# Environmental Product Declaration

**In accordance with ISO 14025:2006 for:**

# Color-coated steel sheets

## (PGS, PES2, PSP2, PPG, PBG2, PVS2)


| | |
|---|---|
| **Programme:** | **The International EPD® System, www.environdec.com** |
| **Programme operator:** | **EPD International AB** |
| **EPD registration number:** | **EPD-IES-0017490** |
| **Publication date:** | **2024-11-11** |
| **Valid until:** | **2029-11-11** |

***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***
***EPD of multiple products, based on the average results of the product group***

# General information

## Product information

| | |
|---|---|
| Programme: | The International EPD® System |
| Address: | EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden. |
| Website: | www.envirodec.com; www.environdecindia.com |
| E-mail: | Info@envirodec.com |

| |
|---|
| Product category rules (PCR): PCR 2015:03 Basic iron or steel products & Special steels, except construction steel products |
| PCR review was conducted by:<br>The Technical Committee of the International EPD® System. Chair: Massimo Marino<br>Contact via info@environdec.com |
| Independent third-party verification of the declaration and data, according to ISO 14044:2006:<br>EPD process certification ■ EPD verification |
| Third party verifier: <name, organisation and signature of the third party verifier><br>Ik Kim(Smart-Eco co,) |
| Procedure for follow-up of data during EPD validity involves third party verifier:<br>■ 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 programs, 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14044.

## LCA Study & EPD Design Conducted by

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POSCOSTEELEON products has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs 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 14044.

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# Company information

Owner of the EPD:

POSCOSTEELEON Company Limited

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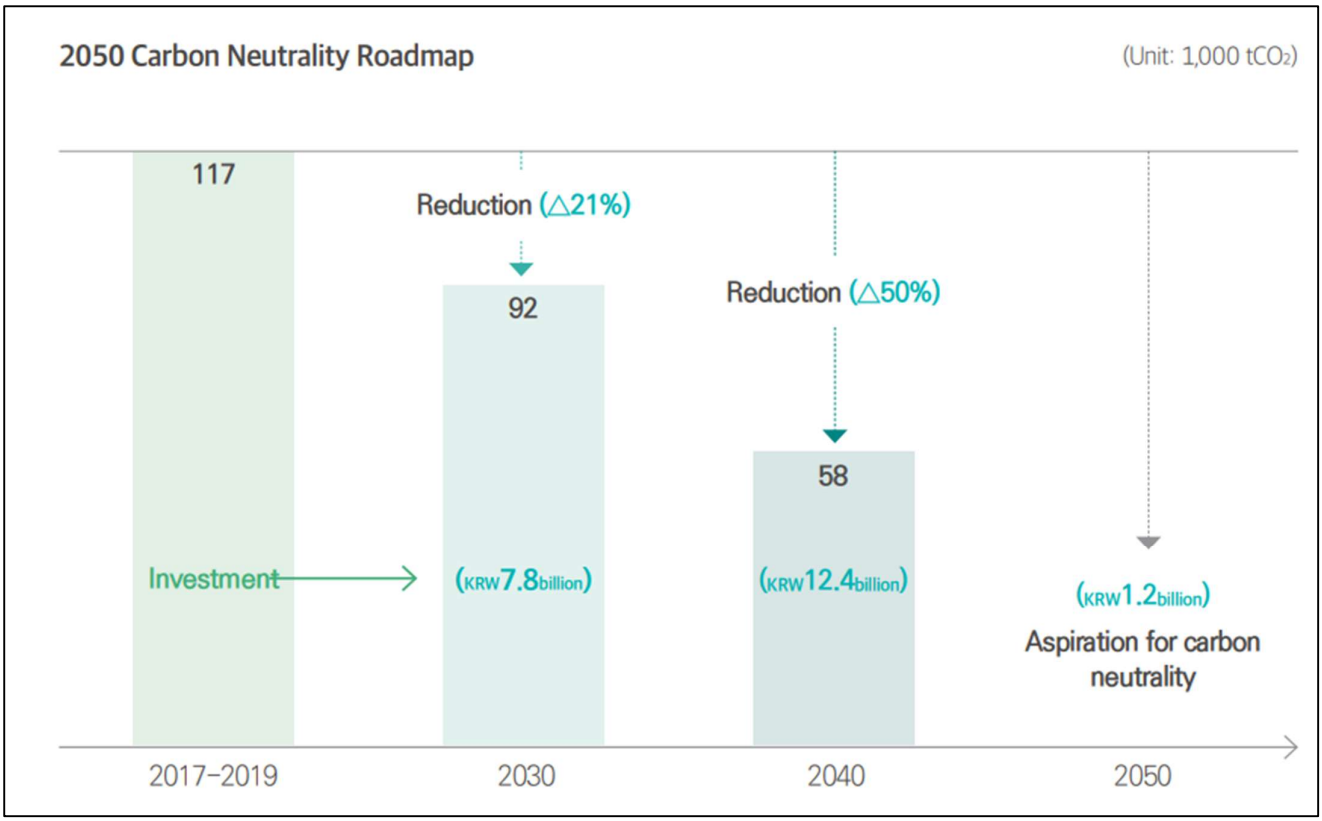
Company Overview

Since its founding in 1988 as a specialist in steel surface treatment, POSCO STEELEON has led the plated/colored steel sheet market by pursuing continuous technological innovations and supplying products of the highest quality. Our main products are aluminum-, zinc-plated and color-coated steel sheets, which are supplied to various industrial sectors including the construction, home appliance, and automobile sectors in major global markets such as North America, China, and Europe. Based on our consolidated financial statements for 2023, our domestic sales amounted to KRW 668 billion (approximately 57.7%), while our overseas sales amounted to General Status KRW 491 billion (approximately 42.3%).

POSCOSTEELEON's Carbon Neutrality Action Plan

We are committed to implementing eco-friendly management to protect the global environment according to our previous declaration of "2050 Carbon Neutrality". To achieve this, POSCO STEELEON has set a step-by-step reduction target of 21% in 2030 and 50% in 2040, and has established a plan to gradually increase the related investment amount. The reduction target was determined based on the average emissions from 2017 to 2019. Some 54% of our GHGs are generated from direct emissions. In order to achieve the 21% reduction target by 2030, we will implement detailed plans in 10-year increments based on the reduction performance of direct and indirect emissions.



## Products Information

The following Life Cycle Assessment study is about the production of seven types of Color-coated steel sheets used for various purposes depending on the Color-coated properties.

Product name : Color-coated steel sheets

The productive process includes:

POSCO STEELEON manufactures unrivaled, high-quality color-coated steel sheets based on its outstanding coated steel sheet technology. PosART, our major color-coated steel sheet, is manufactured by combining steel with the inkjet printing technology developed and patented by POSCO and an ink solution with high-corrosion resistance and processability. It is used in the production of commemorative medals, high-end home appliances, and interior and exterior building materials, and can be designed precisely to meet all customer needs. In addition, it has created a new sensation to the steel industry by adding safe and eco-friendly features, and led to the "premiumization" of color-coated steel sheets such as PosNC, our non-flammable color steel sheet.

UN CPC Code : 412

Geographical scope : Global

Description of the product:

1) PGS

PGS is represent building materials color sheet.

PGS Color Steel Sheet is a durable polyester resin-coated product that can be used in a wide range of applications, from interior and exterior building materials to household appliances. The product offers excellent processability, weather resistance, durability, and a wide range of colors and glosses, making it suitable for use in a variety of settings, including interior and exterior building materials and assembled metal partitions.

2) PES2

PES2 is POS-TONE (high durability big wrinkle polyester steel)

PES2 is a premium steel sheet offering exceptional durability and suitability for use in building materials. PES2 is a soft and warm color product with a luxurious appearance, created using a stone powder-like texture. The texture is expressed by the size of the wrinkle, increasing in size compared to the existing POSMATT (150㎛ → 300㎛). The product offers excellent processability, excellent chemical resistance, and corrosion resistance.

3) PSP2

PSP2 is high weather resistant color sheet

PSP2 is a colored steel sheet that enhances the durability of existing polyester-based paints, offering a cost-effective solution for improving the longevity of existing coatings. PSP2 is used in building interiors and exteriors where chemical, corrosion and weathering resistance is required. The product offers maintaining the aesthetics of the building by delaying discoloration and luster loss over time after construction, reduction of re-coating costs due to aging of buildings, extended life of building by improving weather resistance of construction PCM panel, excellent corrosion resistance and weather resistance.

4) PPG

PPG is pattern printed steel-building materials

PPG is an ideal solution for finishing sophisticated and luxurious building products. Once applied to a cold-rolled steel sheet, the transparent clear coating provides a base for a variety of patterns created by a special printing process (GRAVURE-OFF SET). The product prints a wide range of patterns directly onto building materials and offers high corrosion and weather resistance. It can be applied to clear materials with a gloss or texture and can be used as a substitute for real materials. It can also be combined with various materials (CR, EGI, GI, AL) and paints (PE, PVDF).

5) PBG2

PBG2 is antibiotic Color Steel Sheet

PBG2 is a colored steel sheet mixed with antibacterial agents, which offers excellent antibacterial properties along with weather and corrosion resistance. It effectively suppresses the reproduction of bacteria, viruses and fungi. PBG2 is characterized by its antibacterial function, which is achieved by the action of active oxygen in a special metal-ceramic. This process involves the sterilization of bacteria, mold, organic matter and ammonia gas through the pores of the ceramic, as well as the adsorption and deodorization of bacteria. The use of metal ions (Ag, An, Cu) and harmless, human-safe mixing additives ensures that the product is safe for use in a wide range of environments.

6) PVS2

PVS2 is PVC-Sol

PVS2 is a color steel plate coated with PVC (polyvinyl chloride) resin, which is covered with a 200μm thick film to provide high durability even in harsh environments.

The main features of PVS2 are as follows: Firstly, the product offers high weather resistance, high durability, high processability and long-term material properties. The product has excellent weathering, chemical and corrosion resistance due to the inherent properties of PVC (vinyl chloride) resin. Its excellent workability is a result of the elongation of the coating film. Secondly, the product has a luxurious appearance with an embossed leather grain. Thirdly, it is environmentally friendly and has extremely high weather resistance (eco premium sol). It uses an acetyl-based plasticizer instead of phthalates, increases the UV stabilizer content, adds highly weather resistant inorganic pigments and improves the weather resistance and adhesion compared to general PVC sol products with an improved primer.

# LCA information

Functional unit / Declared unit:

1000 kg of rolled stainless steel.

Description of system boundaries:

Cradle-to-gate for rolled stainless steel.

The life cycle of products is divided into 3 different life cycle stages:

(1) Upstream processes (from cradle-to-gate)

(2) Core processes (from gate-to-gate): This module represents the extraction and processing of raw materials, the transport to production sites and the manufacture and packaging.

(3) Downstream processes (from gate-to-grave): These processes are excluded since the LCA study shall follow the “cradle-to-gate” principles.

Database(s) and LCA software used:

Ecoinvent v3.10 (allocation, cut-off by classification) database and SimaPro v9.6 software have been used for the LCA calculations. LCA methods used are EN 15804:2012+A2:201 compliant.

EN 15804:2012+A2:2019/AC:2021 Method

The environmental impact calculation used to perform EN 15804:2012+A2:2019/AC:2021 was performed according to methodology EF 3.1

Data quality and data collection:

1. Data collection of the study

1.1. Introduction of data collection

As a result of the application of the cut-off rules, coils and paints are included in the system as raw materials used in the core processes.

Below life cycle stages are followed the PCR 2015:03 Basic iron or steel products & special steels, except construction products (2.1.1). The detailed data collection per life cycle stages is as follows.

1.2. Upstream processes (from cradle-to-gate)

The upstream process is cradle-to-gate, so raw material input and transportation data are collected. The detailed data is as follows

1.3. Raw material input

Coils and paints are subject to raw material input data collection due to the cutoff.

1.4. Transport

Coils and paints are targeted for data collection in the case of transport.

1.5. Core processes (from gate-to-gate)

Coil and Paint are targeted for data collection in the case of raw material input.

Electricity, LNG, Steam, Top water are targeted for data collection in the case of utility.

Waste paint etc., waste paint liquid, waste paint solids, waste oil liquid, waste oil solids, synthetic resins, wastewater sludge, synthetic rubber, waste filter, waste activated carbon, waste insulating oil, scrap, waste water, vapor are targeted for data collection in the case of waste.

2. Data quality assessment

According to the requirements in PCR 2015:03, specific data was used for upstream processes (from cradle-to-gate). In the upstream processes, no specific data is used except for transportation. Data on the extraction and production of raw materials and the production of primary and secondary packaging are not collected because there are so many suppliers that individual data collection is not possible. Therefore, the most similar database is linked. Also, the specific data was used in core processes (from gate to gate) per PCR. Specific data includes actual manufacturing process for steel, waste generated during manufacturing and its treatment.

The data quality assessment is carried out on the specific data used according to EN 15804:2012+A2:2019. The data quality assessment shall cover the three areas, time-related coverage, geography coverage and technology coverage. The data quality assessment on these three areas is advanced on the basis of Annex E in the EN 15804:2012+A2:2019. In Annex E, the following schemes shall be applied for the data quality assessment of generic and specific data.

As a result, Geographical Representative, Technical Representative, Time Representative are as follows.

First, the data quality of the geographical representative is "very good". This is because the specific data are used. Thus, the dataset is fully representative for the geography specified in the "location" specified in the metadata.

Second, the data quality of the technical representative is "very good". This is because there is only one plating plant. The technology used is therefore accurately described.

Finally, the data quality of the time representative is "very good". Because the range of specific data collected is "2023.01 ~ 2023.12"

and the used version of ecoinvent is 3.10, so the "data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years.

Data quality level and criteria from the Product Environmental Footprint Category Rules

| Quality level | Geographical representative | Technical representative | Time representative |
|---|---|---|---|
| Very good | The processes included in the data set are fully representative for the geography stated in the "location" indicated in the metadata. | Technology aspects have been modelled exactly as described in the title and metadata, without any significant need for improvement | Data are not older than 0 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years) |
| Good | The processes included in the data set are well representative for the geography stated in the "location" indicated in the metadata. | Technology aspects are very similar to what described in the title and metadata, with need for limited improvements. For example: use of generic technologies' data instead of modelling all the single plants. | Data are not older than 3 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years) |
| Fair | The processes included in the data set are sufficiently representative for the geography stated in the "location" indicated in the metadata. E.g. the represented country differs but has a very similar electricity grid mix profile | Technology aspects are similar to what described in the title and metadata but merits improvements. Some of the relevant processes are not modelled with specific data but using proxies. | Data are not older than 6 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years) |
| Poor | The processes included in the data set are only partly representative for the geography stated in the "location" indicated in the metadata. E.g. the represented country differs and has a substantially different electricity grid mix profile | Technology aspects are different from what described in the title and metadata. Requires major improvements. | Data are not older than 10 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years, confirmed by the reviewer(s)) |
| Very poor | The processes included in the data set are not representative for the geography stated in the "location" indicated in the metadata. | Technology aspects are completely different from what described in the title and metadata. Substantial improvement is necessary. | Data are older than 10 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years) |

Allocation:

In a paint factory, there are 1, 2, 3, 4 CCL lines.

Each line produces a variety of painted products and detailed information is shown in below table. Utility consumption and waste generation are measured as follows. Electricity, LNG, tap water, steam, waste paint, etc., waste paint liquid, waste paint solids, waste oil liquid, waste oil solids, synthetic resins, waste water sludge, synthetic rubber, waste filter, waste activated carbon, waste insulating oil, and waste water data are measured based on the entire factory unit. Electricity and LNG consumption are also measured based on the 1, 2 CCL line.

Painted products to be certified and corresponding production lines

| | |
|---|---|
| PGS | 1, 2 CCL |
| PES2 | 1, 2 CCL |
| PSP2 | 1, 2 CCL |
| PPG | 2, 4 CCL |
| PBG2 | 1, 2 CCL |
| PVS2 | 1 CCL |
| PCS | 2, 3, 4 CCL |

[Integrated] PGS, PES2, PSP2, PPG, PBG2, PVS2

According to the above environmental assessment results, the variation percentage between the multiple similar products (PGS, PES2, PSP2, PPG, PBG2, PVS2), which is calculated from the comparison based on the worst case, is 0.0~8.9%. See the table below for the exact amount. Thus, the variation is below the 10% that the multiple similar products may be grouped together.

| Impact category | Worst case deviation ratio per impact category | | | | | |
|---|---|---|---|---|---|---|
| | PBG2 | PES2 | PGS | PPG | PSP2 | PVS2 |
| | Total | Total | Total | Total | Total | Total |
| Climate change | 9.19% | 5.5% | 6.2% | 5.8% | 2.2% | 0.0% |

This integrated case follows the PCR, that is 'BASIC IRON OR STEEL PRODUCTS & SPECIAL STEELS, EXCEPT CONSTRUCTION STEEL PRODUCTS PRODUCT CATEGORY CLASSIFICATION'. According to the PCR, If impact categories deviation ratio is over the 10%, the calculation performance should separately described.

There are some impact categories over the 10% of result deviation (calculation standard is the worst case of separate impact category calculation result) ratio between 6 products. The calculation method is Environmental Footprint 3.1. The impact categories exceeding 10% of the result deviation are shown in the table below. So that all environmental performances are written separately as in the PCR.

| Category | Worst case deviation ratio per impact category | | | | | |
|---|---|---|---|---|---|---|
| | PBG2 | PES2 | PGS | PPG | PSP2 | PVS2 |
| | Total | Total | Total | Total | Total | Total |
| Climate change | 9.19% | 5.5% | 6.2% | 5.8% | 2.2% | 0.0% |
| Climate change - Biogenic | 26.7% | 24.7% | 24.6% | 23.1% | 19.1% | 0.0% |
| Climate change - Fossil | 7.5% | 4.3% | 5.0% | 4.2% | 1.6% | 0.0% |
| Climate change - Land use and LU change | 86.4% | 55.4% | 61.4% | 77.0% | 28.7% | 0.0% |
| Ozone depletion | 21.9% | 16.1% | 16.9% | 0.0% | 11.6% | 6.2% |
| Acidification | 11.7% | 6.9% | 7.8% | 7.9% | 3.2% | 0.0% |
| Eutrophication, marine | 14.1% | 8.5% | 9.5% | 9.3% | 4.1% | 0.0% |
| Eutrophication, freshwater | 4.7% | 1.5% | 2.1% | 1.1% | 0.0% | 1.8% |
| Eutrophication, terrestrial | 9.1% | 5.0% | 5.7% | 4.1% | 2.1% | 0.0% |
| Photochemical ozon formation | 11.5% | 6.7% | 7.5% | 6.1% | 3.0% | 0.0% |
| Resource use, minerals and metals | 42.3% | 38.7% | 38.7% | 37.2% | 29.7% | 0.0% |
| Resource use, fossils | 10.6% | 6.3% | 6.9% | 0.0% | 3.1% | 0.0% |
| Water use | 14.9% | 9.9% | 10.8% | 12.0% | 5.5% | 0.0% |
| Particulate matter | 8.6% | 5.0% | 5.7% | 7.2% | 2.2% | 0.0% |
| Ionising radiation | 12.8% | 10.3% | 10.1% | 0.0% | 8.6% | 3.1% |
| Ecotoxicity, freshwater | 14.2% | 5.2% | 7.2% | 12.5% | 0.0% | 2.7% |
| Human toxicity, cancer | 1.7% | 0.0% | 1.1% | 5.3% | 6.0% | 37.2% |
| Human toxicity, non-cancer | 5.6% | 4.6% | 4.7% | 4.8% | 3.2% | 0.0% |
| Land use | 36.7% | 22.9% | 25.5% | 31.5% | 11.4% | 0.0% |

[Raw material input]

In the case of a paint factory, raw material inputs are managed by line, except paint. Only paint is managed by product. For each line, the monthly production ratio of each product to the total production of certified products was calculated. The monthly input by line of raw materials used in certified products was allocated by multiplying the monthly production ratio of each certified product.

[Utility & Waste]

In a paint factory, PGS, PES2, PSP2, PPG, PBG2 and PVS2.are produced on multiple lines. To allocate the utility per product. Each line's utility usage was first based on production volume. The ratio of certified products to total production was multiplied by each line's monthly usage to calculate the data for products separated by line. For products produced by multiple lines, the monthly data for each line of the product was calculated by summing the monthly data of each line of the product. Electricity consumption and LNG production managed by each line were calculated by calculating the ratio of the monthly production of each product to the total monthly production of each line of certified products.

Cut-off rules:

According to PCR, the environmental impact criteria are calculated up to 99% and the remainder is cut-off. 99% of the environmental impact is from coils and ingots of raw materials. For this product, the coil accounts for more than 97% of the weight and the ingot accounts for more than 2%, so even if the other raw materials are connected to the most influential substance at 0.3%, it cannot satisfy 1%.

Input and output flows of mass and energy greater than 1% (based on the total mass final product and total energy usage of the product system) or greater than 1% of environmental impacts were included within the scope of analysis. Flows less than 1% are included with sufficient data available to warrant inclusion and/or the flow was thought to have a significant environmental impact. Where data gaps were identified, they are filled by conservative assumptions with average, generic, or proxy data, and assumptions are documented. No known flows relevant to the product system are deliberately excluded from this LCA and EPD

## Content information

| Product components | Weight, kg | Post-consumer material, weight-% | Biogenic material, weight-% and kg C/kg |
|---|---|---|---|
| Coil / Galvanized steel sheet | 1.00E+03 | Unknown | 0.00E+00 |
| Paint / Paint | 2.22E+01 | Unknown | 0.00E+00 |
| ETC | 1.07E+00 | Unknown | 0.00E+00 |
| TOTAL | 1.02E+03 | | 0.00E+00 |

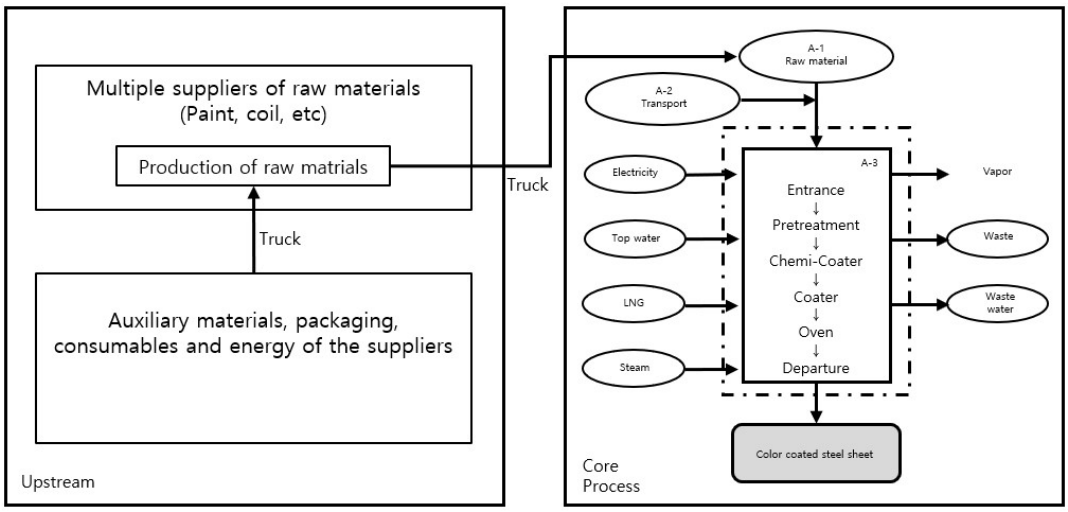
*Unknown because the raw material manufacturer does not disclose the recycled content of the product.

System diagram

The diagram below shows three life cycle stages. A description of the life cycle stages is described in the system boundary section at the right upper side.

In the upstream stage, auxiliary materials, packaging, consumables and energy from suppliers are transported by truck to the raw material production sites.

In the core process, the produced raw materials are transported by truck to the painting factory and used in the




production process of painted steel sheet.

# Environmental Performance

The tables below show the results of the overall calculation for 1,000kg of Color-coated steel sheets. The environmental impact is calculated over the parameters of the categories in the above tables, according to EN 15804:2012+A2:2019/AC:2021.

Potential environmental impact – mandatory indicators

| Results for 1,000kg of Color-coated steel sheet | | | | |
|---|---|---|---|---|
| Indicator | Unit | Total | Upstream | Core |
| GWP-fossil | kg $CO_2$ eq | 3.90E+00 | 2.80E+00 | 1.11E+00 |
| GWP-biogenic | kg $CO_2$ eq | 2.22E+03 | 2.15E+03 | 7.43E+01 |
| GWP-luluc | kg $CO_2$ eq | 2.26E+01 | 2.26E+01 | 2.88E-02 |
| GWP-total | kg $CO_2$ eq | 2.25E+03 | 2.17E+03 | 7.54E+01 |
| ODP | kg CFC11 eq | 2.34E-05 | 1.76E-05 | 5.74E-06 |
| AP | mol H+ eq | 1.27E+01 | 1.24E+01 | 2.70E-01 |
| EP-freshwater | kg P eq | 2.66E+00 | 2.55E+00 | 1.11E-01 |
| EP- marine | kg N eq | 9.80E-01 | 9.33E-01 | 4.67E-02 |
| EP-terrestrial | mol N eq | 2.32E+01 | 2.24E+01 | 7.38E-01 |
| POCP | kg NMVOC eq | 7.91E+00 | 7.64E+00 | 2.66E-01 |
| ADP-minerals&metals* | kg Sb eq | 1.42E-02 | 1.02E-02 | 3.92E-03 |
| ADP-fossil* | MJ | 2.68E+04 | 2.46E+04 | 2.16E+03 |
| WDP | m3 | 6.82E+02 | 6.64E+02 | 1.79E+01 |
| Acronyms | | GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWPluluc = 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 nonfossil 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 shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator)

## Potential Environmental Impact Additional Mandatory and Voluntary Indicators

| Results for 1,000kg of Color-coated steel sheet | | | | |
|---|---|---|---|---|
| Indicator | Unit | Total | Upstream | Core |
| GWP - GHG* | kg $CO_2$ eq | 2.65E+01 | 2.54E+01 | 1.14E+00 |

(* Disclaimer: The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.)

## Use of Resources

| Results for 1,000kg of Color-coated steel sheet | | | | |
|---|---|---|---|---|
| Indicator | Unit | Total | Upstream | Core |
| PERE | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERM | MJ | 1.54E+03 | 1.52E+03 | 2.34E+01 |
| PERT | MJ | 1.54E+03 | 1.52E+03 | 2.34E+01 |
| PENRE | MJ | 1.58E+04 | 1.52E+04 | 5.97E+02 |
| PENRM | MJ | 5.88E+01 | 5.91E+01 | -3.07E-01 |
| PENRT | MJ | 1.58E+04 | 1.52E+04 | 5.97E+02 |
| SM | Kg | 6.15E+03 | 0.00E+00 | 6.15E+03 |
| RSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | $m^3$ | 6.82E+02 | 6.64E+02 | 1.79E+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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water | | |

## Waste production

| Results for 1,000kg of Galvanized steel sheet | | | | |
|---|---|---|---|---|
| Indicator | Unit | Total | Upstream | Core |
| Hazardous waste disposed | kg | 9.65E-02 | 9.10E-02 | 5.44E-03 |
| Non-hazardous waste disposed | kg | 8.97E-01 | 7.82E-01 | 1.15E-01 |
| Radioactive waste disposed | kg | 3.37E+01 | 3.43E+01 | -6.25E-01 |

## Output flows

| Results for 1,000kg of Color-coated steel sheet |
|---|

| Indicator | Unit | Total | Upstream | Core |
|---|---|---|---|---|
| Component for re-use | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for recycling | kg | 5.44E+03 | 0.00E+00 | 5.44E+03 |
| Materials for energy recycling | kg | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy, electricity | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Radioactive waste disposed | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 |

## Additional environmental information

The base material of the Color-coated steel sheets is iron. No substances required to be reported as hazardous are associated with the production of this product.

## Dangerous Substance

All chemicals used in the POSCOSTEELEON factory are managed in accordance with the Korean Toxic Chemicals Control Act. Substances listed on the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) are contained in the Base and Primer paint but the amount is not in declarable quantities. It is less than 0.1% of the product weight.

# References

**General Programme Instructions of the International EPD® System. Version 4.0.**

**International EPD PCR 2015:03**

Basic iron or steel products & special steels, except construction products (2.1.1)

**EN 15804:2012+A2:2019**

Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction product

**ISO 14044:2006**

Environmental management — Life cycle assessment — Requirements and guidelines

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