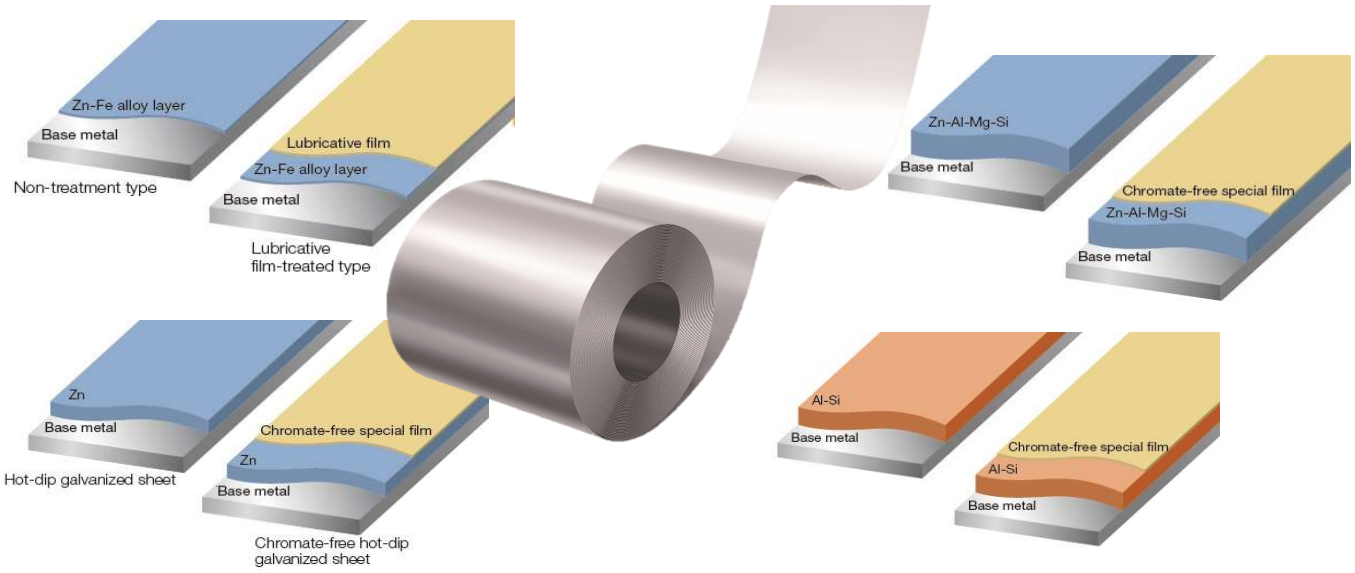
EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-AJ-22006E-A

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

NIPPON STEEL

Hot-dip galvanized and aluminium alloy coating sheets (for construction)

Coating Structure
(representative example)



Functional unit

1 t

System boundary

☐ final products ■intermediate products

Main specifications of the product

Production sites:

East Nippon Works, Nagoya Works

Setouchi Works, Kyushu 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 =0.27～9.0

Company Information

NIPPON STEEL CORPORATION

Flat Products Unit Flat Products Planning Dept.

https://www.nipponsteel.com/

Registration#	JR-AJ-22006E-A
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	4/21/2022
Verification date	1/19/2024
Verification method	Product-by-product
Verification#	JV-AJ-24020
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 and ISO21930

☐internal ■external

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

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1. Results of life cycle impact assessment (LCIA)

Parameter \ Stage	【A1~A3】+【D】	【A1~A3】	Unit
Global warming IPCC2013 GWP100a	1600	2800	kg-CO_2eq
Acidification	0.36	2.2	kg-SO_2eq
Eutrophication	0.015	0.037	kg-PO_4^{3-}eq

Table Legend
【A1】: Raw mterial supply
【A2】: Transport to factory
【A3】: Manufacturing
【D】: Recycling potential
【A1～A3】: sum of【A1】,【A2】and【A3】(cradle to gate)
【A1～A3】+【D】: sum of【A1】,【A2】,【A3】and【D】(cradle to gate with allocation for scrap recycling)

Parameter \ stage	Unit	【A1~A3】	【A1】	【A2】	【A3】		【D】
Global warming IPCC2013 GWP100a	kg-CO_2eq	2.8E+03	5.8E+02	1.0E+02	2.1E+03		-1.2E+03
Ozone layer destruction	kg-CFC-11eq	-1.9E-07	1.2E-07	6.8E-10	-3.1E-07		-2.2E-07
Acidification	kg-SO_2eq	2.2E+00	5.2E-01	6.0E-02	1.6E+00		-1.9E+00
Photochemical ozone	kg-C_2H_4eq	1.7E-02	4.6E-03	1.0E-03	1.1E-02		-2.6E-01
Eutrophication	kg-PO_4^{3-}eq	3.7E-02	3.1E-03	6.1E-13	3.4E-02		-2.2E-02

2. Life cycle inventory analysis (LCI)

項目		単位
Non-renewable material resources	6.5E+02	kg
Non-renewable energy resources	3.2E+04	MJ
Renewable material resources	1.0E+03	kg
Renewable primary energy	6.5E+02	MJ
Consumption of freshwater	2.4E+00	m^3

3. Material composition

Material		Unit
iron [Fe]	≧84.0	%
carbon [C]	≦3.00	%
silicon [Si]	≦3.00	%
manganese [Mn]	≦0.050	%
phosphorus [P]	≦0.050	%
sulfur [S]	≦0.050	%
zinc [Zn]	≦15.00	%
aluminum [Al]	≦4.00	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	-	kg
Non-hazardous waste.	1.7E+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 Hot-dip Galvanized and Aluminized Steel Sheets.

6-1. Supplementary environmental information

East Nippon Works, Nagoya Works, Setouchi Works, Kyushu 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

○Typical Type of JIS :

・JIS G 3302 Hot-dip galvanized steel sheet and strip/Hot-dip galvannealed steel sheet and strip : Commercial（e.g.:SGCC,SGHC）, Drawing(e.g.:SGCD1),Structural(e.g.:SGC340,SGH340）, Commercial,Hard（e.g.:SGCH)

・JIS G 3323　Hot-dip zinc-aluminum-magnesium-silicon alloy-coated steel sheet and strip : For general use（e.g:SGMCC,SGMHC), For hard class general use（e.g.:SGMCH）, For drawing use（e.g.:SGMCD1）,For high-strength general use（e.g.:SGMC340,SGMH340)

・JIS G 3314　Hot-dip aluminum-coated steel sheet and strip : Heat resistance（e.g.:SA1C)

○Typical Type of NIPPON STEEL standards :

・Hot-dip galvanized steel sheet and strip/Hot-dip galvannealed steel sheet and strip : Commercial(e.g.:NSGCC,NSACC,NSGHC,NSAHC), Drawing（e.g.:NSGC270D, NSAC270E,NSGH270D, NSAH270D）,Structural (e.g.:NSGC340,NSGH340）Drawing,high-strength (e.g.:NSGC340R , NSAC340R) ,Deep drawing,high-strength(e.g.:NSGC340E,NSAC340E), Commercial,Hard（e.g.:NSAC340, NSAH340)

・Hot-dip zinc-aluminum-magnesium-silicon alloy-coated steel sheet and strip : For general uses (e.g.:NSDCC,NSDHC,MSMCC,MSMHC）,For drawing use（e.g.:NSDCD 1 , NSDHP1, MSMCD,MSMHD）,For structural use (e.g.:NSDC340, NSDH340, MSMCK370, MSMHK370）, For architecture structural use（e.g:MSMCK400K,MSMHK400K)

・Hot-dip aluminum-coated steel sheet and strip : Heat resistance（e.g.:NSA1C)

・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/）