



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AX-23003E

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization

14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo, Japan

<https://ecoleaf-label.jp>



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 information

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 thickness) : t=6 ~ 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 panel chair	Yasunari Matsuno (Chiba University)

Third party verifier*

Hiroyuki Uchida

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		580	1900	kg-CO ₂ eq
Acidification		0.50	2.6	kg-SO ₂ eq
Eutrophication		0.03	0.05	kg-PO ₄ ³⁻ -eq

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 gate with allocation for scrap recycling)

Parameter	stage	Unit	【A1~A3】	【A1】	【A2】	【A3】	【D】
Global warming IPCC2013 GWP100a		kg-CO ₂ eq	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-SO ₂ eq	2.6E+00	2.3E+00	2.4E-01	1.4E-02	-2.1E+00
Photochemical ozone		kg-C ₂ H ₄ eq	2.2E-02	1.6E-02	4.5E-03	1.0E-03	-2.9E-01
Eutrophication		kg-PO ₄ 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 ³

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

*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 Steel Federation 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 (except 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.



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

8. Remarks

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- 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/>)

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