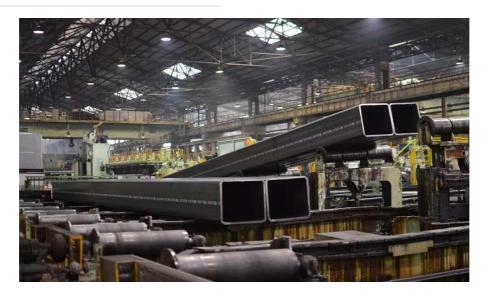
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# NIPPON STEEL METAL PRODUCTS CO.,LTD.

Cold-rolled Steel Square and Rectangular Tubes



#### Functional unit

1 t

## System boundary

final products intermediate products

Production Stage and optional supplementary infomation

# Main specifications of the product

Production sites: Sendai Works, Hirohata Works,

Nikken-Kogyo Siga Mill

Main standards:

JIS, JISF standards, The Minister Certified steels for

Constructions

Type: Square and Rectangular

Main sizes(unit mm,t  $\pm$ hickness) :  $t=6 \sim 25$ 

# **Company Information**

# NIPPON STEEL METAL PRODUCTS CO.,LTD.

https://www.ns-kenzai.co.jp/english/index.html

Registration#	JR-AX-23003E		
PCR number	PA-180000-AX-04		
PCR name	Steel products with secondary processing for construction		
Publication date	04/01/23		
Verification date	03/14/23		
Verification method	Product-by-product		
Verification#	JV-AX-23003		
Expiration date	03/13/28		
PCR review was conducted by:			
Approval date	01/06/23		
PCR review	Yasunari Matsuno		
panel chair	(Chiba University)		
Third posts socilies*			

### Third party verifier\*

Hiroyuki Uchida

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

internal external

Registration number: JR-AX-23003E

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

Type III Environmental Declaration (EPD)

Registration number: JR-AX-23003E

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

Stage Parameter	[A1~A3] +[D]	[A1~A3]	Unit
Global warming IPCC2013 GWP100a	580	1900	kg-CO₂eq
Acidification	0.50	2.6	kg-SO₂eq
Eutrophication	0.03	0.05	kg-PO <sub>4</sub> 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)

stage						
Parameter	Unit	[A1~A3]	[A1]	[A2]	[A3]	[D]
Global warming IPCC2013 GWP100a	kg-CO₂eq	1.9E+03	1.9E+03	2.0E+01	3.8E+01	-1.4E+03
Ozone layer destruction	kg-CFC-11eq	-7.7E-07	-7.7E-07	1.4E-10	4.1E-09	-2.5E-07
Acidification	kg-SO₂eq	2.6E+00	2.3E+00	2.4E-01	1.4E-02	-2.1E+00
Photochemical ozone	kg-C₂H₄eq	2.2E-02	1.6E-02	4.5E-03	1.0E-03	-2.9E-01
Eutrophication	kg-PO <sub>4</sub> 3-eq	5.1E-02	5.1E-02	1.2E-13	9.4E-08	-2.5E-02

2. Life cycle inventory analysis (LCI)		
Parameter		Unit
Non-renewable material resources	7.5E+02	kg
Non-renewable energy resources	2.8E+04	MJ
Renewable material resources	1.0E+03	kg
Renewable primary energy	-4.7E+02	MJ
Consumption of freshwater	1.1E+00	m <sup>3</sup>

3. Material composition		
Material		Unit
iron [Fe]	95.0	%
carbon [C]	1.10	%
silicon [Si]	3.00	%
manganese [Mn]	3.00	%
phosphorus [P]	0.050	%
sulfur [S]	0.050	%

4. Waste to disposal		
Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	2.2E+00	kg

<sup>\*</sup>Data derived from LCA and not assigned to the impact categories of LCIA

#### 5. Additional explanation

- 1) This base material is Hot-Rolled Steel Sheet and Coil made by Nippon Steel(Ecoleaf registration No.:JR-AW-22010E).
- 2) Because this product is secondary processing product, the indirect effect is evaluated about the base material. 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 ISO 20915/JIS Q20915 and using Japan data in 2018 from Japan Iron and SteelFederation and Japan Steel Can Recycling Association).
- 3) Transport distance between Nippon Steel and Nippon Steel metal products is measured by geographic software.
- 4) Each item (expect iron) in table 3 is the maximum value of all product standards covered by this EPD. However, the iron content in each product is never less than 95.0%, and the contents of other components are adjusted.
- 5) Primary data collected in 2021. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.

# Japan EPD Program by SuMPO

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# 6-1. Supplementary environmental information

Sendai Works and Hirohata Works have ISO 14001 certificate.

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 scrup iron data from the Japan Iron and Steel Federation(J.I.S.F).

# 8. Remarks

- For data quantification, please refer to PCR and Rules on quantification and declaration.
- Comparative assertion is permitted only when Rules on quantification and declaration are satisfied. (Reference URL: https://ecoleaf-label.jp/regulation/)

Registration number: JR-AX-23003E