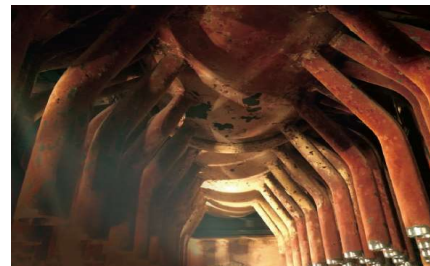


Welded Steel Tubes and Pipes for Boilers and Heat Exchangers



Functional unit

1 t

System boundary

final products intermediate products

Production Stage and optional supplementary information

Main specifications of the product

Production sites : East Nippon Works

Main standards :

STB340, STB410, STB510, STBA22, A178/SA-178

NIPPON STEEL original standard S-TEN®1, CR1A

Sizes : outside diameter : 19.05mm~114.3mm

thicknes : 1.65mm~8.13mm

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-24045E
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-24045
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.

Registration number : JR-AW-24045E

1. Results of life cycle impact assessment (LCIA)

Parameter	Stage	[A1~A3] + [D]	[A1~A3]	Unit
Global warming IPCC2013 GWP100a		1600	2800	kg-CO ₂ eq
Acidification		0.16	2.1	kg-SO ₂ eq
Eutrophication		0.015	0.038	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 ₂ eq	2.8E+03	5.6E+02	6.3E+01	2.2E+03	-1.2E+03
Ozone layer destruction		kg-CFC-11eq	2.0E-06	6.6E-07	4.2E-10	1.3E-06	-2.2E-07
Acidification		kg-SO ₂ eq	2.1E+00	5.1E-01	6.2E-02	1.5E+00	-1.9E+00
Photochemical ozone		kg-C ₂ H ₄ eq	2.1E-02	5.0E-03	1.1E-03	1.5E-02	-2.6E-01
Eutrophication		kg-PO ₄ ³⁻ eq	3.8E-02	1.3E-05	3.7E-13	3.8E-02	-2.3E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	6.3E+02	kg
Non-renewable energy resources	3.2E+04	MJ
Renewable material resources	1.0E+03	kg
Renewable primary energy	6.3E+01	MJ
Consumption of freshwater	4.4E+00	m ³

3. Material composition

Material		Unit
Fe	≧90.0	%
C	≦0.32	%
Si	≦0.80	%
Mn	≦1.60	%
P	≦0.035	%
S	≦0.035	%
Cr	≦1.25	%
Mo	≦0.65	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	2.3E+00	kg

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

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 93.7% (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).
- Scenarios of transport to site follow the PCR. However, the loading rate for scrap transport uses the default value.
- 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 90%, and the contents of other components are adjusted.
- Primary data collected in 2022. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
- For metallurgical coal and alloys, the inventory data include transport, so the transport of these items is not counted.



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
Copper[Cu]	7440-50-8	Industrial Safety and Health Act
Nickel[Ni]	7440-02-0	Industrial Safety and Health Act
Aluminum [Al]	7429-90-5	Industrial Safety and Health Act
Ferrovandium	12604-58-9	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/>)