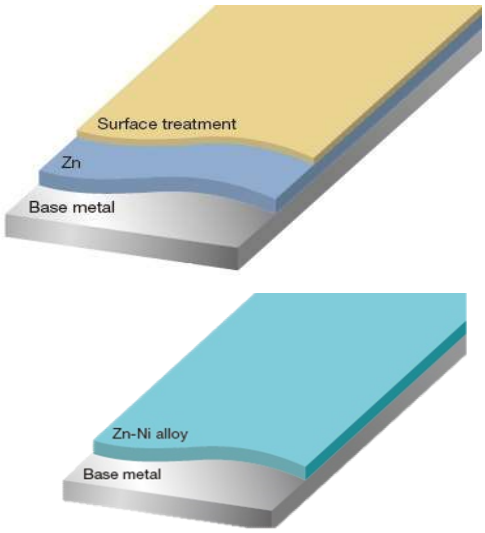
EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-AW-22009E-A

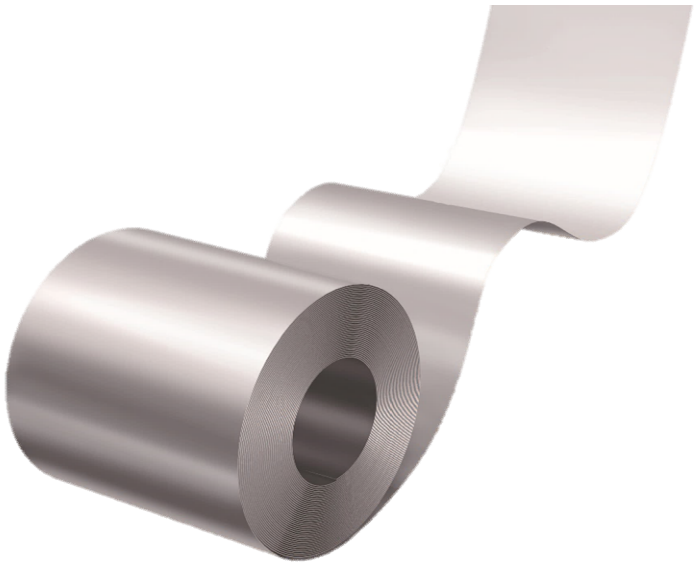
Japan EPD Program by SuMPO
Sustainable Management Promotion Organization
14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan
https://ecoleaf-label.jp/

NIPPON STEEL

# Electrogalvanized Steel Sheets

Coating Structure
(representative example)



## Functional unit

1 t

## System boundary

☐ final products ■intermediate products

## Main specifications of the product

Production sites:

East Nippon Works, Setouchi Works

Main standards:

JIS(Japanese Industrial Standards),

NIPPON STEEL standards

For details, please refer to "8. Remarks" in EL sheet 2.

Shape: Coil and sheet

Main thickness (unit: mm, t:=thickness) :

t =0.4～3.2

## Company Information

**NIPPON STEEL CORPORATION**

Flat Products Unit Flat Products Planning Dept.

https://www.nipponsteel.com/

| | |
|---|---|
| **Registration#** | JR-AW-22009E-A |
| **PCR number** | PA-180000-AW-05 |
| **PCR name** | Steel products (except for construction use) |
| **Publication date** | 4/21/2022 |
| **Verification date** | 1/19/2024 |
| **Verification method** | Product-by-product |
| **Verification#** | JV-AW-24018 |
| **Expiration date** | 3/17/2027 |

## PCR review was conducted by:

| | |
|---|---|
| **Approval date** | 5/10/2023 |
| PCR review panel chair | Yasunari Matsuno (Chiba University) |

## Third party verifier*

Tomoko Fuchigami

Independent verification of data & declaration in accordance with ISO14025

☐internal ■external

*Auditor's name is stated if system certification has been performed.

EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-AW-22009E-A

Japan EPD Program by SuMPO
Sustainable Management Promotion Organization
14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan
https://ecoleaf-label.jp/

## 1. Results of life cycle impact assessment (LCIA)

| Domain of influence | Manufacturing + Indirect impact*1 | Manufacturing only*2 | Unit |
|---|---|---|---|
| Global warming IPCC2013 GWP100a | 1600 | 2800 | kg-$CO_2$eq |
| Acidification | -0.0021 | 1.9 | kg-$SO_2$eq |
| Eutrophication | 0.017 | 0.040 | kg-$PO_4^{3-}$eq |

*1:the total of (1) to (3), *2:the total of (1) to (2)

| Parameter \ stage | Unit | the total of (1)to (2) | (1)raw material procurement | (2)product manufacture | | | (3)indirect impacts |
|---|---|---|---|---|---|---|---|
| Global warming IPCC2013 GWP100a | kg-$CO_2$eq | 2.8E+03 | 5.8E+02 | 2.2E+03 | | | -1.2E+03 |
| Ozone layer destruction | kg-CFC-11eq | 1.6E-07 | 1.2E-07 | 3.9E-08 | | | -2.2E-07 |
| Acidification | kg-$SO_2$eq | 1.9E+00 | 7.6E-01 | 1.1E+00 | | | -1.9E+00 |
| Photochemical ozone | kg-$C_2H_4$eq | 2.1E-02 | 6.9E-03 | 1.4E-02 | | | -2.6E-01 |
| Eutrophication | kg-$PO_4^{3-}$eq | 4.0E-02 | 1.5E-02 | 2.5E-02 | | | -2.3E-02 |

## 2. Life cycle inventory analysis (LCI)

| 項目 | | 単位 |
|---|---|---|
| Non-renewable material resources | 7.5E+02 | kg |
| Non-renewable energy resources | 3.1E+04 | MJ |
| Renewable material resources | 1.1E+03 | kg |
| Renewable primary energy | 1.6E+02 | MJ |
| Consumption of freshwater | 4.9E+00 | $m^3$ |

## 3. Material composition

| Material | | Unit |
|---|---|---|
| iron [Fe] | ≧95.0 | % |
| carbon [C] | ≦1.10 | % |
| silicon [Si] | ≦3.00 | % |
| manganese [Mn] | ≦3.00 | % |
| phosphorus [P] | ≦0.050 | % |
| sulfur [S] | ≦0.050 | % |
| zinc [Zn] | ≦2.00 | % |
| nickel [Ni] | ≦2.00 | % |

## 4. Waste to disposal

| Parameter | | Unit |
|---|---|---|
| Hazardous waste | - | kg |
| Non-hazardous waste. | 1.7E+00 | kg |
| Treated MSW for landfill | 0.0E+00 | kg |
| Treated industrial waste for landfill | 2.8E+00 | kg |

*Data derived from LCA and not assigned to the impact categories of LCIA

## 5. Additional explanation

① Each LCI includes allocation for scrap recycling as an optional supplementary information [End-of-Life].
The indirect effect is added to the total value in Tables [Raw material acquisition], [Production] and [Distribution].
Recyclingrate (RR) used in this calculation is 93.0%
(calculated based on ISO 20915/JIS Q 20915 standards and using FY 2018 data from Japan Steel Can Recycling Association and Tetsugen Association).
② Material transport scenariois based on PCR.
③ Each item (expect iron) in table 3 is the maximum value of all product standards covered by this EPD.
However, the iron content in each product is never less than 95%, and the contents of other components are adjusted.
④ Primary data collected in 2018. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
⑤ For the transport of metallurgical coal, the amount is double counted in Tables [Raw material acquisition] and [Distribution] due to the characteristics of the consumption rate database on which this estimation is based.
⑥ Each value of the results shown in this sheet is the mean value for Electrogalvanized Steel Sheets.

## 6-1. Supplementary environmental information

East Nippon Works and Setouchi Works have ISO 14001 certificates.

## 6-2. Regulated hazardous substances

| Substance | CAS No. | Reference to standards or regulations |
|---|---|---|
| manganese [Mn] | 7439-96-5 | Industrial Safety and Health Act |
| | | |

## 7. Assumptions of secondary data used

We use the IDEA v2.1.3 data and steel scrap data(JP-AJ-0001) from the Japan Iron and Steel Federation.

## 8. Remarks

<The details about Main standards>

Typical Type of JIS (JIS G 3313):

・Commercial quality (e.g.:SECC,SECCT,SEHC)
・Drawing quality (e.g.:SECD,SEHD)
・Deep Drawing quality (e.g.:SECE,SEHE)
・High-Strength quality for drawing (e.g.:SEFC340,SEPH400)

Typical Type of NIPPON STEEL standards :

・Commercial quality (e.g.:NSECC,NSEHC)
・Drawing quality (e.g.:NSEC270D,NSEH270D)
・Deep drawing (e.g.:NSEC270E,NSEH270E)
・Extra deep drawin (e.g.:NSEC270F)
・High-Strength quality for automotive forming (e.g.:NSEC390N)
・Bake-hardening quality (e.g.:NSEC340BH)
・High-Strength quality for drawing (e.g.:NSEC340R)
・High-Strength quality for deep drawing (e.g.:NSEC340E)
・High-Strength quality of loe yield ratio-type (e.g.:NSEC490D)
・DUALZINKLITE™ (e.g.:NSNCC,NSNC270D,NSNC340R)
・ECOTRIO™ (e.g.:ZSNC)
・SUPERNICKEL™ (e.g.:NTSN)

・January 2024; Modification about allocation method of by-product gases

- For data quantification, please refer to PCR and Rules on quantification and declaration.
- Comparative assertion is permitted only when Rules on quantification and declaration are satisfied.
(Reference URL : https://ecoleaf-label.jp/regulation/)