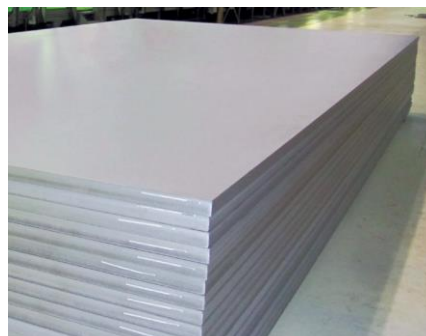




Stainless Steel (Austenitic・Duplex)



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, Kyushu 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=0.1~150, φ=5.5~60

Company Information

NIPPON STEEL CORPORATION

Stainless Steel Unit Stainless Steel Technology Div.

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

Registration#	JR-BO-24002E-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-24002
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

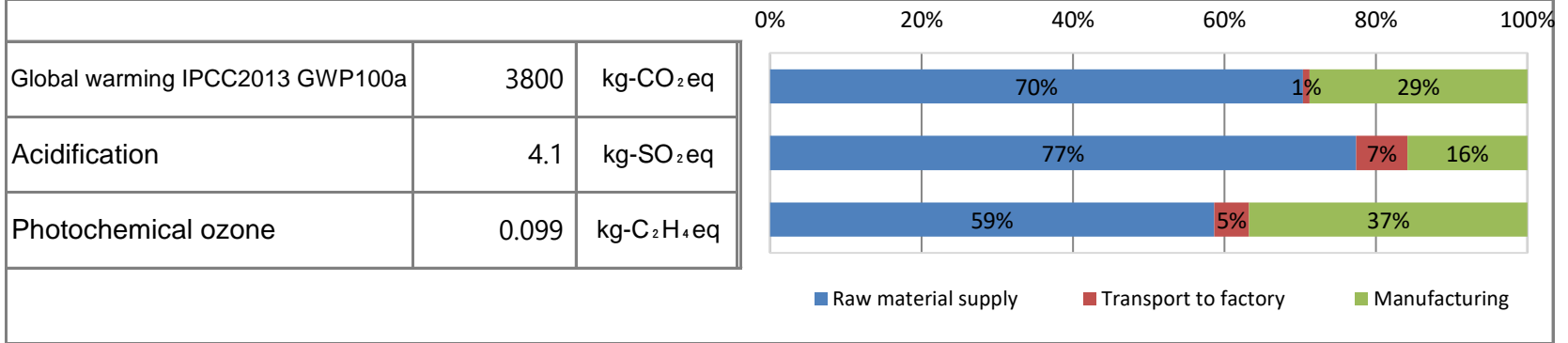
Independent verification of data & declaration in accordance with ISO14025 and ISO21930

internal external

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

Registration number : JR-BO-24002E-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	3.8E+03	2.7E+03	3.3E+01	1.1E+03
Ozone layer destruction		kg-CFC-11eq	3.7E-04	3.6E-04	2.4E-10	5.2E-06
Acidification		kg-SO ₂ eq	4.1E+00	3.2E+00	2.8E-01	6.5E-01
Photochemical ozone		kg-C ₂ H ₄ eq	9.9E-02	5.8E-02	4.6E-03	3.6E-02
Eutrophication		kg-PO ₄ ³⁻ eq	9.9E-01	7.7E-03	2.1E-13	9.8E-01

2. Life cycle inventory analysis (LCI)

Parameter	Unit
Non-renewable material resources	5.7E+02 kg
Non-renewable energy	5.1E+04 MJ
Renewable material resources	8.0E+02 kg
Renewable primary energy	1.6E+03 MJ
Consumption of freshwater	4.6E+00 m ³

4. Waste to disposal

Parameter	Unit
Hazardous waste	0.0E+00 kg
Non-hazardous waste	3.7E+00 kg

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

3. Material composition

Material	Unit
C	≦ 0.2 %
Si	≦ 5.0 %
Mn	≦ 16 %
P	≦ 0.05 %
S	≦ 0.4 %
Ni	≦ 25 %
Cr	≦ 28 %
Mo	≦ 7.0 %
Cu	≦ 5.0 %
Nb	≦ 1.0 %
Ti	≦ 1.0 %
Al	≦ 2.0 %
W	≦ 3.0 %
N	≦ 0.4 %
Fe	≦ 47 %

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, wire rod and plate.
- 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 plates, 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/>)