



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-21005E-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

Welded light gauge steel H sections (SMart BEAM™)



Functional unit

1 t

System boundary

final products intermediate products

Production Stage and optional supplementary information

Main specifications of the product

Production sites : East Nippon Works (Kamaishi Area)

Main standards :

SWH400, NSSWH400E, NSSWH490W, NSSWH490B

Type : H-shape

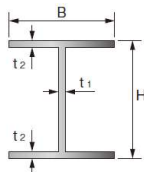
Main sizes(unit:mm)

H : 80.0~450.0

B : 40.0~200.0

T1 : 2.3~6.0

T2 : 2.3~12.0



This EPD include lubricated, painted or unpainted products(except coated products).

Company Information

NIPPON STEEL CORPORATION

<https://www.nipponsteel.com/en/product/construction/>

Registration#	JR-AJ-21005E-A
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	7/15/2021
Verification date	1/12/2024
Verification method	Product-by-product
Verification#	JV-AJ-24010
Expiration date	1/11/2029
PCR review was conducted by:	
Approval date	5/10/2023
PCR review panel chair	Yasunari Matsuno Chiba University

Third party verifier*

Kengo Minamiyama

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		1200	2400	kg-CO ₂ eq
Acidification		0.35	2.3	kg-SO ₂ eq
Eutrophication		0.067	0.090	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 ₂ eq	2.4E+03	5.5E+02	1.0E+02	1.8E+03	-1.2E+03
Ozone layer destruction		kg-CFC-11eq	8.2E-08	1.4E-07	6.8E-10	-5.7E-08	-2.2E-07
Acidification		kg-SO ₂ eq	2.3E+00	7.3E-01	6.1E-02	1.5E+00	-1.9E+00
Photochemical ozone		kg-C ₂ H ₄ eq	1.4E-02	5.7E-03	1.1E-03	7.3E-03	-2.7E-01
Eutrophication		kg-PO ₄ ³⁻ eq	9.0E-02	1.3E-02	6.1E-13	7.7E-02	-2.3E-02

2. Life cycle inventory analysis (LCI)

Parameter	Unit	Unit
Non-renewable material resources	8.2E+02	kg
Renewable material resources	9.9E+02	kg
Non-renewable energy resources	2.5E+04	MJ
Renewable primary energy	2.1E+02	MJ
Consumption of freshwater	4.9E+02	m ³

3. Material composition

Material	Unit	Unit
iron [Fe]	≥96.9	%
carbon [C]	≤0.20	%
silicon [Si]	≤0.55	%
manganese [Mn]	≤1.60	%
phosphorus [P]	≤0.35	%
sulfur [S]	≤0.35	%

4. Waste to disposal

Parameter	Unit	Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	4.7E+00	kg
General waste(landfill)	0.0E+00	kg
Industrial waste(landfill)	4.7E+00	kg

5. Additional explanation

- Each LCI includes allocation for scrap recycling as an optional supplementary information [D]. Recycling rate (RR) used in this calculation is 93.1% (calculated based on ISO 20915/JIS Q 20915 and using Japan data from Japan Iron and Steel Federation and Japan Steel Can Recycling Association).
- Scenarios of transport to site follow the PCR.
- Each item (except iron) in table 3 is the maximum value of the standards of the products.
- The average grid power supply of 10 electric power suppliers of Japan in 2014 is used in the LCI calculation for grid electricity.
 - We used primary data in 2018.
 - This EPD include lubricated,painted or unpainted

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



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6-1. Supplementary environmental information

East Nippon Works (Kamaishi 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

7. Assumptions of secondary data used

We use the IDEA2.1.3 data and steel scrap data from The Japan Iron and Steel Federation (JISF).

8. Remarks

January 2024; Modification about allocation method of by-product gases

- 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/>)

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