

NIPPON STEEL | NIPPON STEEL CORPORATION

Hot Extruded Steel Shapes (Specialty Steel(Alloy))



Functional unit

1 t

System boundary

final products intermediate products

Production Stage and
optional supplementary information

Main specifications of the product

Production sites :
Kyushu Works Yawata Area (Hikari)
Type : Specialty Steel(Alloy)
Main standards : SCM420H, SCM435

Company Information

NIPPON STEEL

<https://www.nipponsteel.com/en/product/pipe/list/06.html>

Registration#	JR-AJ-24040E
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction use
Publication date	10/07/2024
Verification date	08/02/2024
Verification method	Product-by-product
Verification#	JV-AJ-24040
Expiration date	8/1/2029
PCR review was conducted by:	
Approval date	05/10/2023
PCR review panel chair	Yasunari Matsuno (Chiba University)

Third party verifier*

Yuki Sakamoto

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-AJ-24040E

1. Results of life cycle impact assessment (LCIA)

Parameter	Stage	[A1~A3] + [D]	[A1~A3]	Unit
Global warming IPCC2013 GWP100a		5500	6700	kg-CO ₂ eq
Acidification		3.30	5.2	kg-SO ₂ eq
Eutrophication		0.034	0.057	kg-PO ₄ ³⁻ eq

Table Legend
 [A1]: Raw material 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	6.7E+03	1.1E+03	1.9E+02	5.4E+03	-1.2E+03
Ozone layer destruction		kg-CFC-11eq	7.2E-06	4.3E-06	1.2E-09	2.9E-06	-2.2E-07
Acidification		kg-SO ₂ eq	5.2E+00	1.1E+00	1.0E-01	4.0E+00	-1.9E+00
Photochemical ozone		kg-C ₂ H ₄ eq	1.0E-01	1.4E-02	1.7E-03	8.8E-02	-2.6E-01
Eutrophication		kg-PO ₄ ³⁻ eq	5.7E-02	6.5E-04	1.1E-12	5.6E-02	-2.3E-02

2. Life cycle inventory analysis (LCI)

Parameter	Unit
Non-renewable material resources	9.9E+02 kg
Non-renewable energy resources	9.0E+04 MJ
Renewable material resources	1.6E+03 kg
Renewable primary energy	7.6E+02 MJ
Consumption of freshwater	7.0E+01 m ³

3. Material composition

Material	Unit
Fe	≥95.2 %
C	0.17-0.56 %
Si	0.15-0.35 %
Mn	0.55-1.65 %
P	≤0.030 %
S	≤0.020 %
T-Al	≤0.060 %
Cu	≤0.30 %
Ni	≤0.25 %
Cr	0.10-1.25 %
Mo	≤0.30 %
T-Ti	≤0.030 %

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

- Each LCI includes allocation for scrap recycling as an optional supplementary information(D) at table.1 . Recycling rate (RR) used in this calculation is 93.8% (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. 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. However, the iron content in each product is never less than 95.2%, 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 the transport of metallurgical coal, the amount is double counted due to the characteristics of the inventory database on which this estimation is based.



SuMPO EPD

Type III Environmental Declaration (EPD)

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization
14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan

Registration number : JR-AJ-24040E

<https://ecoleaf-label.jp>

6-1. Supplementary environmental information

Kyushu Works 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 and steel scrap data(JP-AJ-0001) from the Japan Iron and Steel Federation are used.

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/>)

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