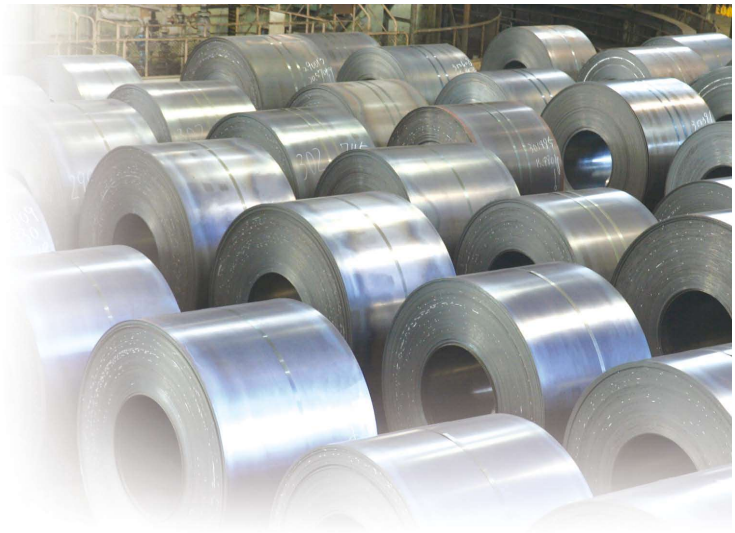
EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-AW-22010E-A

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-Rolled Steel Sheets and Coils



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 =1.2～9.0

Company Information

NIPPON STEEL CORPORATION

Flat Products Unit Flat Products Planning Dept.

https://www.nipponsteel.com/

Registration#	JR-AW-22010E-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-24019
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.

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1. Results of life cycle impact assessment (LCIA)

Domain of influence	Manufacturing + Indirect impact*1	Manufacturing only*2	Unit
Global warming IPCC2013 GWP100a	1000	2200	kg-CO_2eq
Acidification	-0.17	1.7	kg-SO_2eq
Eutrophication	0.023	0.045	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_2eq	2.2E+03	5.2E+02	1.7E+03			-1.2E+03
Ozone layer destruction	kg-CFC-11eq	-6.7E-07	9.8E-08	-7.7E-07			-2.1E-07
Acidification	kg-SO_2eq	1.7E+00	5.0E-01	1.2E+00			-1.8E+00
Photochemical ozone	kg-C_2H_4eq	1.2E-02	5.2E-03	6.8E-03			-2.6E-01
Eutrophication	kg-PO_4^{3-}eq	4.5E-02	3.5E-03	4.1E-02			-2.2E-02

2. Life cycle inventory analysis (LCI)

項目		単位
Non-renewable material resources	7.1E+02	kg
Non-renewable energy resources	2.3E+04	MJ
Renewable material resources	8.7E+02	kg
Renewable primary energy	-4.3E+02	MJ
Consumption of freshwater	9.2E-01	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	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	-	kg
Non-hazardous waste.	1.9E+00	kg
Treated MSW for landfill	0.0E+00	kg
Treated industrial waste for landfill	1.9E+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.

6-1. Supplementary environmental information

East Nippon Works, Nagoya Works, Setouchi Works and 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

TypicalStandards of JIS :

・JIS G 3101 Hot Rolled Steel Sheets and Coils for General Structures（e.g.:SS330,SS400）
・JIS G 3106 Hot Rolled Steel Sheets and Coils for Welded Structures（e.g.:SM400A）
・JIS G 3113 Hot Rolled Steel Sheets and Coils for Automobile Structural Uses (e.g.:SAPH310)
・JIS G 3125 Corrosion Resistant Rolled Steel Sheets and Coils (e.g.: SPA-H)
・JIS G 3116 Hot Rolled Steel Sheets and Coils for Gas Cylinders (e.g.:SG255)
・JIS G 3131 Hot Rolled Mild Steel Sheets and Coils（e.g.:SPHC）
・JIS G 3132 Hot Rolled Carbon Steel Sheets and Coils for Pipes and Tubes（e.g.:SPHT1）
・JIS G 4051 Carbon Steel and Carbon Steel for Machine Structural Uses（e.g.:S20C）
・JIS G 4053 Structural Alloy Steel (e.g.:SCr420)
・JIS G 4401 Carbon Tool Steel（e.g.:SK85）
・JIS G 4404 Alloy Tool Steel (e.g.:SKS5)

Typical Standards of NIPPON STEEL standards :

・High-Strength Hot Rolled Steel Sheets and Coils with Automobile Formability (e.g.:NSHA490)
・Dual Phase High-Strength Hot Rolled Steel Sheets and Coils with Automobile Formability（e.g.:NSHA540D）
・High-Hole Expanding High-Strength Hot Rolled Steel Sheets and Coils with Automobile Formability (e.g.:NSHA370B)
・High-Retained Austenite High-Strength Hot Rolled Steel Sheets and Coils（e.g.:NSHA590T）
・Flooring Sheets and Coils (e.g.:NFP)
・Longitudinally Striped Steel Sheets and Coils（e.g.:NFPA1）

・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/)