - n° 344/2021 - Edizione 2021.





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