SuMPO EPD
Type III Environmental Declaration (EPD)
Registration number : JR-AJ-22001E-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 | NIPPON STEEL CORPORATION

Steel Plate for Construction

Functional unit

1 t

System boundary

☐ final products ■intermediate products

Production Stage and optional supplementary infomation

Main specifications of the product

Production sites : East Nippon Works (Kashima Area)
East Nippon Works (Kimitsu Area)
Nagoya Works
Kyushu Works (Oita Area)

Main standards : Standards for products used in fields such as shipbuilding, machinery, offshore structures, windpower, line pipes, boiler, pressure vessels, penstock, bridge, etc.

Type: Steel Plate

Company Information

NIPPON STEEL CORPORATION
https://www.nipponsteel.com/

Registration#	JR-AJ-22001E-A
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction use
Publication date	02/14/2022
Verification date	01/16/2024
Verification method	Product-by-product
Verification#	JV-AJ-24011
Expiration date	1/6/2027

PCR review was conducted by:

Approval date	05/10/2023
PCR review panel chair	Yasunari Matsuno (Chiba University)

Third party verifier*

Takahiro Atoh

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)

Parameter \ Stage	【A1~A3】+【D】	【A1~A3】	Unit
Global warming IPCC2013 GWP100a	1300	2500	kg-CO_2eq
Acidification	0.035	1.9	kg-SO_2eq
Eutrophication	0.025	0.046	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	2.5E+03	4.7E+02	1.2E+02	1.9E+03		-1.2E+03
Ozone layer destruction	kg-CFC-11eq	6.8E-05	6.9E-05	7.9E-10	-4.3E-07		-2.1E-07
Acidification	kg-SO_2eq	1.9E+00	4.9E-01	6.6E-02	1.3E+00		-1.8E+00
Photochemical ozone	kg-C_2H_4eq	1.3E-02	4.9E-03	1.1E-03	7.5E-03		-2.6E-01
Eutrophication	kg-PO_4^{3-}eq	4.6E-02	3.6E-03	7.1E-13	4.3E-02		-2.2E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	7.0E+02	kg
Renewable material resources	1.0E+03	kg
Non-renewable energy resources	2.6E+04	MJ
Renewable primary energy	-4.0E+02	MJ
Consumption of freshwater	5.0E+02	m^3

3. Material composition

Material		Unit
iron [Fe]	≧96.9	%
carbon [C]	≦0.45	%
silicon [Si]	≦0.70	%
manganese [Mn]	≦2.00	%
phosphorus [P]	≦0.035	%
sulfur [S]	≦0.035	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	1.7E+00	kg
Industrial waste(landfill)	1.7E+00	kg

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

5. Additional explanation

①Each LCI includes allocation for scrap recycling as an optional supplementary information [D]. Recycling rate (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).
②Material transport scenario is based on PCR.
③Each item (expect iron) in table 3 is the maximum value of all product standards covered by this EPD.
④The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
⑤Typical Standards:
・Offshore Structure: EN10225, API2W50&60
・Shipbuilding: Each ship class
・Machinary: ABREX®, WEL-TEN®, S-TEN®
・Wind Power: SM, EN10025
・Line Pipe: API 5L(base material)
・Boiler & Pressure Vessel: SPV, (S)A516, (S)A387, S(A)537, (S)A553, (S)A841
・Penstock: WEL-TEN®
・Brigde: COR-TEN®, NAW-TEN®, COR-SPACE®, SBHS, (S)A709

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6-1. Supplementary environmental information

East Nippon Works (Kashima Area), East Nippon Works (Kimitsu Area).Nagoya Works and Kyushu Works (Oita Area) 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

The IDEA2.1.3 data and steel scrap data(JP-AJ-0001) from the Japan Iron and Steel Federation are used.

8. 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/)