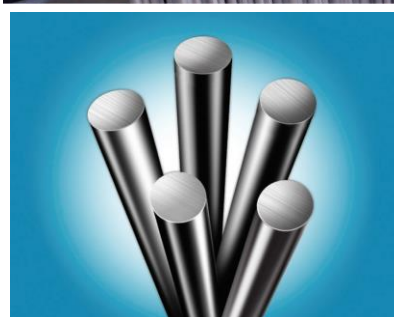




Stainless Steel (Ferritic • Martensitic)



Functional unit

1 t

System boundary

final products intermediate products

Production Stage

(Raw material supply, Transport, Manufacturing)

Main specifications of the product

Production sites :

Yamaguchi Works, East Nippon Works

Main standards :

JIS(Japanese Industrial Standards), ASTM, ASME,

NIPPON STEEL Standards

See Table 8.Remarks for details

Type : Sheet, Strip, Wire rod, Steel bar

Main sizes(unit:mm, t:thickness, φ:diameter) :

t=0.1~9.0, φ=5.5~60

Company Information

NIPPON STEEL CORPORATION

Stainless Steel Unit Stainless Steel Technology Div.

<https://www.nipponsteel.com/>

Registration#	JR-BO-24001E-A
PCR number	PA-187000-BO-03
PCR name	Stainless steel products
Publication date	11/25/2024
Verification date	10/11/2024
Verification method	Product-by-product
Verification#	JV-BO-24001
Expiration date	10/10/2029

PCR review was conducted by:

Approval date	2/4/2023
PCR review panel chair	Ken Yamagishi Sustainable Management Promotion Organization

Third party verifier*

Naoki Makino

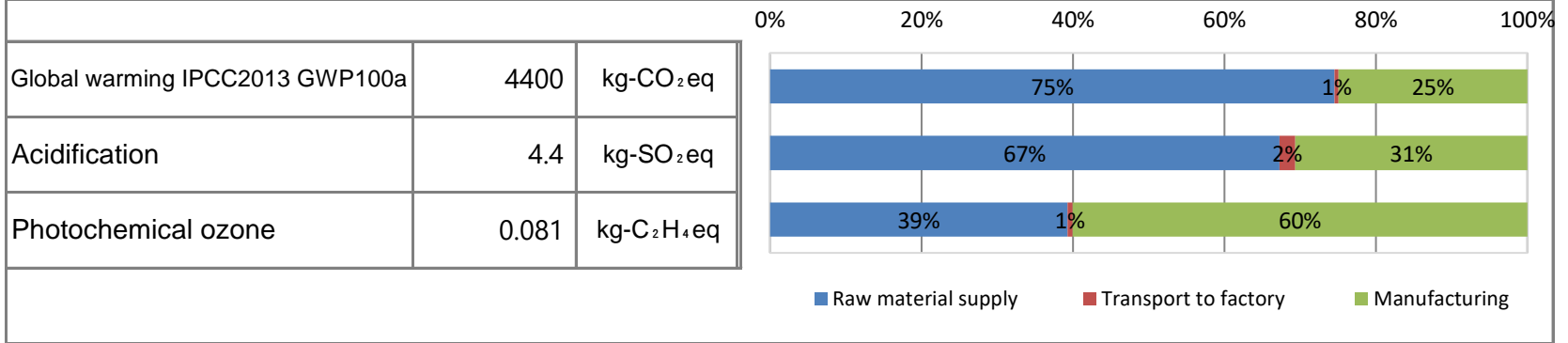
Independent verification of data & declaration in accordance with ISO14025 and ISO21930

internal external

*Auditor's name is stated if system certification has been performed.

Registration number : JR-BO-24001E-A

1. Results of life cycle impact assessment (LCIA)



Parameter	stage	Unit	Total	Raw material supply	Transport to factory	Manufacturing
Global warming IPCC2013 GWP100a		kg-CO ₂ eq	4.4E+03	3.3E+03	2.3E+01	1.1E+03
Ozone layer destruction		kg-CFC-11eq	1.6E-04	1.6E-04	1.9E-10	1.9E-06
Acidification		kg-SO ₂ eq	4.4E+00	3.0E+00	9.2E-02	1.4E+00
Photochemical ozone		kg-C ₂ H ₄ eq	8.1E-02	3.2E-02	5.3E-04	4.9E-02
Eutrophication		kg-PO ₄ ³⁻ eq	2.9E-01	8.5E-05	1.6E-13	2.8E-01

2. Life cycle inventory analysis (LCI)

Parameter	Value	Unit
Non-renewable material resources	3.2E+02	kg
Non-renewable energy	5.9E+04	MJ
Renewable material resources	6.5E+02	kg
Renewable primary energy	1.4E+03	MJ
Consumption of freshwater	1.2E+01	m ³

4. Waste to disposal

Parameter	Value	Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste	4.1E+01	kg

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

3. Material composition

Material	Value	Unit
C	≒ 0.5	%
Si	≒ 3.0	%
Mn	≒ 2.0	%
P	≒ 0.15	%
S	≒ 0.4	%
Ni	≒ 2.5	%
Cr	≒ 31	%
Mo	≒ 4.0	%
Cu	≒ 2.0	%
Nb	≒ 1.0	%
Ti	≒ 1.0	%
Al	≒ 6.0	%
Sn	≒ 1.0	%
N	≒ 0.12	%
Fe	≒ 65	%

5. Additional explanation

- Scenarios of transport to site follow the PCR. For the inter-factory transportation for intermediate products, distances were measured using mapping software.
- Each item (except iron) in table 3 is the maximum value of all product standards covered by this EPD. The iron content is adjusted by the contents of other components.
- Primary data collected in 2022. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
- The calculation results are weighted averages for sheet, bar and wire rod.
- Stainless steel slab and billet for this product are made by Yamaguchi Works.

6-1. Supplementary environmental information

Each production area has 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
Copper[Cu]	7440-50-8	Industrial Safety and Health Act
Chromium[Cr]	7440-47-3	Industrial Safety and Health Act
Nickel[Ni]	7440-02-0	Industrial Safety and Health Act

7. Assumptions of secondary data used

The IDEA2.1.3 data is used.

8. Remarks

○JIS(Japanese Industrial Standards) : JIS G 4303(Stainless steel bars), JIS G 4304(Hot-rolled stainless steel plate, sheet and strip), JIS G 4305(Cold-rolled stainless steel plate, sheet and strip), JIS G 4308(Stainless steel wire rods)
 ○ASTM A240/A240M (Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications)
 ○ASME BPVC. II .A SA-240/SA-240M (Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications)
 ○NIPPON STEEL Standards : Hot-rolled stainless steel sheet and strip, Cold-rolled stainless steel sheet and strip, Stainless steel bars, Stainless steel wire rods
 2025: Modification based on the change of company name

• April

- 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/>)