

**NIPPON STEEL | NIPPON STEEL CORPORATION**

**NS-PAC® Sheet Piles**



**Functional unit**

1 t

**System boundary**

final products       intermediate products

Production Stage and optional supplementary information

**Main specifications of the product**

Production Site: East Nippon Works\_Kashima Area,  
Kansai Works\_Wakayama Area(Sakai), Kyushu  
Works\_Yawata Area

Main product models: NS-PAC® Sheet Piles

Main standards: JIS A 5523, JIS A 5528

※The other available product models and standards are listed on  
page 3(8.Remarks).

Type: Steel sheet piles

<b>Registration#</b>	JR-AJ-23002E-A
<b>PCR number</b>	PA-180000-AJ-05
<b>PCR name</b>	Steel products for construction
<b>Publication date</b>	4/7/2023
<b>Verification date</b>	1/19/2024
<b>Verification method</b>	Product-by-product
<b>Verification#</b>	JV-AJ-24022
<b>Expiration date</b>	1/18/2029
<b>PCR review was conducted by:</b>	
<b>Approval date</b>	5/10/2023
<b>PCR review panel chair</b>	Yasunari Matsuno (Chiba University)

**Third party verifier\***

Tomoko Fuchigami

Independent verification of data & declaration in accordance  
with ISO14025 and ISO 21930.

internal       external

\*Auditor's name is stated if system certification has been performed.

**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>

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

Parameter	Stage	【A1~A3】 + 【D】	【A1~A3】	Unit
Global warming IPCC2013 GWP100a		1200	2400	kg-CO <sub>2</sub> eq
Acidification		-0.48	1.4	kg-SO <sub>2</sub> eq
Photochemical ozone		-0.25	0.014	kg-C <sub>2</sub> H <sub>4</sub> 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 <sub>2</sub> eq	2.4E+03	6.2E+02	1.2E+02	1.6E+03	-1.2E+03
Ozone layer destruction		kg-CFC-11eq	3.6E-05	2.0E-07	7.8E-10	3.5E-05	-2.2E-07
Acidification		kg-SO <sub>2</sub> eq	1.4E+00	6.5E-01	6.2E-02	6.7E-01	-1.9E+00
Photochemical ozone		kg-C <sub>2</sub> H <sub>4</sub> eq	1.4E-02	5.1E-03	1.0E-03	8.1E-03	-2.6E-01
Eutrophication		kg-PO <sub>4</sub> <sup>3-</sup> eq	4.3E-02	3.6E-03	7.0E-13	3.9E-02	-2.2E-02

## 2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	7.9E+02	kg
Non-renewable energy resources	2.9E+04	MJ
Renewable material resources	8.9E+02	kg
Renewable primary energy	5.0E+01	MJ
Consumption of freshwater	3.9E+00	m <sup>3</sup>

## 3. Material composition

Material		Unit
Hot-Rolled Steel	≥80	%
Urethane elastomer	<20	%

## 4. Waste to disposal

Parameter		Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	2.1E+00	kg

## 5. Additional explanation

- Each LCI includes allocation for scrap recycling as an optional supplementary information(D) at table.1 . Recycling rate (RR) used in this calculation is 93.0%(calculated based on JIS Q 20915 and using Japan data in 2018 from Japan Iron and Steel Federation and Japan Steel Can Recycling Association).
- Scenarios of transport to site follow the PCR.
- Primary data collected in 2018. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
- 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.

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

### 6-1. Supplementary environmental information

Each production site 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
nitrogen [N]	7727-37-9	Industrial Safety and Health Act
Urethane	51-79-6	Industrial Safety and Health Act

### 7. Assumptions of secondary data used

We use the IDEA2.1.3 database.

### 8. Remarks

Additional information

NS-PAC® Sheet Piles are steel sheet pile products of the following models and standards that have undergone heavy anti-corrosion treatment with urethane elastomer.

1. Product models: ※Examples are shown in ( )

- Hat-type sheet piles (NS-SP-10H,NS-SP-25H,NS-SP-45H,NS-SP-50H)
- U-type sheet piles (NS-SP-Ⅱ,NS-SP-Ⅲ,NS-SP-Ⅳ,NS-SP-V L,NS-SP-VIL,NS-SP-Ⅱ w,NS-SP-Ⅲ w,NS-SP-Ⅳ w)
- NS-SP-J (NS-SP-J)

2. Steel grade standards: ※Examples are shown in ( )

- JIS A 5523 (SYW295,SYW390,SYW430)
- JIS A 5528 (SY295,SY390)

• 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/>)