



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-19010E-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**

## NS Fire resistant steel



### Functional unit

1 t

### System boundary

final products      intermediate products

Production Stage and optional supplementary information

### 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 panel chair	Yasunari Matsuno (Chiba University)

### Third party verifier\*

Yasuo Koseki

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	2500	kg-CO2eq
Acidification		-0.28	1.6	kg-SO2eq
Photochemical ozone		-0.25	0.018	kg-C2H4eq

Table Legend

【A1】: Raw material 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

Parameter	stage	Unit	【A1~A3】	【A1】	【A2】	【A3】	【D】
Global warming IPCC2013 GWP100a		kg-CO <sub>2</sub> eq	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-SO <sub>2</sub> eq	1.6E+00	4.5E-01	6.2E-02	1.1E+00	-1.9E+00
Photochemical ozone		kg-C <sub>2</sub> H <sub>4</sub> eq	1.8E-02	4.4E-03	1.1E-03	1.2E-02	-2.7E-01
Eutrophication		kg-PO <sub>4</sub> <sup>3-</sup> eq	1.7E-02	1.5E-05	6.2E-13	1.7E-02	-2.3E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	7.6E+02	kg
Non-renewable energy resources	2.7E+04	MJ
Renewable material resources	9.1E+02	kg
Renewable primary energy	-2.4E-02	MJ
Consumption of freshwater	3.9E-01	m <sup>3</sup>

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

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:  
 ・SN400C,SN490C

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



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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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