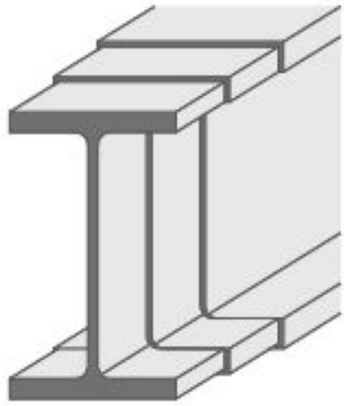
SuMPO EPD
Type III Environmental Declaration (EPD)
Registration number : JR-AJ-24049E

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

Wide flange shapes



Functional unit

1 t

System boundary

☐ final products ■intermediate products

Production Stage and optional supplementary infomation

Main specifications of the product

Production Site: Kansai Works_Wakayama Area(Sakai)
Main product models: Wide flange shapes
Main standards: JIS G 3192
※The other available standards are listed on page 3 (8.Remarks).
Shape: H

Company Information

NIPPON STEEL CORPORATION
About Us:
https://www.nipponsteel.com/en/index.html
Contact Us:
https://www.nipponsteel.com/en/product/contact/structuralsteel.html

Registration#	JR-AJ-24049E
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	11/29/2024
Verification date	11/7/2024
Verification method	Product-by-product
Verification#	JV-AJ-24049
Expiration date	11/6/2029

PCR review was conducted by:

Approval date	5/10/2023
PCR review panel chair	Yasunari Matsuno (Chiba University)

Third party verifier*

Daisuke Matsui

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	1500	2700	kg-CO_2eq
Acidification	0.70	2.5	kg-SO_2eq
Photochemical ozone	-0.24	0.016	kg-C_2H_4eq

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	2.7E+03	5.0E+02	1.5E+02	2.1E+03		-1.2E+03
Ozone layer destruction	kg-CFC-11eq	5.5E-06	1.6E-07	1.0E-09	5.3E-06		-2.2E-07
Acidification	kg-SO_2eq	2.5E+00	5.7E-01	9.2E-02	1.9E+00		-1.8E+00
Photochemical ozone	kg-C_2H_4eq	1.6E-02	5.6E-03	1.5E-03	9.3E-03		-2.6E-01
Eutrophication	kg-PO_4^{3-}eq	5.2E-02	1.2E-05	9.1E-13	5.2E-02		-2.2E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	8.9E+02	kg
Non-renewable energy resources	3.0E+04	MJ
Renewable material resources	1.4E+03	kg
Renewable primary energy	-9.5E+02	MJ
Consumption of freshwater	3.9E+00	m^3

3. Material composition

Material		Unit
iron [Fe]	≧94.96	%
carbon [C]	≦0.26	%
silicon [Si]	≦0.65	%
manganese [Mn]	≦1.70	%
phosphorus [P]	≦0.05	%
sulfur [S]	≦0.05	%
copper [Cu]	≦0.60	%
chrominium [Cr]	≦0.75	%
nickel [Ni]	≦0.50	%
molybdenum [Mo]	≦0.15	%
niobium [Nb]	≦0.05	%
vanadium [V]	≦0.15	%
titanium [Ti]	≦0.04	%
nitrogen [N]	≦0.03	%
aluminium [Al]	≦0.06	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	1.10E+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(D) at table.1 . Recycling rate (RR) used in this calculation is 93.7%(calculated based on JIS Q 20915 and using Japan data in 2022 from Japan Iron and Steel Federation and Japan Steel Can Recycling Association).
2. The transportation scenario for raw materials follows the 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 94.96%, and the contents of other components are adjusted.
4. Primary data collected in 2022. 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 due to the characteristics of the inventory database on which this estimation is based.

6-1. Supplementary environmental information

Kansai Works_Wakayama Area is certified to ISO 14001.

6-2. Regulated hazardous substances

Substance	CAS No.	Reference to standards or regulations
manganese [Mn]	7439-96-5	Industrial Safety and Health Act
copper [Cu]	7440-50-8	Industrial Safety and Health Act
chrominium [Cr]	7440-47-3	Industrial Safety and Health Act
nickel [Ni]	7440-02-0	Industrial Safety and Health Act
molybdenum [Mo]	7439-98-7	Industrial Safety and Health Act
niobium [Nb]	7440-03-1	Industrial Safety and Health Act
vanadium [V]	7440-62-2	Industrial Safety and Health Act
titanium [Ti]	7440-32-6	Industrial Safety and Health Act
nitrogen [N]	7727-37-9	Industrial Safety and Health Act
aluminium [Al]	7429-90-5	Industrial Safety and Health Act

7. Assumptions of secondary data used

We use the IDEA2.1.3 database. Additionally, scrap primary units (Scrap LCI) are based on the primary unitregistration number: JP-AJ-0001.

8. Remarks

1. Additional information

Following Steel grade standards and Dimensional standards are available in addition to the standards listed on page 1:

1) In Japan

・Steel grade standards:

JIS G 3136（SN400A, SN400B, SN400C, SN490B, SN490C）

JIS G 3106（SM400A, SM490A, SM490B）

JIS G 3101（SS400）

2) Other than Japan

・Steel grade standards:

ASTM A36, A572 Gr50, A992, EN10025-2 S235JR/J0/J2, S275JR/J0/J2, S355JR/J0/J2/K2, S460J0, EN10225-2 S355MLO

・dimensional standards:

ASTM:H152.1(t5.84)XB152.1(t6.6)～H1091.9(t77.98)XB454.4(t124.71)

BS:UB:H203.2(t5.4)XB101.8(t9.3)～H1055.9(t35.9)X420.5(t64.0)

BS:UC:H152.4(t5.8)XB152.2(t6.8)～H474.6(t47.6)X424.0(t77.0)

HE・IPE:H200(t5.6)XB100(t8.5)～H1008(t21.0)X307(t40.0)

- For data quantification, please refer to the PCR and the Rules on Quantification and Declaration.
- Comparative assertion is permitted only when the Rules on Quantification and Declaration are satisfied.
（Reference URL : https://ecoleaf-label.jp/regulation/）