



EcoLeaf

Type III Environmental Declaration (EPD)

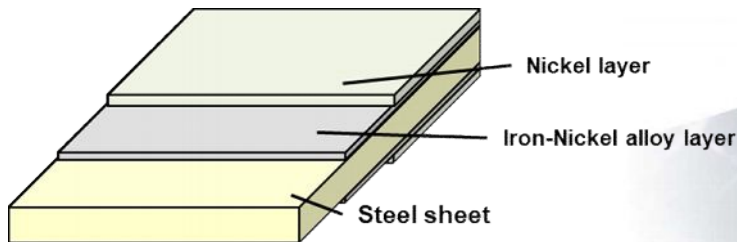
Registration number : JR-AW-22017E-A

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization  
14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan  
<https://ecoleaf-label.jp/>

# NIPPON STEEL CORPORATION

## Nickel plated steel sheet (SUPERNICKEL™)



### Functional unit

1 t

### System boundary

final products                      intermediate products

Production stages (raw material procurement and product manufacture) and indirect impacts

### Main specifications of the product

Production site : Setouchi Works

Main standards: Nippon Steel Standard(NTSN,NTSNC,etc)

Shape : Coil, hoop and sheet

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

t = 0.15 to 1.0

### Company Information

NIPPON STEEL CORPORATION  
Tin Mill Products Technology Dept.,  
Tin Mill Products & Electrical Steel Sheet Div.  
TEL: 03-6867-6558

|                              |  |
|------------------------------|--|
| Registration#                | JR-AW-22017E-A                               |
| PCR number                   | PA-180000-AW-05                              |
| PCR name                     | Steel products (except for construction use) |
| Publication date             | 11/1/2022                                    |
| Verification date            | 1/29/2024                                    |
| Verification method          | Product-by-product                           |
| Verification#                | JV-AW-24023                                  |
| Expiration date              | 1/28/2029                                    |
| PCR review was conducted by: |  |
| Approval date                | 5/10/2023                                    |
| PCR review panel chair       | Yasunari Matsuno<br>(Chiba University)       |

### Third party verifier\*

Hiroyuki Uchida

Independent verification of data & declaration in accordance with ISO14025

internal                      external

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

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## Results of life cycle impact assessment (LCIA)

| Domain of influence             | Manufacturing + Indirect impact*1 | Manufacturing only*2 | Unit                                |
|---------------------------------|-----------------------------------|----------------------|-------------------------------------|
| Climate change IPCC2013 GWP100a | 2000                              | 3100                 | kg-CO <sub>2</sub> eq               |
| Acidification                   | 16                                | 18                   | kg-SO <sub>2</sub> eq               |
| Eutrophication                  | 0.92                              | 0.94                 | kg-PO <sub>4</sub> <sup>3-</sup> 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 <sub>2</sub> eq               | 3.1E+03                 | 7.2E+02                     | 2.4E+03                | -1.2E+03            |
| Ozone layer destruction         |       | kg-CFC-11eq                         | -1.0E-06                | 8.4E-08                     | -1.1E-06               | -2.1E-07            |
| Acidification                   |       | kg-SO <sub>2</sub> eq               | 1.8E+01                 | 1.6E+01                     | 1.8E+00                | -1.8E+00            |
| Photochemical oxidant           |       | kg-C <sub>2</sub> H <sub>4</sub> eq | 1.3E-01                 | 1.1E-01                     | 2.6E-02                | -2.5E-01            |
| Eutrophication                  |       | kg-PO <sub>4</sub> <sup>3-</sup> eq | 9.4E-01                 | 9.0E-01                     | 4.1E-02                | -2.1E-02            |

## Life cycle inventory analysis (LCI)

| 項目                               |         | 単位             |
|----------------------------------|---------|----------------|
| Non-renewable material resources | 6.3E+02 | kg             |
| Renewable material resources     | 9.5E+02 | kg             |
| Non-renewable energy resources   | 3.8E+04 | MJ             |
| Renewable primary energy         | 5.2E+01 | MJ             |
| Consumption of freshwater        | 1.0E+00 | m <sup>3</sup> |

## Material composition

| Material       |      | Unit |
|----------------|------|------|
| Iron [Fe]      | 79.1 | %    |
| Manganese [Mn] | 0.60 | %    |
| Nickel [Ni]    | 20   | %    |
| Chromium [Cr]  | 0.10 | %    |
| Copper [Cu]    | 0.20 | %    |

## Waste to disposal

| Parameter                             |         | Unit |
|---------------------------------------|---------|------|
| Treated MSW for landfill              | 0.0E+00 | kg   |
| Treated industrial waste for landfill | 1.6E+00 | kg   |

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

## Additional explanation

- 1)Steel material recycling effects were assessed based on JISQ20915 as indirect impacts. Their values are shown in column of the table above. The indirect impacts are added to the total of to in the table above. The recycling rate in this calculation is 93.0%. (The calculation was based on JISQ20915 and used the domestic data of FY2018. (Source: The Japan Iron and Steel Federation, the Japan Ferrous Raw Materials Association, and Japan Steel Can Recycling Association) )
- 2)Transport to site scenario is based on PCR.
- 3)Regarding Material composition on this sheet, except for iron, the maximum value of each upper limit value of the applicable steel standards is indicated.
- 4)The calculation results do not indicate the figures of individual products, but the average of all nickel plated steel sheet(SUPERNICKEL™) made by Nippon Steel .
- 5)The primary data used are the actual figures for FY2018. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in FY2014.
- 6)Concerning the transport of coking coal, due to the nature of the unit consumption database used, the unit consumption is double-counted for coking coal and coal transport.



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**-1. Supplementary environmental information**

Products are manufactured at an ISO14001 certified Works.

**-2. Regulated hazardous substances**

| Substance      | CAS No.   | Reference to standards or regulations |
|----------------|-----------|---------------------------------------|
| Manganese [Mn] | 7439-96-5 | the Industrial Safety and Health Act  |
| Nickel [Ni]    | 7440-02-0 | the Industrial Safety and Health Act  |
| Chromium [Cr]  | 7440-47-3 | the Industrial Safety and Health Act  |
| Copper [Cu]    | 7440-50-8 | the Industrial Safety and Health Act  |

**Assumptions of secondary data used**

The IDEA v2.1.3 data were used. For the scrap primary unit (scrap LCI), the primary unit registration No.: JP-AJ-0001 was used.

**Remarks**

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/> )

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