SuMPO EPD
Type III Environmental Declaration (EPD)
Registration number： JR-AJ-24066E

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

JFE Steel Sheet Piles（JFESP™）

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 Shape:
Hat-shaped Steel Sheet Piles
U-shaped Steel Sheet Piles
J-Pocket Pile™
also shown in Table 8.Remarks on page 3
Representative Standards:
JIS A 5523, JIS A 5528, JFE Standards

Registration#	JR-AJ-24066E
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	21 March 2025
Verification date	13 February 2025
Verification method	Product-by-product
Verification#	JV-AJ-24066
Expiration date	12 February 2030

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

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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	1.9E+03	2.9E+03	kg-CO_2eq
Acidification	-9.6E-01	6.4E-01	kg-SO_2eq
Photochemical ozone	2.4E-02	4.3E-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	2.9E+03	7.7E+02	8.3E+00	2.2E+03	-1.0E+03
Ozone layer destruction	kg-CFC-11eq	6.8E-07	2.0E-07	5.6E-11	4.8E-07	-1.9E-07
Acidification	kg-SO_2eq	6.4E-01	3.8E-01	4.4E-02	2.2E-01	-1.6E+00
Photochemical ozone	kg-C_2H_4eq	8.4E-03	6.2E-03	8.3E-04	1.4E-03	-2.2E-01
Eutrophication	kg-PO_4^{3-}eq	4.3E-02	1.2E-05	5.0E-14	4.3E-02	-1.9E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	1.5E+03	kg
Non-renewable energy resources	3.6E+04	MJ
Renewable material resources	1.0E+03	kg
Renewable primary energy	1.1E+02	MJ
Consumption of freshwater	2.5E+00	m^3

3. Material composition

Material		Unit
iron [Fe]	≧97.2	wt%
carbon [C]	≦0.40	wt%
silicon [Si]	≦0.55	wt%
manganese [Mn]	≦1.65	wt%
phosphorus [P]	≦0.04	wt%
sulfur [S]	≦0.04	wt%
nitrogen [N]	≦0.01	wt%
aluminum [Al]	≦0.04	wt%
vanadium [V]	≦0.06	wt%

4. Waste to disposal

Parameter		Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	2.0E+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 2021 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
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
copper [Cu]	7440-50-8	・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 shapes:

・Hat-shaped Steel Sheet Piles; JFESP-10H, JFESP-25H, JFESP-45H, JFESP-50H
・U-shaped Steel Sheet Piles; JFESP-2W, JFESP-3W, JFESP-4W, JFESP-2, JFESP-3, KSP-3, JFESP-4, JFESP-5L, JFESP-6L
・Corner Steel Sheet Piles; JFESP-C3, JFESP-C4
・J-Pocket Pile®; JFESP-4WS, JFESP-5WS
・Straight-shaped Steel Sheet Piles; JFESP-FLJ, KF-JES
・Deformed Steel Sheet Piles

Representative steel grade standards:

・JIS A 5523; SYW295, SYW390
・JIS A 5528; SY295, SY390
・JFE Standards; JD490, SM400A-M, SM490A-M, SYW295-MOD and others
・Certified by the Minister of Land, Infrastructure, Transport and Tourism; JFE-SYW295

- 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/)