



JFE Steel Corporation

## Bar, Bar in Coil and Wire Rod for Construction (Products in Kurashiki)



### 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)

Representative Standards:

SS, SWRM, SWRH, SD785

Shape: Bar, Bar in Coil and Wire Rod

Size range (mm):

Bar:  $\phi 16$  -  $\phi 90$ 

Bar in Coil:  $\phi 16$  -  $\phi 38$ 

Wire Rod:  $\phi 4.2$  -  $\phi 19$ 

Deformed Wire Rod: D10 - D16

Registration#	JR-AJ-23019E-A
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	15 January 2024
Verification date	14 February 2025
Verification method	Product-by-product
Verification#	JV-AJ-24064
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 and ISO21930

☐ internal      ☒ external

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

### Company Information

JFE Steel Corporation      Planning &amp; Marketing Dept., Steel Bar &amp; 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	2.2E+03	3.2E+03	kg-CO <sub>2</sub> eq
Acidification	-9.4E-01	6.8E-01	kg-SO <sub>2</sub> eq
Photochemical ozone	1.8E-02	3.7E-02	kg-PO <sub>4</sub> <sup>3-</sup> eq

Parameter \ Stage	Unit	Total	[A1] Raw material supply	[A2] Transport to factory	[A3] Manufacturing	[D] Recycling potential
Global warming IPCC2013 GWP100a	kg-CO <sub>2</sub> eq	3.2E+03	7.5E+02	8.6E+00	2.4E+03	-1.1E+03
Ozone layer destruction	kg-CFC-11eq	2.5E-07	1.8E-07	5.8E-11	7.4E-08	-1.9E-07
Acidification	kg-SO <sub>2</sub> eq	6.8E-01	3.8E-01	4.0E-02	2.6E-01	-1.6E+00
Photochemical ozone	kg-C <sub>2</sub> H <sub>4</sub> eq	8.9E-03	6.0E-03	7.7E-04	2.2E-03	-2.3E-01
Eutrophication	kg-PO <sub>4</sub> <sup>3-</sup> eq	3.7E-02	1.2E-05	5.1E-14	3.7E-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	9.2E+02	kg
Renewable primary energy	1.2E+02	MJ
Consumption of freshwater	2.9E+00	m <sup>3</sup>

## 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/>)