



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-22006E-A

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization

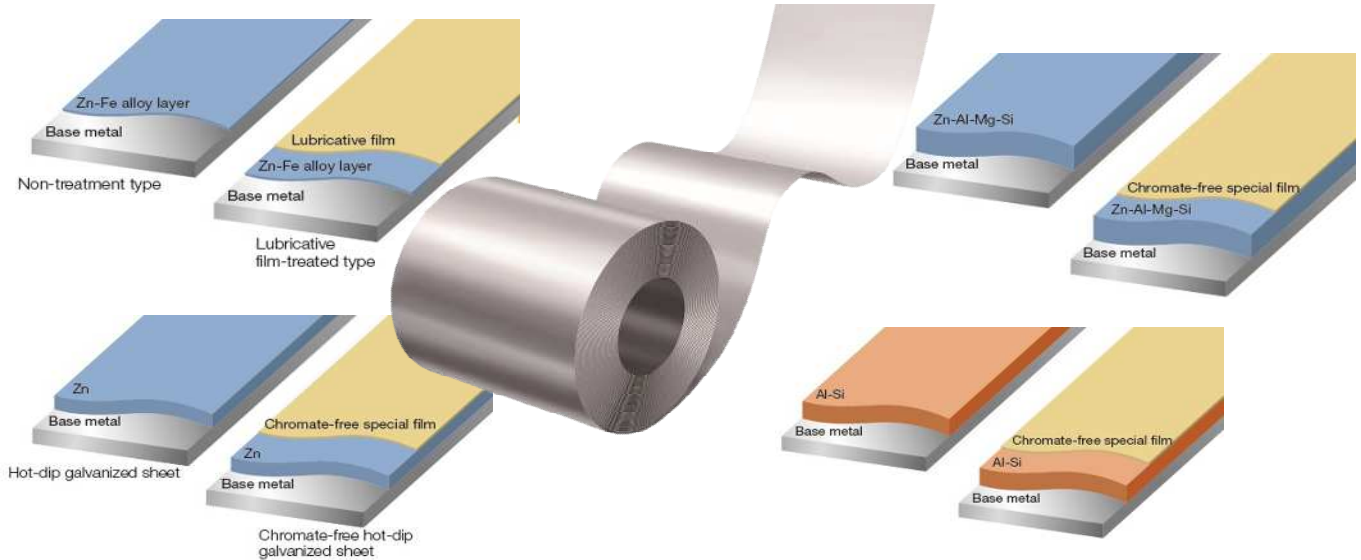
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<https://ecoleaf-label.jp/>



## Hot-dip galvanized and aluminium alloy coated 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 <sub>2</sub> eq
Acidification		0.36	2.2	kg-SO <sub>2</sub> eq
Eutrophication		0.015	0.037	kg-PO <sub>4</sub> <sup>3-</sup> eq

## Table Legend

【A1】: Raw material 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 <sub>2</sub> eq	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 <sub>2</sub> eq	2.2E+00	5.2E-01	6.0E-02	1.6E+00	-1.9E+00
Photochemical ozone		kg-C <sub>2</sub> H <sub>4</sub> eq	1.7E-02	4.6E-03	1.0E-03	1.1E-02	-2.6E-01
Eutrophication		kg-PO <sub>4</sub> <sup>3-</sup> 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 <sup>3</sup>

## 3. Material composition

Material		Unit
iron [Fe]	84.0	%
carbon [C]	1.10	%
silicon [Si]	3.00	%
manganese [Mn]	3.00	%
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

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).

Material transport scenarios based on PCR.

Each item (except 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 84%, and the contents of other components are adjusted.

Primary data collected in 2018. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.

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.

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 galvanized 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. SGM340,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 galvanized 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/> )