EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-AX-23002E

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 METAL PRODUCTS CO.,LTD.

Cold-pressed 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 : Kimitsu Mill
Main standards :
JISF standards,The Minister Certified steels for Constructions
Type : Square and Rectangular
Main sizes(unit ㎜,t :thickness) :t=16～40

Company Information

NIPPON STEEL METAL PRODUCTS CO.,LTD.

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

Registration#	JR-AX-23002E
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-23002
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	840	2400	kg-CO_2eq
Acidification	0.17	2.6	kg-SO_2eq
Eutrophication	0.0023	0.031	kg-PO_4^{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)

Parameter \ stage	Unit	【A1~A3】	【A1】	【A2】	【A3】		【D】
Global warming IPCC2013 GWP100a	kg-CO_2eq	2.4E+03	2.4E+03	0.0E+00	7.8E+01		-1.6E+03
Ozone layer destruction	kg-CFC-11eq	2.5E-06	1.9E-06	0.0E+00	5.4E-07		-2.9E-07
Acidification	kg-SO_2eq	2.6E+00	2.6E+00	0.0E+00	3.8E-02		-2.4E+00
Photochemical ozone	kg-C_2H_4eq	2.2E-02	2.0E-02	0.0E+00	1.5E-03		-3.4E-01
Eutrophication	kg-PO_4^{3-}eq	3.1E-02	3.1E-02	0.0E+00	3.1E-05		-2.9E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	1.0E+03	**kg**
Non-renewable energy resources	3.4E+04	MJ
Renewable material resources	1.4E+03	**kg**
Renewable primary energy	-7.8E+02	MJ
Consumption of freshwater	4.6E+00	**m^3**

3. Material composition

Material		Unit
iron [Fe]	**≧96.90**	**%**
carbon [C]	**≦0.25**	**%**
silicon [Si]	**≦0.55**	**%**
manganese [Mn]	**≦2.00**	**%**
phosphorus [P]	**≦0.03**	**%**
sulfur [S]	**≦0.02**	**%**

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	6.2E+00	kg

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

5. Additional explanation

1) This base material is High Tensile Steel Plates for Building Structures:BT-HT™ Series made by Nippon Steel(Ecoleaf registration No.:JR-AJ-21007E).
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 is zero because Nippon Steel site and Nippon Steel metal products site are located at same place.
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 96.90%, 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

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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

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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/)