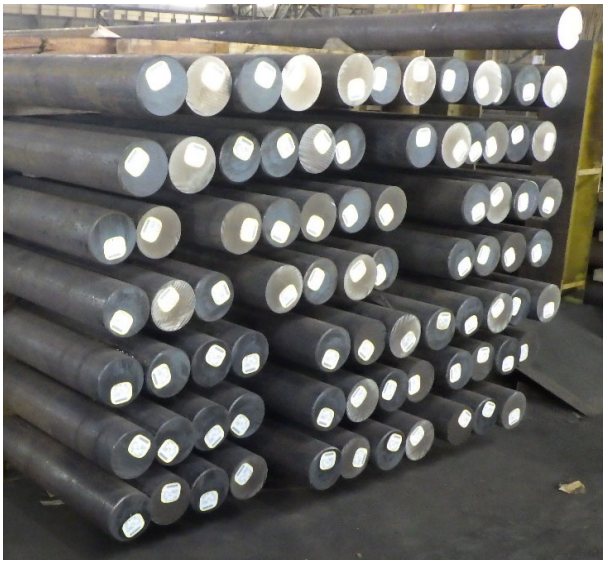
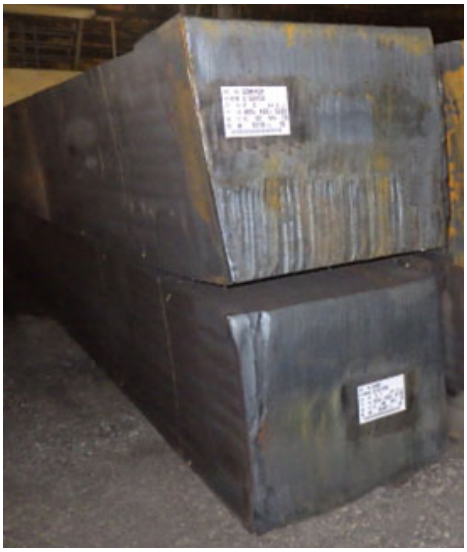
SuMPO EPD
Type III Environmental Declaration (EPD)
Registration number： JR-AW-23023E-A

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

Round Bar and Square Bar (Products in Kurashiki)





Functional unit

1 metric ton

System boundary

☐ final products ■intermediate products

Production stage (Raw material acquisition, Manufacturing) and Recycling potential

Main specifications of the product

Production Site: West Japan Works (Kurashiki)

Representive Standards:

SC, SCM, SS

Shape: Round Bar and Square Bar

Size range (mm):

Round Bar: φ95 - φ450

Square Bar: □250 - □750

Registration#	JR-AW-23023E-A
PCR number	PA-180000-AW-05
PCR name	Steel products (except for construction use)
Publication date	15 January 2024
Verification date	14 February 2025
Verification method	Product-by-product
Verification#	JV-AW-24048
Expiration date	20 November 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

☐internal ■external

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

Company Information

JFE Steel Corporation Planning & Marketing Dept., Steel Bar & Wire Rod 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	-9.6E-01	6.6E-01	kg-SO_2eq
Photochemical ozone	1.8E-02	3.8E-02	kg-PO_4^{3-}eq

Parameter \ Stage	Unit	Total	[A1][A2] Raw material acquisition	[A3] Manufacturing	[D] Recycling potential
Global warming IPCC2013 GWP100a	kg-CO_2eq	3.1E+03	7.7E+02	2.4E+03	-1.1E+03
Ozone layer destruction	kg-CFC-11eq	2.5E-07	1.8E-07	7.0E-08	-1.9E-07
Acidification	kg-SO_2eq	6.6E-01	4.3E-01	2.3E-01	-1.6E+00
Photochemical ozone	kg-C_2H_4eq	8.6E-03	6.9E-03	1.8E-03	-2.3E-01
Eutrophication	kg-PO_4^{3-}eq	3.8E-02	1.2E-05	3.8E-02	-1.9E-02

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	1.4E+03	kg
Non-renewable energy resources	3.6E+04	MJ
Renewable material resources	9.3E+02	kg
Renewable primary energy	1.1E+02	MJ
Consumption of freshwater	2.7E+00	m^3

3. Material composition

Material		Unit
iron [Fe]	≧86.5	wt%
carbon [C]	≦1.10	wt%
silicon [Si]	≦2.50	wt%
manganese [Mn]	≦2.50	wt%
phosphorus [P]	≦0.05	wt%
sulfur [S]	≦0.40	wt%
copper [Cu]	≦0.50	wt%
nickel [Ni]	≦3.00	wt%
chromium [Cr]	≦2.50	wt%
molybdenum [Mo]	≦1.00	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.

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

・ 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/)