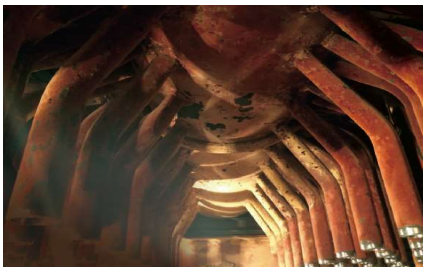
SuMPO EPD
Type III Environmental Declaration (EPD)
Registration number： JR-AW-24047E

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

Low-alloy Seamless Tubes and Pipes for the Chemical Industry and Boilers



Functional unit

1 t

System boundary

☐ final products ■intermediate products

Production Stage and optional supplementary information

Main specifications of the product

Production sites : Kansai Works (Wakayama)

Main standards :

STBA22, STPA22, T12, P12

STBA24, STPA24, T22, P22

Sizes : outside diameter : 6.0mm～406.4mm

thicknes : 1.2mm～45.0mm

Company Information

NIPPON STEEL CORPORATION
Specialty Tubular Products Marketing Dept.
Energy Tubular Products Marketing Div.
Pipe and Tube Unit
https://www.nipponsteel.com

Registration#	JR-AW-24047E
PCR number	PA-180000-AW-05
PCR name	Steel products except for construction use
Publication date	3/10/2025
Verification date	2/19/2025
Verification method	Product-by-product
Verification#	JV-AW-24047
Expiration date	2/18/2030

PCR review was conducted by:

Approval date	5/10/2023
PCR review panel chair	Yasunari Matsuno (Chiba University)

Third party verifier*

Kazuo Naito

Independent verification of data & declaration in accordance with ISO14025

☐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	2900	3900	kg-CO_2eq
Acidification	1.0	2.6	kg-SO_2eq
Eutrophication	0.031	0.050	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	3.9E+03	8.7E+02	8.8E+01	3.0E+03		-1.1E+03
Ozone layer destruction	kg-CFC-11eq	4.8E-06	1.5E-06	5.9E-10	3.3E-06		-1.9E-07
Acidification	kg-SO_2eq	2.6E+00	6.6E-01	9.6E-02	1.9E+00		-1.6E+00
Photochemical ozone	kg-C_2H_4eq	2.7E-02	1.0E-02	1.5E-03	1.5E-02		-2.3E-01
Eutrophication	kg-PO_4^{3}-eq	5.0E-02	7.6E-06	5.3E-13	5.0E-02		-2.0E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	9.8E+02	kg
Non-renewable energy resources	4.6E+04	MJ
Renewable material resources	1.4E+03	kg
Renewable primary energy	-7.2E+02	MJ
Consumption of freshwater	1.5E+01	m^3

3. Material composition

Material		Unit
Fe	≧85.0	%
C	≦0.35	%
Si	≦0.50	%
Mn	≦1.06	%
P	≦0.035	%
S	≦0.035	%
Cr	≦2.60	%
Mo	≦1.13	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	1.4E+01	kg

*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) at table.1 . Recycling rate (RR) used in this calculation is 93.7% (calculated based on ISO 20915/JIS Q20915 and using Japan data in 2022 from Japan Iron and Steel Federation and Japan Steel Can Recycling Association).
2. Scenarios of transport to site follow the PCR. However, the loading rate for scrap transport uses the default value.
3. 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 85%, and the contents of other components are adjusted.
4. Primary data collected in 2022. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
5. For metallurgical coal and alloys, the inventory data include transport, so the transport of these items is not

6-1. Supplementary environmental information

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

7. Assumptions of secondary data used

The IDEA2.1.3 data and steel scrap data(JP-AJ-0001) from the Japan Iron and Steel Federation are used.

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/)