EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-BO-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

# OCTG(Ni-Alloy)

## Functional unit

1t

## System boundary

☐ final products ■intermediate products

Production Stage(Raw material supply, Transport, Manufacturing)

## Main specifications of the product

Production Site: Kansai Works_Wakayama Area (Wakayama and Kainan) and Amagasaki Area

Main standards:
API 5CRA
ISO13680
NEW SM-SERIES
(SM2535-, SM2242-, SM2035-, SM2050-, SM2550-)

Size:
Outside Diameter 60.3mm(2-3/8")~425.5mm (16-3/4")

## Company Information

Nippon Steel Corporation
Energy Tubular Products Marketing Div.
https://www.nipponsteel.com/
http://www.tubular.nipponsteel.com/

| | |
|---|---|
| Registration# | JR-BO-23002E |
| PCR number | PA-187000-BO-02 |
| PCR name | Stainless pipe |
| Publication date | 11/22/2023 |
| Verification date | 11/6/2023 |
| Verification method | Product-by-product |
| Verification# | JV-BO-23002 |
| Expiration date | 11/5/2028 |

## PCR review was conducted by:

| | |
|---|---|
| Approval date | 1/6/2023 |
| PCR review panel chair | Ken Yamagishi<br>Sustainable Management Promotion Organization |

## Third party verifier*

Yumiko Umehara

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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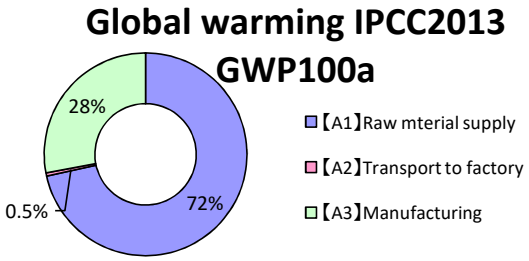
## 1. Results of life cycle impact assessment (LCIA)

| | | |
|---|---|---|
| Global warming IPCC2013 GWP100a | 12000 | kg-CO2eq |
| Acidification | 260 | kg-SO2eq |
| Photochemical ozone | 1.3 | kg-C2H4eq |




| Parameter \ stage | Unit | Total | 【A1】Raw mterial supply | 【A2】 Transport to factory | 【A3】 Manufacturing | | |
|---|---|---|---|---|---|---|---|
| Global warming IPCC2013 GWP100a | kg-$CO_2$eq | 1.2E+04 | 8.9E+03 | 6.4E+01 | 3.5E+03 | | |
| Ozone layer destruction | kg-CFC-11eq | 1.5E-03 | 1.5E-03 | 5.3E-10 | 3.3E-06 | | |
| Acidification | kg-$SO_2$eq | 2.6E+02 | 2.6E+02 | 2.1E-01 | 3.7E+00 | | |
| Photochemical ozone | kg-$C_2H_4$eq | 1.3E+00 | 1.3E+00 | 4.0E-04 | 5.7E-02 | | |
| Eutrophication | kg-$PO_4^{3-}$eq | 7.8E+00 | 7.7E+00 | 4.5E-13 | 6.5E-02 | | |

## 2. Life cycle inventory analysis (LCI)

| Parameter | | Unit |
|---|---|---|
| Renewable primary energy | 7.8E+03 | MJ |
| Non-renewable energy resources | 1.8E+05 | MJ |
| Renewable material resources | 2.3E+03 | kg |
| Non-renewable material resources | 9.3E+03 | kg |
| Consumption of freshwater | 2.5E+01 | $m^3$ |
| | | |
| | | |
| | | |

## 3. Material composition

| Material | | Unit |
|---|---|---|
| Fe | ≧29.47 | % |
| C | ≦0.03 | % |
| Si | ≦0.50 | % |
| Mn | ≦1.00 | % |
| Cu | ≦1.5 | % |
| Ni | ≦36.5 | % |
| Cr | ≦27.0 | % |
| Mo | ≦4.00 | % |

## 4. Waste to disposal

| Parameter | | Unit |
|---|---|---|
| Hazardous waste | 0.0E+00 | kg |
| Non-hazardous waste. | 7.6E+01 | kg |

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

## 5. Additional explanation

1. Primary data collected for 2018. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
2. The site uses electricity from several sources such as on-site power plants* to manufacture several products. As the inventory of electricity in the boundary of each product cannot be separated for each source, grid power averages were used as environmental impact intensity data for power generation. *On-site power plants provide electricity only for steel sites. Some of them provide electricity both for steel sites and grid.
3. Regarding "3. Material composition", except for steel, the maximum values are given for those that are representative of the steel standard.

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## 6-1. Supplementary environmental information

Each production site is certified to ISO 14001.

## 6-2. Regulated hazardous substances

| Substance | CAS No. | Reference to standards or regulations |
|---|---|---|
| Manganese [Mg] | 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

We use the IDEA2.1.3 database.

## 8. Remarks

- 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/)