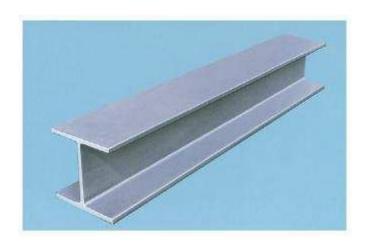
## Japan EPD Program by SuMPO

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

## NIPPON STEEL | NIPPON STEEL CORPORATION

## H-piles



### Functional unit

1 t

## System boundary

final products intermediate products

Production Stage and optional supplementary infomation

## Main specifications of the product

Production sites: Kashima, Kimitsu and Wakayama Works

Main standard: SHK400

Type: H-shape

Main sizes(unit mm,t thickness)

 $H200(t 8) \times B200(t12) \sim H350(t12) \times B350(t19),$ 

 $H400(t13) \times B400(t21) \sim H498(t45) \times B432(t70)$ 

 $H500(t25) \times B500(t25)$ 

## Company Information

## NIPPON STEEL CORPORATION

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

Registration#	JR-AJ-19007E-A	
PCR number	PA-180000-AJ-06	
PCR name	Steel products for construction	
Publication date	12/6/2019	
Verification date	01/12/2024	
Verification method	Product-by-product	
Verification#	JV-AJ-24006	
Expiration date	11/28/2024	
PCR review was conducted by:		
Approval date	05/10/2024	
PCR review	Yasunari Matsuno	
panel chair	Chiba University	
Thind a pate condition *		

### Third party verifier\*

Yasuo Koseki

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

internal external

Registration number: JR-AJ-19007E-A

<sup>\*</sup>Auditor's name is stated if system certification has been performed.

## Type III Environmental Declaration (EPD)

Registration number: JR-AJ-19007E-A

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

## 1. Results of life cycle impact assessment (LCIA)

Stage Parameter	[A1~A3] +[D]	[A1~A3]	Unit
Global warming IPCC2013 GWP100a	1300	2400	kg-CO2eq
Acidification	0.16	1.9	kg-SO2eq
Photochemical ozone	0.062	0.31	kg-C2H4eq

Table Legend

[A1]: Raw mterial supply [A2]: Transport to factory [A3]: Manufacturing

[D]: Recycling potential

[A1  $\sim$  A3]:sum of [A1], [A2] and [A3] (cradle to gate) [A1  $\sim$  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	2.4E+03	5.6E+02	1.1E+02	1.7E+03	-1.1E+03
Ozone layer destruction	kg-CFC-11eq	9.0E-07	2.2E-07	7.3E-10	6.7E-07	-2.1E-07
Acidification	kg-SO₂eq	1.9E+00	5.6E-01	6.5E-02	1.3E+00	-1.8E+00
Photochemical ozone	kg-C <sub>2</sub> H₄eq	3.1E-01	5.0E-03	1.0E-03	3.0E-01	-2.5E-01
Eutrophication	kg-PO <sub>4</sub> ³-eq	5.2E-02	4.6E-03	6.5E-13	4.7E-02	-2.1E-02

#### Life cycle inventory analysis (LCI) **Parameter** Unit Non-renewable material resources 7.7E+02 kg MJ Non-renewable energy resources 2.7E+04 Renewable material resources 9.3E+02 kg Renewable primary energy 1.5E+02 MJ $m^3$ 1.6E+00 Consumption of freshwater

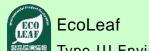
3. Material composition		
Material		Unit
iron [Fe]	97.6	%
carbon [C]	0.25	%
silicon [Si]	0.55	%
manganese [Mn]	1.50	%
phosphorus [P]	0.04	%
sulfur [S]	0.04	%

4. Waste to disposal		
Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	3.13E+00	kg

<sup>\*</sup>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.
- 5. Following standards are available on made-to-order basis, in addition to the regular standards listed on sheet 1: SHK490M



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# Type III Environmental Declaration (EPD)

Registration number: JR-AJ-19007E-A

## 6-1. Supplementary environmental information

Kashima, Kimitsu and Wakayama 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	

## 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/)

Registration number: JR-AJ-19007E-A