Japan EPD Program by SuMPO
Sustainable Management Promotion Organization
14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan
https://ecoleaf-label.jp/

JFE Steel Corporation

Heavy Wide Flange H-Shapes

Functional unit

1 metric ton

System boundary

☐ final products ■intermediate products

Production stage (Raw material supply, Transport to factory, Manufacturing) and Recycling potential

Main specifications of the product

Production Site:

West Japan Works (Kurashiki, Fukuyama)

Representative Standards:

Listed on Page 3 (8. Remarks)

Shape:

Wide Flange Shapes

Representative Section and Thickness:

Listed on Page 3 (8. Remarks)

Registration#	JR-AJ-22017E-B
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	1 August 2022
Verification date	14 February 2025
Verification method	Product-by-product
Verification#	JV-AJ-24055
Expiration date	19 July 2028

PCR review was conducted by:

Approval date	10 May 2023
PCR review panel chair	Yasunari Matsuno (Chiba University)

Third party verifier*

Takahiro Atoh

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

☐internal ■external

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

Company Information

JFE Steel Corporation Planning＆Marketing Dept., Construction Materials & Services Business Division

https://www.jfe-steel.co.jp/en/index.html

1. Results of life cycle impact assessment (LCIA)

Parameter \ Stage	Production stage and Recycling potential [A1],[A2],[A3] and [D]	Production stage (cradle to gate) [A1],[A2] and [A3]	Unit
Global warming IPCC2013 GWP100a	2.1E+03	3.1E+03	kg-CO_2eq
Acidification	-4.3E-01	1.1E+00	kg-SO_2eq
Photochemical ozone	2.5E-02	4.4E-02	kg-PO_4^{3-}eq

Parameter \ Stage	Unit	Total	[A1] Raw material supply	[A2] Transport to factory	[A3] Manufacturing	[D] Recycling potential
Global warming IPCC2013 GWP100a	kg-CO_2eq	3.1E+03	8.6E+02	2.3E+01	2.2E+03	-1.0E+03
Ozone layer destruction	kg-CFC-11eq	2.1E-07	1.1E-07	1.5E-10	1.0E-07	-1.8E-07
Acidification	kg-SO_2eq	1.1E+00	3.8E-01	3.6E-02	7.2E-01	-1.6E+00
Photochemical ozone	kg-C_2H_4eq	8.8E-03	6.4E-03	6.9E-04	1.6E-03	-2.2E-01
Eutrophication	kg-PO_4^{3-}eq	4.4E-02	1.1E-05	1.3E-13	4.4E-02	-1.9E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	1.3E+03	kg
Non-renewable energy resources	3.6E+04	MJ
Renewable material resources	1.2E+03	kg
Renewable primary energy	1.2E+02	MJ
Consumption of freshwater	2.6E+00	m^3

3. Material composition

Material		Unit
iron [Fe]	≧96.1	wt%
carbon [C]	≦0.30	wt%
silicon [Si]	≦0.65	wt%
manganese [Mn]	≦1.65	wt%
phosphorus [P]	≦0.05	wt%
sulfur [S]	≦0.05	wt%
copper [Cu]	≦0.60	wt%
nickel [Ni]	≦0.50	wt%
vanadium [V]	≦0.11	wt%

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	1.8E+00	kg

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

5. Additional explanation

- This EPD shows the results calculated without applying system extensions.
- Scrap recycling potential is calculated based on ISO 20915/JIS Q 20915 and shown as [D] in table 1. Recycling ratio used in this calculation is 93.0%. (Using data is 2018FY from The Japan Iron and Steel Federation, The Japan ferrous raw materials association and The Japan Steel Can recycling Association).
- The environmental impact of self-generated electricity was calculated as primary data of fuel and the basic unit data of grid power consumption is the average of 10 electric power suppliers of Japan in 2014FY.
- Each item (except iron) in table 3 is the maximum value of all product standards covered by this EPD.
- Primary data in 2018 is used.

6-1. Supplementary environmental information

The production site is certified to ISO 14001.

6-2. Regulated hazardous substances

Substance	CAS No.	Reference to standards or regulations
manganese [Mn]	7349-96-5	・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
chromium [Cr]	7440-47-3	・Industrial Safety and Health Act
molybdenum [Mo]	7439-98-7	・Industrial Safety and Health Act
cobalt [Co]	7440-48-4	・Industrial Safety and Health Act

7. Assumptions of secondary data used

IDEA v2.1.3 database is used. Steel scrap data (JP-AJ-0001) from the Japan Iron and Steel Federation are used.

8. Remarks

Representative standards:
SN400A, SN400B, SN400C, SN490B, SN490C, SM400A, SM400B, SM400C, SM490A, SM490B, SM490C,
SS400, SS490, SS540, SM490YA, SM490YB, SM520B, SM520C,
HBL®-JH325B, HBL®-JH325C, HBL®-JH355B, HBL®-JH355C,
SS275, SM275A, SM275B, SM355A, SM355B, SHN355 and others
Representative section and thickness (unit mm, t=thickness):
H418(t15)×402(t30) - 498(t45)×432(t70)
H492(t15)×465(t20) - 572(t45)×510(t60)
H670(t25)×475(t30) - 770(t70)×520(t80)

・ July, 2023; Correction of double counting on upstream and modification of allocation method of by-product gases
・ February, 2025; Modification about system boundary and allocation of by-product gases.

- 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/)