



# Environmental Product Declaration



In accordance with  
ISO 14025 and UNI EN 15804:2012+A2:2019/AC:2021 for:

## STAINLESS STEEL

## HOT ROLLED & COLD ROLLED PRODUCTS

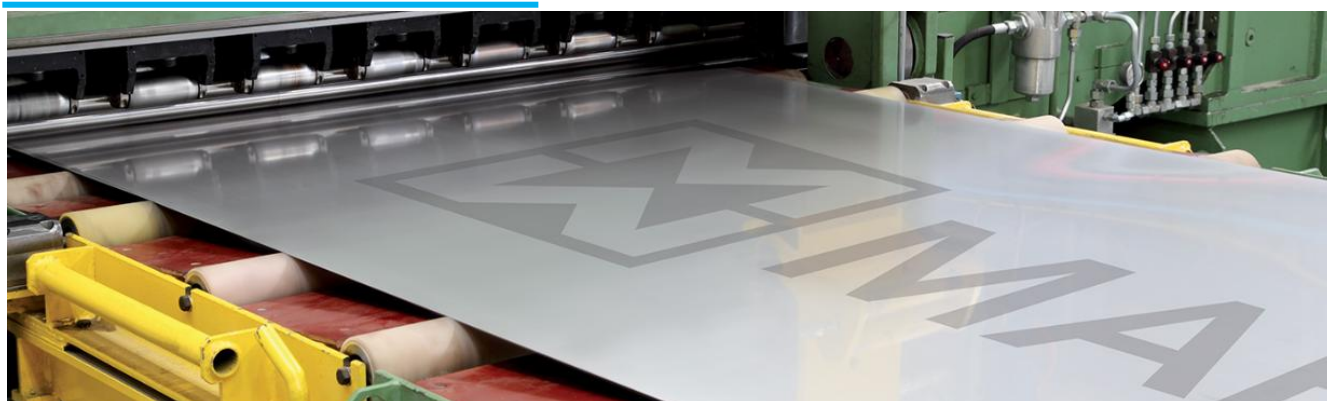
**Marcegaglia Specialties S.p.A.**

Programme: **The International EPD® System**,  
[www.environdec.com](http://www.environdec.com)

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The stated validity is therefore subject to the  
continued registration and publication at  
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## GENERAL INFORMATION

### PROGRAMME INFORMATION

|            |                                                                     |
|------------|---------------------------------------------------------------------|
| Programme: | The International EPD® System                                       |
| Address:   | EPD International AB<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden |
| Website:   | <a href="http://www.environdec.com">www.environdec.com</a>          |
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|                                                                                                                                                                                                                                                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Standard EN 15804 serves as the Core Product Category Rules (PCR)                                                                                                                                                                                                                             |
| Product category rules (PCR):<br><i>Construction products (EN 15804:A2), 2019:14, UN CPC 54, version 1.11 valid until 01-08-2023</i>                                                                                                                                                          |
| PCR review was conducted by:<br>The Technical Committee of the International EPD System.<br>Review chair: Claudia A. Peña – Contact through the secretariat <a href="http://www.environdec.com/contact">www.environdec.com/contact</a>                                                        |
| Life Cycle Assessment (LCA)<br>LCA accountability: Made HSE S.r.l. – <a href="http://www.madehse.com">www.madehse.com</a><br>Address: Via Bresciani, 16 – 46040 – Gazoldo degli Ippoliti (MN) – Italy<br>Mail: <a href="mailto:mattia.pelizzoni@madehse.com">mattia.pelizzoni@madehse.com</a> |
| Third-party verifier:<br>Independent third-party verification of the declaration and data, according to ISO 14025, via:<br><input checked="" type="checkbox"/> EPD verification by accredited certification body                                                                              |
| Third-party verification: <i>Bureau Veritas Italia S.p.A.</i> is an approved certification body accountable for the third-party verification<br>The certification body is accredited by: <i>Accredia</i>                                                                                      |
| Procedure for follow-up of data during EPD validity involves third party verifier:<br><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, or not compliant with EN 15804, 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 EN 15804 and ISO 14025.

## COMPANY INFORMATION

### Owner of the EPD:

Marcegaglia Specialties S.p.A. - [www.specialties.marcegaglia.com](http://www.specialties.marcegaglia.com)

### Contact:

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

Technical Support: Massimo Ciommei- Mail: [massimo.ciommei@marcegaglia.com](mailto:massimo.ciommei@marcegaglia.com) - Tel +39 0376 685594

### 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, Strips, Sheets, Flat Bars.

### Product/system certifications:

- Quality Management System ISO 9001;
- Environmental Management System ISO 14001;
- Energy Management System ISO 50001;
- Health & Safety Management System ISO 45001;
- Ethics Management System SA8000;
- Product Carbon Footprint Systematic approach ISO 14067;
- Organization Carbon Footprint ISO 14064.

### 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 & flat 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 products in made in the site are:

- Coils
- Strips
- Sheets
- Flat Bars

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       |

| Type | Thickness [mm] | Width [mm] |
|------|----------------|------------|
|      | 2.5            | 1250       |
|      |                | 1500       |
|      |                | 1000       |
|      | 3.0            | 1250       |
|      |                | 1500       |
|      |                | 1000       |
|      | 4.0            | 1250       |
|      |                | 1500       |
|      |                | 1000       |
|      | 5.0            | 1250       |
|      |                | 1500       |
|      |                | 1000       |

### Strips

| Type        | Thickness [mm] | Width [mm]   |
|-------------|----------------|--------------|
| Hot rolled  | 3.0            | Da 40 a 1500 |
|             | 4.0            | Da 40 a 1500 |
|             | 5.0            | Da 40 a 1500 |
|             | 6.0            | Da 40 a 1500 |
| Cold rolled | 0.8            | Da 40 a 1500 |
|             | 1.0            | Da 40 a 1500 |
|             | 1.5            | Da 40 a 1500 |
|             | 2.0            | Da 40 a 1500 |
|             | 2.5            | Da 40 a 1500 |
|             | 3.0            | Da 40 a 1500 |
|             | 4.0            | Da 40 a 1500 |

### Sheets

| Type       | Thickness [mm] | Width [mm] |
|------------|----------------|------------|
| Hot rolled | 3.0            | 1000x2000  |
|            |                | 1250x2500  |
|            |                | 1250x3000  |
|            |                | 1500x4000  |
|            |                | 1500x6000  |
|            |                | 2000x4000  |
|            |                | 2000x6000  |
|            | 4.0            | 1000x2000  |
|            |                | 1250x2500  |
|            |                | 1250x3000  |
|            |                | 1500x4000  |
|            |                | 1500x6000  |
|            |                | 2000x4000  |
|            |                | 2000x6000  |
|            | 5.0            | 1000x2000  |
|            |                | 1250x2500  |
|            |                | 1250x3000  |
|            |                | 1500x4000  |
|            |                | 1500x6000  |
|            |                | 2000x4000  |
|            |                | 2000x6000  |
|            | 6.0            | 1000x2000  |
|            |                | 1250x2500  |
|            |                | 1250x3000  |
|            |                | 1500x4000  |
|            |                | 1500x6000  |
|            |                | 2000x4000  |
|            |                | 2000x6000  |

| Type        | Thickness [mm] | Width [mm] |
|-------------|----------------|------------|
|             | 8.0            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 1500x6000  |
|             |                | 2000x4000  |
|             |                | 2000x6000  |
|             | 10.0           | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 1500x6000  |
|             |                | 2000x4000  |
|             |                | 2000x6000  |
|             | 12.0           | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 1500x6000  |
|             |                | 2000x4000  |
|             |                | 2000x6000  |
| Cold rolled | 0.8            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 1500x6000  |
|             | 1.0            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 1500x6000  |
|             | 1.2            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 1500x6000  |
|             | 1.5            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 2000x4000  |
|             |                | 1500x6000  |
|             |                | 2000x6000  |
|             | 2.0            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 2000x4000  |
|             |                | 1500x6000  |
|             |                | 2000x6000  |
|             | 2.5            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |
|             |                | 2000x4000  |
|             |                | 1500x6000  |
|             |                | 2000x6000  |
|             | 3.0            | 1000x2000  |
|             |                | 1250x2500  |
|             |                | 1250x3000  |
|             |                | 1500x4000  |

| Type | Thickness [mm] | Width [mm] |
|------|----------------|------------|
|      |                | 2000x4000  |
|      |                | 1500x6000  |
|      |                | 2000x6000  |
|      | 4.0            | 1000x2000  |
|      |                | 1250x2500  |
|      |                | 1250x3000  |
|      |                | 1500x4000  |
|      |                | 2000x4000  |
|      |                | 1500x6000  |
|      |                | 2000x6000  |
|      | 5.0            | 2000x4000  |
|      |                | 2000x6000  |
|      | 6.0            | 2000x4000  |
|      |                | 2000x6000  |

### **Flat bars**

| Type       | Thickness [mm] | Width [mm] |
|------------|----------------|------------|
| Hot rolled | 3.0            | 10         |
|            |                | 12         |
|            |                | 15         |
|            |                | 20         |
|            |                | 25         |
|            |                | 30         |
|            |                | 35         |
|            |                | 40         |
|            |                | 45         |
|            |                | 50         |
|            |                | 60         |
|            |                | 65         |
|            |                | 70         |
|            |                | 75         |
|            |                | 80         |
|            |                | 100        |
|            | 4.0            | 10         |
|            |                | 12         |
|            |                | 15         |
|            |                | 20         |
|            |                | 25         |
|            |                | 30         |
|            |                | 35         |
|            |                | 40         |
|            |                | 45         |
|            |                | 50         |
|            |                | 60         |
|            |                | 65         |
|            |                | 70         |
|            |                | 75         |
|            |                | 80         |
|            |                | 90         |
|            |                | 100        |
|            |                | 120        |
|            | 5.0            | 12         |
|            |                | 15         |
|            |                | 20         |
|            |                | 25         |
|            |                | 30         |
|            |                | 35         |
|            |                | 40         |
|            |                | 45         |

| Type | Thickness [mm] | Width [mm] |
|------|----------------|------------|
|      |                | 50         |
|      |                | 60         |
|      |                | 65         |
|      |                | 70         |
|      |                | 75         |
|      |                | 80         |
|      |                | 90         |
|      |                | 100        |
|      |                | 120        |
|      |                | 140        |
|      |                | 150        |
|      |                | 200        |
|      | 6.0            | 12         |
|      |                | 15         |
|      |                | 20         |
|      |                | 25         |
|      |                | 30         |
|      |                | 35         |
|      |                | 40         |
|      |                | 45         |
|      |                | 50         |
|      |                | 60         |
|      |                | 65         |
|      |                | 70         |
|      |                | 75         |
|      |                | 80         |
|      |                | 90         |
|      |                | 100        |
|      |                | 120        |
|      |                | 125        |
|      |                | 140        |
|      |                | 150        |
|      |                | 180        |
|      |                | 200        |
|      | 8.0            | 20         |
|      |                | 25         |
|      |                | 30         |
|      |                | 35         |
|      |                | 40         |
|      |                | 45         |
|      |                | 50         |
|      |                | 60         |
|      |                | 65         |
|      |                | 70         |
|      |                | 75         |
|      |                | 80         |
|      |                | 90         |
|      |                | 100        |
|      |                | 120        |
|      |                | 125        |
|      |                | 140        |
|      |                | 150        |
|      | 10.0           | 160        |
|      |                | 180        |
|      |                | 200        |
|      |                | 20         |
|      |                | 25         |
|      |                | 30         |
|      |                | 35         |
|      |                | 40         |
|      |                | 45         |
|      |                | 50         |

| Type | Thickness [mm] | Width [mm] |
|------|----------------|------------|
|      |                | 60         |
|      |                | 65         |
|      |                | 70         |
|      |                | 75         |
|      |                | 80         |
|      |                | 90         |
|      |                | 100        |
|      |                | 120        |
|      |                | 125        |
|      |                | 140        |
|      |                | 150        |
|      |                | 160        |
|      |                | 180        |
|      |                | 200        |
|      | 12.0           | 30         |
|      |                | 40         |
|      |                | 50         |
|      |                | 60         |
|      |                | 65         |
|      |                | 70         |
|      |                | 75         |
|      |                | 80         |
|      |                | 100        |
|      |                | 120        |
|      |                | 125        |
|      |                | 140        |
|      |                | 150        |
|      |                | 160        |
|      |                | 180        |
|      |                | 200        |

**UN CPC code:** UN CPC 41232 Flat-rolled products of stainless steel, further worked

**Geographical scope:** Global

## LCA INFORMATION

### Declared unit:

The declared 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 used for this LCA analysis are referred to the year 2025.

### Data Quality:

The primary data come from the company, and the secondary data come from Ecoinvent database.

### Database e software:

Ecoinvent database v.3.11, April 2025 / Software used SimaPro rel. 10.2.0.2.

### 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 80 km from the site and the waste disposal center.

The module D describe the benefits due the recycling 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”.



## DESCRIPTION OF MAIN ACTIVITIES

In Gazoldo degli Ippoliti plant stainless steel rolled products with different thickness and dimensions for general and structural application or for pressure vessel are produced.

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 European steel mill by trains to the closest train station;
- Coils from Asiatic steel mill by ship until the Marcegaglia Ravenna S.P.A. plants, and by train to the closest train station.

Following there are the phases of production:

### **PICKLING**

Stainless steel 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.

### **STRIPs 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**

From coiled sheets (coils), flat sheets of numerous formats are obtained 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.

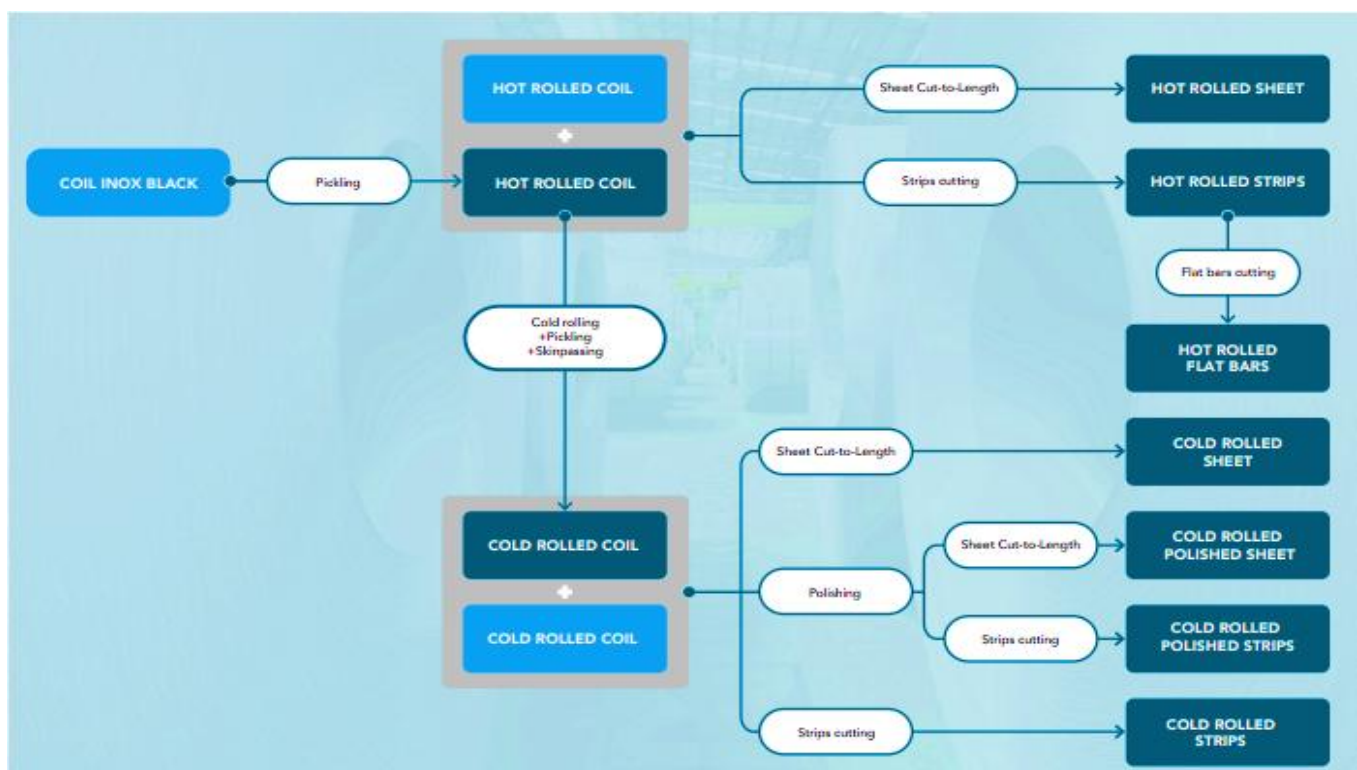
### **SATINING**

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 coils and satin-finished sheets.

### FLAT BARS 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.

## SYSTEM DIAGRAM



## CONTENT INFORMATION

| Product     | Product content | Weight, kg | Post-consumer material, weight | Biogenic material, weight-% and kg C/kg |
|-------------|-----------------|------------|--------------------------------|-----------------------------------------|
| Hot rolled  | Stainless Steel | 1000       | 66.7%                          | 0                                       |
| Cold rolled | Stainless Steel | 1000       | 67.0%                          | 0                                       |

The quantities of such packaging in relation to one ton of final product represent less than 1%.

### Electricity information

The electricity used in the manufacturing process of module A3 accounts less than 30% of the GWP-GHG results of modules A1-A3 and the impact of electricity use in the manufactory phases is 0.24 kgCO<sub>2</sub> eq/kWh.

### Allocation rules

An allocation was made on a mass basis for energy consumption, water discharges, atmospheric emissions and waste.

## MODULES DECLARED

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

|                    | A1-A3 Product stage |           |               | A4-A5 Construction process stage |                           | B1-B7 Use stage |             |        |             |               |                        |                       | C1-C4 End of life stage    |           |                  |          | D Benefits and loads beyond the system boundary |
|--------------------|---------------------|-----------|---------------|----------------------------------|---------------------------|-----------------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|-------------------------------------------------|
|                    | 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              |
| Module             | 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      | GLO                                             |
| Specific data      | >60%                |           |               |                                  |                           | -               | -           | -      | -           | -             | -                      | -                     | -                          | -         | -                | -        | -                                               |
| Variations-product | Not relevant        |           |               |                                  |                           | -               | -           | -      | -           | -             | -                      | -                     | -                          | -         | -                | -        | -                                               |
| Variations-site    | Not relevant        |           |               |                                  |                           | -               | -           | -      | -           | -             | -                      | -                     | -                          | -         | -                | -        | -                                               |

X = Module considered

ND = Module not declared

GLO = Global

IT = Italy

## ENVIRONMENTAL INFORMATION

The environmental performance indicators refer to 1 ton of wire rod. The characterization factors used in this assessment are based on EN 15804+A2 - EF 3.1, which provide a method for quantifying the environmental impact.

### Environmental impact

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

\* The results of this environmental impact indicator shall be used with care as the uncertainties of the results are high and as there is limited experience with the indicator.

### 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 <sup>3</sup> |

### 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 energy | EE-T    | MJ   |

## STAINLESS STEEL HOT ROLLED PRODUCTS

| Abb.             | Unit                   | A1-A3    | C1       | C2       | C3       | C4       | D         |
|------------------|------------------------|----------|----------|----------|----------|----------|-----------|
| GWP - t          | kg CO <sub>2</sub> eq  | 3.29E+03 | 4.70E+00 | 8.62E+00 | 1.94E+01 | 7.12E-01 | -2.49E+03 |
| GWP - fossil     | kg CO <sub>2</sub> eq  | 3.26E+03 | 4.70E+00 | 8.57E+00 | 1.93E+01 | 7.12E-01 | -2.46E+03 |
| GWP - biogenic   | kg CO <sub>2</sub> eq  | 2.83E+01 | 9.44E-04 | 5.08E-02 | 1.17E-01 | 3.42E-04 | -2.70E+01 |
| GWP - luluc      | kg CO <sub>2</sub> eq  | 3.30E+00 | 4.81E-04 | 3.11E-03 | 4.07E-02 | 4.08E-04 | -2.79E+00 |
| GWP - GHG        | kg CO <sub>2</sub> eq  | 3.58E+03 | 4.70E+00 | 8.57E+00 | 1.93E+01 | 7.12E-01 | -2.46E+03 |
| ODP              | kg CFC-11 eq           | 4.79E-03 | 6.98E-08 | 1.87E-07 | 1.21E-07 | 1.98E-08 | -1.75E-05 |
| POCP             | kg NMVOC eq            | 1.26E+01 | 6.41E-02 | 4.49E-02 | 5.76E-02 | 7.54E-03 | -8.43E+00 |
| AP               | mol H <sup>+</sup> eq  | 2.70E+01 | 4.20E-02 | 2.84E-02 | 9.60E-02 | 4.98E-03 | -1.41E+01 |
| EP - freshwater  | kg P eq                | 2.55E+00 | 1.51E-04 | 6.05E-04 | 9.29E-03 | 6.23E-05 | -2.51E+00 |
| EP - marine      | kg N eq                | 3.72E+00 | 1.96E-02 | 9.63E-03 | 1.95E-02 | 1.91E-03 | -2.58E+00 |
| EP - terrestrial | mol N eq               | 3.89E+01 | 2.14E-01 | 1.05E-01 | 1.95E-01 | 2.09E-02 | -2.70E+01 |
| WDP              | m <sup>3</sup> depriv. | 9.20E+02 | 1.77E-01 | 1.37E-01 | 4.19E+00 | 7.74E-01 | -7.22E+02 |
| ADP - F          | MJ                     | 3.85E+04 | 6.12E+01 | 0.00E+00 | 2.59E+02 | 1.74E+01 | -2.82E+04 |
| ADP - MM         | kg Sb eq               | 5.81E-01 | 1.64E-06 | 2.41E-05 | 1.88E-05 | 1.04E-06 | -6.86E-02 |
| PERE             | MJ                     | 5.35E+03 | 3.84E-01 | 1.93E+00 | 3.44E+01 | 1.63E-01 | -7.43E+03 |
| PERM             | MJ                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PERT             | MJ                     | 5.35E+03 | 3.84E-01 | 1.93E+00 | 3.44E+01 | 1.63E-01 | -7.43E+03 |
| PENRE            | MJ                     | 3.85E+04 | 6.12E+01 | 9.32E-03 | 2.59E+02 | 1.74E+01 | -2.82E+04 |
| PENRM            | MJ                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PENRT            | MJ                     | 3.85E+04 | 6.12E+01 | 9.32E-03 | 2.59E+02 | 1.74E+01 | -2.82E+04 |
| SM               | kg                     | 3.76E+02 | 2.53E-02 | 0.00E+00 | 2.71E-02 | 4.34E-03 | -2.82E+02 |
| RSF              | MJ                     | 1.32E+00 | 6.64E-05 | 0.00E+00 | 1.32E-04 | 9.05E-05 | -7.14E-01 |
| NRSF             | MJ                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| FW               | m <sup>3</sup>         | 3.44E+01 | 4.32E-03 | 6.36E-03 | 1.16E-01 | 1.81E-02 | -2.25E+01 |
| HW               | kg                     | 1.81E+03 | 6.86E-02 | 1.29E-01 | 1.83E+00 | 1.98E-02 | -2.52E+03 |
| NHW              | kg                     | 1.04E+04 | 1.00E+00 | 1.21E+00 | 4.49E+01 | 4.59E-01 | -1.36E+04 |
| RW               | kg                     | 3.49E-02 | 6.40E-06 | 0.00E+00 | 6.61E-04 | 2.54E-06 | -4.09E-02 |
| REUSE            | kg                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| RECYCLE          | kg                     | 1.76E+00 | 2.73E-04 | 0.00E+00 | 1.71E-02 | 1.89E-04 | -1.25E+00 |
| EN-REC           | kg                     | 2.49E-02 | 8.70E-07 | 0.00E+00 | 2.27E-05 | 3.36E-07 | -3.69E-02 |
| EE-E             | MJ                     | 1.40E+01 | 2.90E-03 | 0.00E+00 | 3.00E-01 | 1.13E-03 | -9.68E+00 |
| EE-T             | MJ                     | 3.22E+01 | 1.36E-03 | 0.00E+00 | 1.06E-02 | 6.00E-04 | -4.51E+01 |

## STAINLESS STEEL COLD ROLLED PRODUCTS

| Abb.             | Unit                   | A1-A3    | C1       | C2       | C3       | C4       | D         |
|------------------|------------------------|----------|----------|----------|----------|----------|-----------|
| GWP - t          | kg CO <sub>2</sub> eq  | 3.81E+03 | 4.87E+00 | 8.94E+00 | 2.01E+01 | 7.38E-01 | -2.57E+03 |
| GWP - fossil     | kg CO <sub>2</sub> eq  | 3.78E+03 | 4.87E+00 | 8.88E+00 | 2.00E+01 | 7.37E-01 | -2.54E+03 |
| GWP - biogenic   | kg CO <sub>2</sub> eq  | 2.84E+01 | 9.78E-04 | 5.26E-02 | 1.21E-01 | 3.54E-04 | -2.78E+01 |
| GWP - luluc      | kg CO <sub>2</sub> eq  | 3.45E+00 | 4.99E-04 | 3.22E-03 | 4.22E-02 | 4.23E-04 | -2.88E+00 |
| GWP - GHG        | kg CO <sub>2</sub> eq  | 3.94E+03 | 4.87E+00 | 8.88E+00 | 2.00E+01 | 7.37E-01 | -2.54E+03 |
| ODP              | kg CFC-11 eq           | 2.92E-03 | 7.23E-08 | 1.94E-07 | 1.26E-07 | 2.05E-08 | -1.80E-05 |
| POCP             | kg NMVOC eq            | 1.37E+01 | 6.64E-02 | 4.66E-02 | 5.97E-02 | 7.82E-03 | -8.71E+00 |
| AP               | mol H <sup>+</sup> eq  | 2.81E+01 | 4.35E-02 | 2.94E-02 | 9.95E-02 | 5.16E-03 | -1.46E+01 |
| EP - freshwater  | kg P eq                | 3.83E+00 | 1.57E-04 | 6.27E-04 | 9.63E-03 | 6.45E-05 | -2.59E+00 |
| EP - marine      | kg N eq                | 5.68E+00 | 2.03E-02 | 9.98E-03 | 2.02E-02 | 1.98E-03 | -2.67E+00 |
| EP - terrestrial | mol N eq               | 4.18E+01 | 2.22E-01 | 1.09E-01 | 2.02E-01 | 2.17E-02 | -2.79E+01 |
| WDP              | m <sup>3</sup> depriv. | 1.01E+03 | 1.84E-01 | 1.42E-01 | 4.34E+00 | 8.02E-01 | -7.46E+02 |
| ADP - F          | MJ                     | 4.20E+04 | 6.34E+01 | 0.00E+00 | 2.68E+02 | 1.81E+01 | -2.91E+04 |
| ADP - MM         | kg Sb eq               | 4.17E-01 | 1.70E-06 | 2.49E-05 | 1.95E-05 | 1.07E-06 | -7.09E-02 |
| PERE             | MJ                     | 4.72E+03 | 3.98E-01 | 2.00E+00 | 3.57E+01 | 1.69E-01 | -7.67E+03 |
| PERM             | MJ                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PERT             | MJ                     | 4.72E+03 | 3.98E-01 | 2.00E+00 | 3.57E+01 | 1.69E-01 | -7.67E+03 |
| PENRE            | MJ                     | 4.20E+04 | 6.34E+01 | 9.66E-03 | 2.68E+02 | 1.81E+01 | -2.91E+04 |
| PENRM            | MJ                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| PENRT            | MJ                     | 4.20E+04 | 6.34E+01 | 9.66E-03 | 2.68E+02 | 1.81E+01 | -2.91E+04 |
| SM               | kg                     | 3.97E+02 | 2.63E-02 | 0.00E+00 | 2.81E-02 | 4.49E-03 | -2.91E+02 |
| RSF              | MJ                     | 1.05E+00 | 6.88E-05 | 0.00E+00 | 1.37E-04 | 9.38E-05 | -7.37E-01 |
| NRSF             | MJ                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| FW               | m <sup>3</sup>         | 3.68E+01 | 4.48E-03 | 6.59E-03 | 1.20E-01 | 1.87E-02 | -2.32E+01 |
| HW               | kg                     | 1.54E+03 | 7.11E-02 | 1.34E-01 | 1.89E+00 | 2.06E-02 | -2.60E+03 |
| NHW              | kg                     | 8.05E+03 | 1.04E+00 | 1.25E+00 | 4.66E+01 | 4.75E-01 | -1.41E+04 |
| RW               | kg                     | 3.30E-02 | 6.63E-06 | 0.00E+00 | 6.85E-04 | 2.63E-06 | -4.23E-02 |
| REUSE            | kg                     | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00  |
| RECYCLE          | kg                     | 2.18E+00 | 2.82E-04 | 0.00E+00 | 1.77E-02 | 1.96E-04 | -1.29E+00 |
| EN-REC           | kg                     | 2.10E-02 | 9.01E-07 | 0.00E+00 | 2.36E-05 | 3.48E-07 | -3.81E-02 |
| EE-E             | MJ                     | 1.65E+01 | 3.00E-03 | 0.00E+00 | 3.11E-01 | 1.17E-03 | -9.99E+00 |
| EE-T             | MJ                     | 2.71E+01 | 1.41E-03 | 0.00E+00 | 1.09E-02 | 6.22E-04 | -4.65E+01 |

## ADDITIONAL ENVIRONMENTAL 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, which corresponds to 94% of the total impacts for hot rolled products and 90% of the total impacts for cold re-rolled products.

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 88.8% in line with what is indicated in the "Special waste report" of ISPRA - No. 416/2025".

The products manufactured in Gazoldo degli Ippoliti plant have a recycled content of 66.7% for hot-rolled products, and 67.0% for cold-rolled products. This percentage is calculated as average of the value associated with the incoming raw material and derived from Type III environmental declarations.

The products do not contain hazardous substances from the SVHC Candidate List for Authorization in quantities greater than 0.1%.

## VERSION HISTORY

### Version 0, 2023-07-17

Original Version of the EPD

### Version 1, 2024-06-27

- The most up-to-date energy mix has been considered (ref.: energy supply contract for the plant updated to 2023);
- Site-specific data (for forms A1, A2 and A3) was collected and used in relation to all environmental matrices with reference to the year 2023;
- The reference database updated to the latest available version was used as well as the new version of the software (all processes refer to Ecoinvent 3.10, May 2024 / Software SimaPro rel. 9.6).

### Version 2, 2025-06-18

- The most up-to-date energy mix has been considered (ref.: energy supply contract for the plant updated to 2024);
- The effect of the G.O. electricity supplied was considered;
- Site-specific data (for forms A1, A2 and A3) was collected and used in relation to all environmental matrices with reference to the year 2024;
- The reference database updated to the latest available version was used as well as the new version of the software (all processes refer to Ecoinvent 3.11 – April 2025 and the software SimaPro version 10.2.0.2).
- The EDIP 2003 method was used to calculate hazardous, non-hazardous, and radioactive waste.
- The Cumulative Energy Demand method was used to calculate "Use of renewable primary energy excluding renewable primary energy resources used as raw materials" and "Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials".

**Version 3, 2026-06-18**

- The most up-to-date energy mix has been considered (ref.: energy supply contract for the plant updated to 2025);
- Site-specific data (for forms A1, A2 and A3) was collected and used in relation to all environmental matrices with reference to the year 2025;
- The reference database updated to the latest available version was used as well as the new version of the software (all processes refer to Ecoinvent 3.11 – April 2025 and the software SimaPro version 10.2.0.2).
- The demolition process model has been set by considering the average diesel consumption of machinery used for demolition, attributing 0.044 MJ per kilogram of demolished material;
- The disposal process model has been set by considering typical energy consumption data for the various stages of metal scrap sorting;
- The cogeneration CO<sub>2</sub> direct emissions are estimate by ISPRA report n. 413/2025 “Le emissioni di CO<sub>2</sub> nel settore elettrico nazionale e regionale”.

## REFERENCES

- General Programme Instructions of the International EPD® System. Version 4.0;
- PCR 2019:14 - Version 1.11 “CONSTRUCTION PRODUCTS”;
- Product Category Rules for Type III environmental product declaration of construction products to EN 15804+A2;
- Ecoinvent database v.3.11 – April 2025;
- European Residual Mixes 2025 Association of Issuing Bodies “European Residual Mixes Results of the calculation of Residual Mixes for the calendar year 2025” – 2026-05-26;
- ISPRA “Rapporto rifiuti speciali” – n° 416/2025;
- ISO 14025: 2010 “Environmental labels and declarations - Type III environmental declarations - Principles and procedures”;
- ISO 14040: 2021 “Environmental management - Life cycle assessment - Principles and framework”;
- ISO 14044:2021 “Environmental management - Life cycle assessment - Requirements and guidelines”;
- ISO 15804:2021 “Sustainability of construction works - Environmental product declarations - Core rules for the product
- Construction and demolition waste, Michele Paleari and Andrea Campioli, 2015;
- Metal recycling: The need for a life cycle approach, Terry Norgate, 2013;
- Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR);
- ISPRA “Le emissioni di CO<sub>2</sub> nel settore elettrico nazionale e regionale” – 413/2025;
- LCA study “hot rolled and cold rolled stainless steel product” rev.3.



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