Environmental Product Declaration

In conformity with ISO 14025:2006 y EN 15804:2012+A2:2019/AC:2021 for:

Pre-painted steel coils.

EPD for multiple products based on average results.

The following designations can be found under this EPD: Polyester Coils (PE), Polyurethane Coils (PU), Polyurethane-Polyamide Coils (PUPA), Polyester-Polyamide Coils (PEPA) and Polyvinylidene Fluoride Coils (PVDF).

from SANTANDER COATED SOLUTIONS S.L.

Program:	The International EPD® System, www.environdec.com
Program operator:	EPD International AB
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Publication date:	2025-06-19
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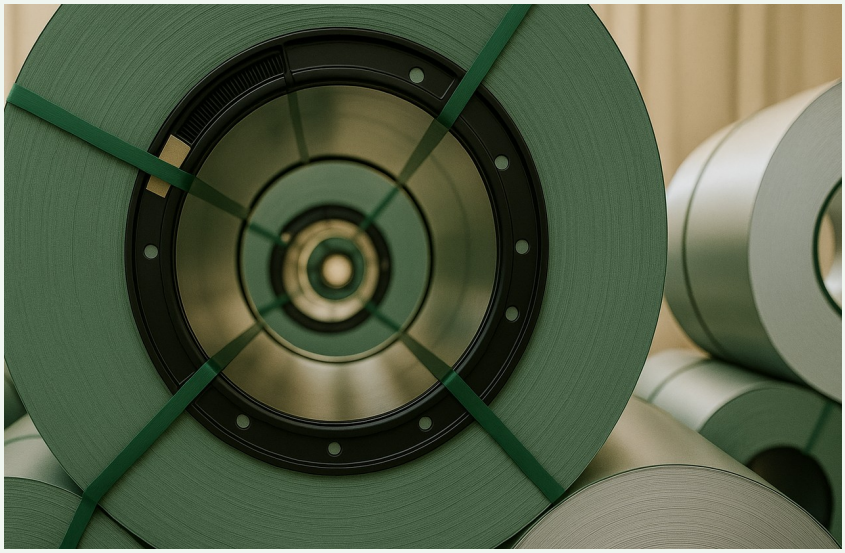
Valid until:	2030-06-19

An EPD must provide current information and may be updated if conditions change. Therefore, the stated validity is subject to continued registration and publication on www.environdec.com.



General information

Program information

Program:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
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Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules: *PCR 2019:14 Construction products, version 1.3.4*
The PCR review was conducted by: The Technical Committee of the International EPD® System. See the list of members at www.environdec.com. Review chair: Claudia A. Peña, University of Concepción, Chile. You may contact the review panel through the Secretariat at www.environdec.com/contact.
Lyfe Cycle Assessment (LCA)
LCA Accountability: Dcycle. The Wake Up Movement S.L.
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 verifier: CERTINALIA S.L.U. is an approved certification body accountable for the third-party verification. The certification body is accredited by ENAC, accreditation Nº125/C-PR283
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 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:
Santander Coated Solutions S.L. with Registered Office at Puerto de Raos s/n. Espigón Norte, Área 10.1. Cantabria, Spain.

Contact:
Francisco Manuel Rodríguez Gómez, franciscorodriguez@coatedsolutions.com

Description of the organization:
Prepainted steel is widely used across numerous industrial sectors. It is applied in construction (metal facades and roofs, sandwich panels, garage doors, metal shutters, etc.). It is also found in many everyday products, such as household appliances, audiovisual equipment, and metal furniture.

Founded in 2007, Coated Solutions established its first factory in Aranda de Duero, in central Spain, with an annual production of nearly 100,000 tons. In 2016, it continued its expansion with the construction of a new plant located in the heart of the Port of Santander, in northern Spain. Later, in 2019, the Aveiro Coated Solutions plant, located in Aveiro, Portugal, joined the group.

The company's facilities use cutting-edge technologies to efficiently and competitively produce their prepainted coils. Their strategic location—both at the port and in the center of Spain—gives them a privileged logistical position. The capacities of the plants are designed to meet the needs of their main clients while maintaining optimal flexibility.

Coated Solutions has earned the trust of many national and international clients. Its goal is to deliver excellent quality while meeting delivery time commitments. The prepainting process complies with current environmental standards and applies the best available techniques in this field.

The company has a team of experienced professionals committed to meeting customer expectations and requirements. Their precision and professionalism allow them to provide high-quality products and services.

Coil prepainting is a complex activity that requires strict monitoring at every stage of production. The reception of galvanized steel coils, the application of different paint layers, coil cutting, quality control, and delivery of the final product are all key processes in which the Coated Solutions team works with the utmost commitment to achieve its main goal: customer satisfaction.

Product-related or management system-related certifications:
The company holds the UNE-EN ISO 14001:2015 environmental management system certification, and its manufactured products comply with the EN 10169 standard.

Name and location of production site:
The products associated with this declaration are manufactured at the plant located in Puerto de Raos s/n. Espigón Norte, Área 10.1. Cantabria, Spain.

Product information

Product name:

This study includes five prepainted steel coils with different coatings.

The product names are as follows:

- Polyester Coils (PE)
- Polyurethane Coils (PU)
- Polyurethane-Polyamide Coils (PUPA)
- Polyester-Polyamide Coils (PEPA)
- Polyvinylidene Fluoride Coils (PVDF)

Product identification:

Solcoat® is the registered name of the prepainted steel coils with various possible types of coatings.

Product description:

The product analyzed in this study consists of steel coils with Solcoat® organic coatings, based on polyester, polyurethane, PUPA, PVDF, and PEPA. These coils are intended for applications in construction (façades and roofs), profile manufacturing, household appliance production, and other industrial sectors that require a material with high corrosion resistance, durability, and an attractive aesthetic finish.

Solcoat® is a prepainted product that ensures optimal quality by undergoing a series of tests in accordance with the EN 13523 standard. Solcoat® prepainted steel products combine base steel with Z and AZ metallic coatings, in compliance with EN 10169, with coating weights ranging from 70 to 275 g/m², and organic coatings with thicknesses ranging from 15 µm to 70 µm on the top side, and 5 µm to 25 µm on the back side.

Depending on the type and thickness of the coating and the intended use, Solcoat® organic coated steel coils provide corrosion resistance and durability.

Paints:

- **Polyester (PE):** This type of paint is based on saturated polyester resins, formed by polyols (typically glycols such as ethylene glycol or propylene glycol) and dicarboxylic acids (such as isophthalic acid or terephthalic acid). These resins are combined with pigments, which are typically used to enhance weather resistance and prevent fading. The formulation also includes specific additives such as UV stabilizers and antioxidants, as well as curing agents that react with the polyester resin to form a strong, durable film. This is achieved through oven curing at temperatures between 200–250 °C (typically using amines or melamine-formaldehyde resins).
- **Polyurethane (PU):** Based on polyurethane resin, which is formed through the reaction of polyols with isocyanates. Additionally, it includes metallic pigments (finely ground aluminum particles that reflect light, giving the characteristic metallic finish), additives (leveling agents to ensure a uniform application and defoamers), and solvents to adjust viscosity.
- **Polyester-Polyamide (PEPA):** Based on polyester resin, formed by polyols (typically glycols such as ethylene glycol or propylene glycol) and dicarboxylic acids (such as isophthalic acid or terephthalic acid), with a polyamide modifier that enhances abrasion resistance and durability.

It also includes curing agents, pigments, and additives. This type of resin provides good adhesion, moderate chemical resistance, and durability in outdoor environments, as it does not degrade easily under sunlight.

- **Polyurethane-Polyamide (PUPA):** It is a textured polyurethane coating, produced through the reaction of polyols with isocyanates, creating a crosslinked structure that enhances durability and abrasion resistance. It is modified with polyamide, which provides greater hardness and chemical resistance. Additionally, it includes solvents (esters and ketones) to improve viscosity, texture additives, and color pigments (titanium dioxide).
- **Polyvinylidene Fluoride (PVDF):** It is a fluorocarbon polymer that forms extremely stable bonds, resistant to heat and oxidation. It is combined with additives (UV stabilizers, leveling agents) and pigments, typically inorganic pigments such as titanium dioxide (TiO_2). PVDF coatings are extremely resistant to UV radiation and temperature changes, and they offer long-lasting protection, as PVDF resists corrosion and wear.

Production process:

The prepainting production process begins with the reception of metal-coated steel coils. Each coil undergoes a thorough quality inspection to verify that its mechanical and chemical properties meet the required standards and that there are no surface damages or dents. The packaging is also inspected to ensure it has not been damaged during transport. Finally, the coils are weighed to confirm they match the requested specifications.

Once these checks are completed, the coils are stored and organized, awaiting integration into the production process.

Prepainting is the core of the transformation process and aims to apply a protective organic coating to the steel, providing high resistance to abrasion, harsh environmental conditions, and extreme temperatures. This is carried out on a specially designed line using advanced technology to ensure flexible production and superior technical and aesthetic quality.

The prepainting line is equipped with dual stations for final paint application, an additional pre-cleaning section, advanced waste and emissions removal systems, and mechanisms that minimize vibrations, optimizing both efficiency and the final product's quality.

The process begins with decoilers that unwind the steel coils and feed the line continuously. Using two decoilers allows for uninterrupted production, as a stapler connects the end of one coil to the beginning of the next.

The first stage of prepainting involves initial cleaning of the steel strip with hot alkaline water to remove grease and surface dirt. This cleaning water is then treated in a purification system, ensuring compliance with environmental standards.

After this, the strip is temporarily stored in a vertical accumulator with a 200-meter capacity. This accumulator, along with another at the end of the line, feeds or stores the strip when the entry or exit sections are stopped for stapling or final cutting, ensuring a continuous and efficient process.

Next, the strip undergoes a second, more thorough cleaning with demineralized water. A chemical surface treatment is then applied to improve paint adhesion. This treatment is dried in a special vertical oven.

A primer layer is then applied using rollers and dried in a horizontal oven. Once dry, the strip is cooled to prepare for the next stage.

The paint is also applied using rollers and dried in a secondary horizontal oven. During this stage, volatile organic compounds (VOCs) generated by the paint are carefully managed. Instead of being

released into the environment, these compounds are used as an energy source during the curing process.

Precise control at this stage ensures that the coating achieves optimal quality, resistance, and finish.

After curing, the strip is cooled and temporarily stored in the secondary accumulator.

Depending on customer specifications, coils are produced in weights ranging from 3 to 15 tons. These coils are weighed, strapped, packaged, and labeled to ensure proper transport and full traceability at all times.

A key element of the process is the incineration and drying oven system, which plays a critical role in the paint line. This system not only ensures fast and efficient drying of primer and paint but also treats the organic compounds generated during the process, preventing their release into the atmosphere.

The gases are burned in an incinerator equipped with regenerative thermal oxidation (RTO) technology, which breaks down VOCs and recycles the residual heat, significantly improving the system's energy efficiency.

As for the drying ovens, they are catenary-type and designed to handle the steel strip in a continuous flow. The primer oven has 4 sections, and the finishing oven has 5, both featuring hot air recirculation systems to ensure uniform and gradual drying.

This is essential for achieving an optimal finish, as the coatings contain solvents with different boiling points. Temperature control in each zone is managed by independent burners and can be adjusted as needed.

UN CPC Code:
UN CPC - 4123: Flat-rolled products of steel, further worked than hot-rolled or cold-rolled; flat-rolled products of silicon-electrical and high-speed steel, whether or not further worked.

Geographical scope:
European coverage was used for raw materials and transport (A1–A2) when available; otherwise, global coverage was applied. Spanish coverage was used for emissions from energy consumption during manufacturing (A3). European coverage was applied for the end-of-life and resource recovery stages (C1–C4 and D).

LCA Information

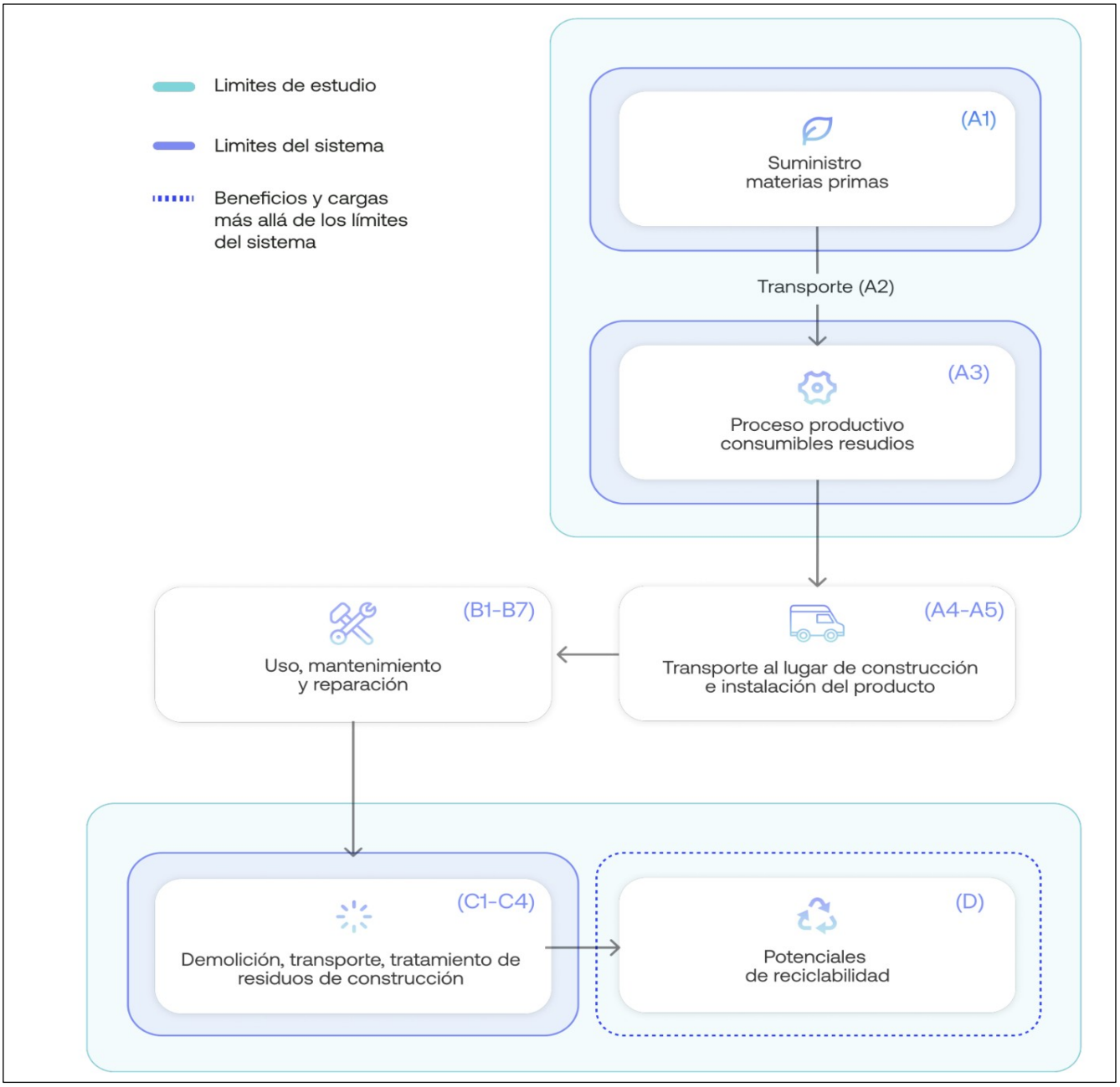
Declared unit:
The declared unit is one metric ton of prepainted steel coil (A1–A3), including end-of-life treatment (C1–C4) and potential benefits/loads beyond the product system boundaries (D).

Time representativeness:
Primary data were collected for a full year of activity, from 01/01/2022 to 31/12/2022.

Database and LCA software used:
The analysis was carried out without the use of any comercial LCA Tool, the open source python package "Brightway" was use for applying environmental impact data from the Ecoinvent 3.11 EN 15804 database, following an attributional model.
The reference package for EN15804 is based on Environmental Footprint version 3.1.

Description of system boundaries:
The analysis is Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). This includes Materials and components (A1), Transport (A2), Manufacturing (A3), Deconstruction (C1), Waste transport (C2), Waste processing (C3), Waste disposal (C4), and Recovery and recycling potential (D).

System diagram:



Materials and components (A1):

It includes the production of raw materials (steels, paints, additives) used in the manufacturing of the coils, starting from the extraction of material and energy resources from nature up to the production of the raw material itself. This module includes all transport and production processes of the raw materials upstream of their arrival at the tier 1 supplier.

- Main assumptions:

The cradle-to-gate impacts of the fuels used at the plant are excluded from module A1, as they are already included in the fuel use activities within the manufacturing module (A3).

Transport (A2):

Transport from the direct supplier (tier 1) to the Coated Solutions plant, in this case located in Santander, Spain.

- Main assumptions:

The distances used for the calculation of this module were provided by Coated Solutions.

Manufacturing (A3):

It includes all impacts from the processes carried out at the Santander plant for the manufacturing of steel coils.

This covers the following:

- Emissions from fuel extraction and combustion.
- Emissions from electricity consumption.
- Water use.
- Treatment of generated waste.

- Main assumptions:

The treatment operations for the waste generated at the factory were modeled based on information provided by the company, linking them to the corresponding Ecoinvent activity for the relevant geographical scope.

End of life (C1-C4):

Since this analysis does not include a specific installation and use scenario for the sealed steel coils within its scope, the end-of-life stage has been modeled based on JRC reference assumptions, where 90% of the recovered steel is reclaimed for reuse/recycling. It is therefore assumed that 90% of the material mix is recycled at the end of its useful life, while the remaining 10% is landfilled. Thus, it is declared that the scenarios included are representative of the product analyzed.

Module C1 involves the deconstruction and demolition of the steel layers at the end of their life.

- Main assumptions:
According to JRC technical reports on the Life Cycle Assessment (LCA) model for buildings, diesel consumption for this process is assumed to be 0.239 MJ/kg.

Module C2 includes the transport of the removed steel to the treatment or recycling plant.

- Main assumptions:
Based on the JRC technical reports on the Life Cycle Assessment (LCA) model for buildings, a distance of 50 kilometers to the waste treatment plant has been assumed.

Module C3 covers the processes occurring during the treatment of the waste prior to its final disposal.

- Main assumptions:
This module is considered empty in the study, as the waste is assumed to be transported directly to the landfill or recovery facility without undergoing pretreatment.

Module C4 includes the impacts generated when the removed steel ends up in a landfill.

- Main assumptions:

As previously mentioned, the JRC assumption is used, where 10% of the product's weight is sent to landfill.

Recovery and recycling potential (D):

This module declares a potential credit or burden for the net amount of steel reclaimed or recovered at the end of its life cycle.

As mentioned in Module C, it is assumed that 90% of the weight is recycled at end-of-life; therefore, the credit is calculated by comparing the impacts associated with production from primary materials of the product.

General exclusions:

The following are excluded from the system boundaries:

- Manufacturing of capital goods, unless included in the activities of a secondary database.
- Business travel of employees.
- Employee commuting.
- Research activities.

Stage A4-A5 and all stages within module B have been excluded from the analysis. This exclusion is justified according to the EN 15804 standard, which states that for a construction product, it is entirely acceptable to declare modules A1–A3 in a cradle-to-gate analysis, provided that modules C1–C4 and D are also included.

Data sources:

Primary/specific data:

The following data were collected firsthand by the company:

- Weights used in the different prepainted steel coil blends.
- Electricity consumption during manufacturing.
- Amount of fuel used in manufacturing (diesel and natural gas).
- Water consumption required for operations.
- Weight of waste generated at the factory.
- Types of vehicles used for transport in module A2.
- Distances between suppliers and the factory.

Secondary/general data:

Materials and processes for which no primary data were available have been modeled using activities from the Ecoinvent 3.11 EN15804 database, following an attributional model. The inherent uncertainties of each activity have been respected and maintained; likewise, they have undergone evaluation and review according to Ecoinvent's own criteria.

The following data are included as coming from a secondary source:

- Activity data and environmental impacts from the extraction and processing of raw materials upstream of the factory.
- Environmental impacts from all activities involved in modules C1–C4, and D.

Cut-off criteria:

All data modeled through the Ecoinvent database follow the inherent cut-off criteria of the dataset. The version used is "Ecoinvent 3.11 EN15804," which complies with the cut-off criteria required by the UNE-EN 15804:2012+A2:2019/AC:2021 standard.

Allocation criteria:
An allocation criterion has been applied to the primary data on consumption and generated waste. The amounts of fuel, electricity, and water, as well as the quantity of waste produced, have been allocated per ton produced based on the total production and consumption data measured during the time period defined by the study.

All data modeled through the Ecoinvent database follow the allocation criteria inherent to the dataset. The dataset uses a system model that addresses allocation issues through an attributional approach, thus complying with the criteria established by the ISO 14040 standard.

Declared modules, geographical scope, share of specific data (in GWP-GHG results), and data variation (in GWP-GHG results):

	Product stage			Construction process stage		Use stage							End of life stage				Resource -recovery stage
	Materials and componentes	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**
Declared modules	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography*	Global	Global	ES	-	-	-	-	-	-	-	-	-	EU	EU	EU	EU	Global
Specific data used	74%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*When geography includes different levels, the one with the lowest granularity is used. For example, if both European and Global coverage are used within the same module, it will be reported in the table as Global.

Content declaration

This EPD is representative of one metric ton of prepainted steel coil. Below is the average quantity of material used in the manufacturing of the declared product family; this average is weighted according to the production volume of each product.

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-%	Biogenic material, kg C/kg
Galvanized steel	1.36E+02	0%	0%	0
Aluminum/zinc-coated steel	8.45E+02	0%	0%	0
Polyester	1.85E+01	0%	0%	0

Packaging materials	Weight, kg	Weight % (versus product)	Biogenic material, kg C/producto
PET	5.57E-02	0.01%	0
Steel	4.02E+00	0.39%	0
PBP	7.44E-02	0.01%	0
Cardboard	2.05E+00	0.20%	0
Pine wood	7.45E-01	0.07%	0

During the product's life cycle, no hazardous substances listed in the "Candidate List of Substances of Very High Concern (SVHC)" were found in a concentration exceeding 0.1% of the product's weight.

Environmental performance indicator results

The following clauses must be clearly stated before presenting the final results of the life cycle assessment:

- The EN15804 characterization factors are based on EF 3.1.
- The impact assessment results are relative expressions and do not predict impacts on endpoint categories, exceedance of thresholds, safety margins, or risks.
- The results for the impact category “Abiotic resource depletion – Non-fossil resources” may be highly uncertain due to the inclusion of capital goods/infrastructure in datasets. Caution is advised when using this indicator’s results for decision-making.
- This analysis includes Module C: End of life; therefore, it is not recommended to use the results of Module A1–A3 in isolation without also considering the results of Module C.

Mandatory impact category indicators according to EN 15804

Results for 1 metric ton of pre-painted steel coil																
Indicador	**Unidad**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.56E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.71E+02	1.22E+01	0.00E+00	8.05E-01	-2.06E+03
GWP-biogenic	kg CO_2 eq.	-4.62E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.66E-01	5.01E-03	0.00E+00	4.45E+00	2.17E+01
GWP-luluc	kg CO_2 eq.	2.13E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.92E-02	3.82E-03	0.00E+00	3.77E-04	-1.54E+00
GWP-total	kg CO_2 eq.	2.56E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.71E+02	1.23E+01	0.00E+00	5.25E+00	-2.04E+03
ODP	kg CFC 11 eq.	2.37E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.29E-05	2.68E-07	0.00E+00	1.82E-08	-1.57E-05
AP	mol H^+ eq.	3.70E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.78E+00	3.76E-02	0.00E+00	4.59E-03	-2.84E+01
EP-freshwater	kg P eq.	8.86E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.80E-02	8.21E-04	0.00E+00	5.78E-05	-7.77E-01
EP-marine	kg N eq.	4.12E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.62E+00	1.26E-02	0.00E+00	5.47E-03	-2.43E+00
EP-terrestrial	mol N eq.	1.37E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.97E+01	1.37E-01	0.00E+00	1.93E-02	-1.10E+02
POCP	kg NMVOC eq.	1.18E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.19E+01	5.72E-02	0.00E+00	6.98E-03	-6.89E+00
ADP-minerals&metals*	kg Sb eq.	5.20E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.13E-04	4.28E-05	0.00E+00	9.86E-07	-4.62E-02
ADP-fossil*	MJ	2.86E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.13E+04	1.72E+02	0.00E+00	1.60E+01	-2.25E+04
WDP*	m^3	7.63E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.92E+01	8.78E-01	0.00E+00	7.04E-01	-6.66E+02
Acrónimos	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator should be used with caution, as the uncertainties associated with these results are high or there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results for 1 metric ton of pre-painted steel coil																
Indicador	**Unidad**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2.56E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.71E+02	1.22E+01	0.00E+00	8.05E-01	-2.05E+03
ETP – fw*	CTUe	2.43E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	6.14E+02	2.50E+01	0.00E+00	7.28E+00	-2.14E+04
PM*	disease incidence	4.26E-04	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.22E-04	8.39E-07	0.00E+00	1.06E-07	-3.77E-04
HTP – c*	CTUh	3.30E-06	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.88E-08	1.96E-09	0.00E+00	1.27E-10	-2.67E-06
HTP – nc*	CTUh	2.06E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.39E-06	1.01E-07	0.00E+00	4.56E-09	-1.74E-05
IR**	kBq U235 eqv.	8.68E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.83E+00	2.50E-01	0.00E+00	9.69E-03	-6.18E+01
SQP*	Pt	6.82E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.50E+02	8.77E+01	0.00E+00	3.16E+01	-4.89E+03
Acrónimos	ETP-fw = Ecotoxicity, freshwater; PM = Particulate Matter; HTP-c = Human toxicity, cancer; HTP-nc = Human toxicity, non-cancer; IR = Ionising radiation, human health; SQP = Land use.															

Resource use indicators

Results for 1 metric ton of pre-painted steel coil																
Indicador	**Unidad**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.27E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.12E+01	3.14E+00	0.00E+00	1.52E-01	-1.07E+03
PERM	MJ	4.04E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	1.31E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.12E+01	3.14E+00	0.00E+00	1.52E-01	-1.07E+03
PENRE	MJ	2.76E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.69E+03	1.72E+02	0.00E+00	1.60E+01	-2.21E+04
PENRM	MJ	9.91E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.65E+03	0.00E+00	0.00E+00	0.00E+00	-3.66E+02
PENRT	MJ	2.86E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.13E+04	1.72E+02	0.00E+00	1.60E+01	-2.25E+04
SM	kg	2.47E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	4.69E+00	7.34E-02	0.00E+00	4.02E-03	-2.19E+02
RSF	MJ	2.87E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.23E-02	7.77E-04	0.00E+00	8.39E-05	-6.09E-02
NRSF	MJ	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.67E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.26E-01	2.03E-02	0.00E+00	9.31E-03	-1.43E+01
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

[1] *This indicator accounts for all greenhouse gases except for the uptake and emissions of biogenic carbon dioxide and the biogenic carbon stored in the product. As such, the indicator is identical to GWP-total, except that the characterization factor (CF) for biogenic CO_2 is set to zero.*
** Disclaimer: The results of this environmental impact indicator should be used with caution, as uncertainties are high or there is limited experience with this indicator.*
*** Disclaimer: This impact category mainly refers to the potential impact of low-dose ionizing radiation on human health from the nuclear fuel cycle. It does not consider the effects of potential nuclear accidents, occupational exposure, or the disposal of radioactive waste in underground facilities. Possible ionizing radiation from the ground, radon, and some building materials is also not measured by this indicator.*

Waste indicators

Results for 1 metric ton of pre-painted steel coil 0.00E+00															
Indicador	**Unidad**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	4.08E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.27E+01	2.22E-01	0.00E+00	1.85E-02	-3.58E+02
Non-hazardous waste disposed	kg	4.84E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.85E+02	5.36E+00	0.00E+00	5.26E+00	-4.18E+03
Radioactive waste disposed	kg	2.15E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.18E-03	6.22E-05	0.00E+00	2.37E-06	-1.55E-02

Output flow indicators

Results for 1 metric ton of pre-painted steel coil																
Indicador	**Unidad**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0.00E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	2.13E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.05E-02	2.14E-03	0.00E+00	1.76E-04	8.76E+02
Materials for energy recovery	kg	9.42E-03	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.61E-04	3.74E-06	0.00E+00	3.30E-07	-1.70E-03
Exported energy, electricity	MJ	9.84E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	5.37E-01	4.41E-02	0.00E+00	1.05E-03	-7.94E+00
Exported energy, thermal	MJ	9.46E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.52E-01	2.11E-01	0.00E+00	5.84E-04	-7.96E+00

Additional information

The electricity mix used in the manufacturing phase (module A3) was specifically modeled based on the electricity mix of the supplier FORTIA ENERGÍA S.L., as reported to the Spanish National Commission on Markets and Competition (CNMC), and has emissions of 0.4837 kg CO_2eq/kWh according to the GWP-GHG indicator.

Energy source	Percentage mix
Renewable	3.30%
High-efficiency cogeneration	2.10%
Natural gas	43.80%
Coal	4.90%
Fuel/Gas	1.90%
Nuclear	35.20%
Other non renewable	8.80%

References

- General Programme Instructions of the International EPD® System. Version 4.0
- PCR 2019:14 Construction products (EN 15804:2012+A2:2019/AC :2021) Version 1.3.4.
- ISO 14040:2006, Environmental management – Life cycle assessment – Principles and Framework.
- ISO 14044:2006, Environmental management – Life cycle assessment – Requirements and guidelines.
- ISO 14025:2011, Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
- EN 15804:2012+A2:2019/AC :2021, Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products.
- Dos Santos Gervasio, H. and Dimova, S., Model for Life Cycle Assessment (LCA) of buildings , EUR 29123 EN, Publications Office of the European Union, 2018, ISBN 978-92-79-79974-7 (print),978-92-79-79973-0 (pdf), doi:10.2760/10016 (online),10.2760/789069 (print), JRC110082.

Summary

Coated Solutions specializes in high-quality prepainted steel used across construction, appliances, and furniture. Founded in 2007, it operates plants in Spain and Portugal with advanced technology and strategic logistics. The company ensures flexibility, environmental compliance, and top-tier service to meet national and international client needs.

The products analyzed are a set of pre-painted steel coils under CPC 4123: Flat-rolled products of steel, further worked than hot-rolled or cold-rolled; flat-rolled products of silicon-electrical and high-speed steel, whether or not further worked.

The life cycle analysis study has been carried out in accordance with **ISO 14040:2006 and ISO 14044:2006 standards** for the management and assessment of environmental impacts. In addition, all requirements for environmental product declaration according to **ISO 14025:2006** have been taken into account, ensuring the transparency and credibility of the information provided. The European standard **EN 15804:2012+A2:2019/AC:2021** has been followed to ensure that all aspects of the product life cycle have been properly assessed and reported. Also, the **Product Category Rules (PCR) 2019:14 Construction Products, version 1.3.4**, have been used to ensure that the specific guidelines for construction products, which is the category where the mixtures studied fall, are followed. For the characterization of environmental impacts, the characterization factors declared by the Joint Research Centre (JRC) in February 2023 based on the Environmental Footprint (EF) Reference Package 3.1 have been used.

The **declared unit** is **1 metric ton of prepainted steel coil** under a ”**Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D)” scope** with the modules: A1, A2, A3, C1, C2, C3, C4 and D. The **reference period** of the collected data is the **year 2022.**

The analysis has been performed using **proprietary software** and **one database**. The environmental impacts come from Ecoinvent 3.11 EN 15804 following an attributional model. The reference package for EN 15804 is based on the version of Environmental Footprint 3.1.

All data modeled through the Ecoinvent database present the inherent cut-off criterion of the dataset.
There is an allocation criterion for the primary data on consumption and waste generated. The allocation for the amount of fuel, electricity and water, as well as the amount of waste generated, has been made for each ton produced based on the total production and consumption data measured during the time period stipulated by the study (01/01/2022 - 31/12/2022).
All data modeled through the Ecoinvent database have the inherent allocation criteria of the dataset. The dataset employs a system model that solves allocation problems through an attributional approach, thus meeting the criteria established by the ISO 14040 standard.

Results from the study for the mandatory indicators of environmental impact categories are shown next. The results have been calculated under the “average scenario” where for each indicator it is declared the average results of the included products. This average is weighted according to the production volumes of the included products.

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-fossil	kg CO_2 eq.	2.56E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.71E+02	1.22E+01	0.00E+00	8.05E-01	-2.06E+03
GWP-biogenic	kg CO_2 eq.	-4.62E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.66E-01	5.01E-03	0.00E+00	4.45E+00	2.17E+01
GWP-luluc	kg CO_2 eq.	2.13E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.92E-02	3.82E-03	0.00E+00	3.77E-04	-1.54E+00
GWP-total	kg CO_2 eq.	2.56E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.71E+02	1.23E+01	0.00E+00	5.25E+00	-2.04E+03
ODP	kg CFC 11 eq.	2.37E-05	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.29E-05	2.68E-07	0.00E+00	1.82E-08	-1.57E-05
AP	mol H^+ eq.	3.70E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	7.78E+00	3.76E-02	0.00E+00	4.59E-03	-2.84E+01
EP-freshwater	kg P eq.	8.86E-01	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.80E-02	8.21E-04	0.00E+00	5.78E-05	-7.77E-01
EP-marine	kg N eq.	4.12E+00	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.62E+00	1.26E-02	0.00E+00	5.47E-03	-2.43E+00
EP-terrestrial	mol N eq.	1.37E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.97E+01	1.37E-01	0.00E+00	1.93E-02	-1.10E+02
POCP	kg NMVOC eq.	1.18E+01	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.19E+01	5.72E-02	0.00E+00	6.98E-03	-6.89E+00
ADP-minerals&metals	kg Sb eq.	5.20E-02	ND	ND	ND	ND	ND	ND	ND	ND	ND	3.13E-04	4.28E-05	0.00E+00	9.86E-07	-4.62E-02
ADP-fossil	MJ	2.86E+04	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.13E+04	1.72E+02	0.00E+00	1.60E+01	-2.25E+04
WDP	m^3	7.63E+02	ND	ND	ND	ND	ND	ND	ND	ND	ND	2.92E+01	8.78E-01	0.00E+00	7.04E-01	-6.66E+02
GWP-GHG	kg CO_2 eq.	2.56E+03	ND	ND	ND	ND	ND	ND	ND	ND	ND	8.71E+02	1.22E+01	0.00E+00	8.05E-01	-2.05E+03
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

VERIFICATION STATEMENT CERTIFICATE

CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN

Certificate No. / Certificado nº: EPD12201

CERTINALIA S.L.U., confirms that independent third-party verification has been conducted of the Environmental Product Declaration (EPD) on behalf of:
CERTINALIA S.L.U., confirma que se ha realizado verificación de tercera parte independiente de la Declaración Ambiental de Producto (DAP) en nombre de:

SANTANDER COATED SOLUTIONS, S.L.
Puerto de Raos s/n, Espigón Norte, Área 10.1
39011 Santander (Cantabria) - SPAIN

for the following product:
para el siguiente producto:

PRE-PAINTED STEEL COILS
Bobinas de acero pre-pintadas

with registration number **EPD-IES-0024026** in the International EPD® System *(www.environdec.com).*
*con número de registro **EPD-IES-0024026** en el Sistema International 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 2019:14 Construction products (EN 15804:A2) v1.3.4.**
- **UN CPC 4123 Flat-rolled products of steel, further worked than hot-rolled or cold-rolled; flat-rolled products of silicon-electrical and high-speed steel, whether or not further worked.**

Issued date / *Fecha de emisión:*	19/06/2025
Update date / *Fecha de actualización:*	24/07/2025
Valid until / *Válido hasta:*	18/06/2030
Serial Nº / *Nº Serie:*	EPD1220101-E

Carlos Nazabal Alsua
Manager

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