Sustainable Management Promotion Organization 14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan https://ecoleaf-label.jp

NIPPON STEEL | NIPPON STEEL CORPORATION

NS Fire resistant steel



Functional unit

1 t

System boundary

final products intermediate products

Production Stage and optional supplementary infomation

Main specifications of the product

Production sites: Kashima and Kimitsu Works

Main standards: SM400A,SM490A Type: H-shape

Sizes(unit mm,t thickness)
- (Please contact us.)

Company Information

NIPPON STEEL CORPORATION

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

Registration#	JR-AJ-19010E-A		
PCR number	PA-180000-AJ-06		
PCR name	Steel products for construction		
Publication date	12/06/2019		
Verification date	01/12/2024		
Verification method	Product-by-product		
Verification#	JV-AJ-24009		
Expiration date	11/28/2024		
PCR review was conducted by:			
Approval date	05/10/2023		
PCR review	Yasunari Matsuno		
panel chair	(Chiba University)		

Third party verifier*

Yasuo Koseki

Independent verification of data & declaration in accordance with ISO14025 and ISO21930.

internal external

Registration number: JR-AJ-19010E-A

^{*}Auditor's name is stated if system certification has been performed.

Type III Environmental Declaration (EPD)

Registration number: JR-AJ-19010E-A

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1. Results of life cycle impact assessment (LCIA)

Stage Parameter	[A1~A3] +[D]	[A1~A3]	Unit
Global warming IPCC2013 GWP100a	1200	2500	kg-CO2eq
Acidification	-0.28	1.6	kg-SO2eq
Photochemical ozone	-0.25	0.018	kg-C2H4eq

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

stage						
Parameter	Unit	[A1~A3]	[A1]	[A2]	[A3]	[D]
Global warming IPCC2013 GWP100a	kg-CO₂eq	2.5E+03	5.7E+02	1.0E+02	1.8E+03	-1.2E+03
Ozone layer destruction	kg-CFC-11eq	4.7E-07	3.5E-07	6.9E-10	1.2E-07	-2.2E-07
Acidification	kg-SO₂eq	1.6E+00	4.5E-01	6.2E-02	1.1E+00	-1.9E+00
Photochemical ozone	kg-C ₂ H₄eq	1.8E-02	4.4E-03	1.1E-03	1.2E-02	-2.7E-01
Eutrophication	kg-PO ₄ ³⁻ eq	1.7E-02	1.5E-05	6.2E-13	1.7E-02	-2.3E-02

Life cycle inventory analysis (LCI) **Parameter** Unit Non-renewable material resources 7.6E+02 kg MJ Non-renewable energy resources 2.7E+04 Renewable material resources 9.1E+02 kg Renewable primary energy -2.4E-02 MJ m^3 3.9E-01 Consumption of freshwater

3. Material composition		
Material		Unit
iron [Fe]	96.0	%
carbon [C]	0.15	%
silicon [Si]	0.55	%
manganese [Mn]	1.65	%
phosphorus [P]	0.04	%
sulfur [S]	0.04	%
chromium [Cr]	0.70	%
molybdenum [Mo]	0.90	%

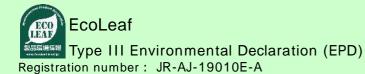
4. Waste to disposal		
Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	1.83E+00	kg

 $^{^{\}star}$ 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]. 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).
- 2. Scenarios of transport to site follow the PCR.
- 3. Each item (except iron) in table 3 is the maximum value of the standards of the products.
- 4. The average grid power supply of 10 electric power suppliers of Japan in 2014 is used in the LCI calculation for grid electricity.

Following standards are available on made-to-order basis, in addition to the regular standards listed on sheet 1: $\cdot \text{SN400C}, \text{SN490C}$



Japan EPD Program by SuMPO

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6-1. Supplementary environmental information

Kashima Works and Kimitsu Works are 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	
chromium [Cr]	7440-47-3	Industrial Safety and Health Act	
molybdenum [Mo]	7439-98-7	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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