EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-AJ-23017E

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

Bar and Bar in Coil for Construction (Products in Sendai)

Functional unit

1 metric ton

System boundary

☐ final products ■intermediate products

Production Stage (Raw material acquisition, Transportation to factory, manufucturing) and Indirect effect

Main specifications of the product

Production Site: Sendai Works

Representative Standards:

SS, SWRM, SWRCH

Shape: Bar and Bar in Coil

Size range (mm):

Bar: φ17 - φ120

Bar in Coil: φ16.7 - φ52

Company Information

JFE Steel Corporation
Planning & Marketing Dept.,
Steel Bar & Wire Rod Division
About us: https://www.jfe-steel.co.jp/en/index.html
Contact us: https://www.jfe-steel.co.jp/en/contact.html

Registration#	JR-AJ-23017E
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	1/15/2024
Verification date	11/21/2023
Verification method	Product-by-product
Verification#	JV-AJ-23017
Expiration date	11/20/2028

PCR review was conducted by:

Approval date	5/10/2023
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.

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1. Results of life cycle impact assessment (LCIA)

Parameter \ stage	[A1,A2,A3]*	Unit
Global warming IPCC2013 GWP100a	9.9E+02	kg-CO_2eq
Acidification	5.8E-01	kg-SO_2eq
Eutrophication	3.3E-03	kg-PO_4^{3-}eq

*[A1,A2,A3]:sum of [A1],[A2] and [A3]

Parameter \ stage	Unit	Total	[A1] Raw material acquisition	[A2] Transportation to factory	[A3] Manufacturing	[D] Indirect effect
Global warming IPCC2013 GWP100a	kg-CO_2eq	9.9E+02	2.0E+02	3.6E+01	7.5E+02	3.4E+02
Ozone layer destruction	kg-CFC-11eq	2.2E-07	1.6E-07	2.9E-10	5.7E-08	6.1E-08
Acidification	kg-SO_2eq	5.8E-01	1.4E-01	1.2E-01	3.2E-01	5.2E-01
Photochemical ozone	kg-C_2H_4eq	1.6E-02	1.3E-03	3.5E-04	1.4E-02	7.3E-02
Eutrophication	kg-PO_4^{3-}eq	3.3E-03	4.9E-06	2.5E-13	3.3E-03	6.2E-03

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	2.1E+01	kg
Non-renewable energy resources	1.6E+04	MJ
Renewable material resources	1.3E+01	kg
Renewable primary energy	2.8E+02	MJ
Consumption of freshwater	1.7E+00	m^3

3. Material composition

Material		Unit
Iron [Fe]	84.2	wt%
Carbon [C]	1.10	wt%
Silicon [Si]	3.00	wt%
Manganese [Mn]	3.00	wt%
Phosphorus [P]	0.15	wt%
Sulfur [S]	0.45	wt%
Copper [Cu]	0.60	wt%
Nickel [Ni]	4.00	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.	8.4E-01	kg

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

5. Additional explanation

・The indirect effect (scrap recycling potential) is calculated based on ISO 20915/JIS Q 20915 and shown as [D]Iindirect effect in table "1. Results of life cycle impact assessment (LCIA)" .
The indirect effect is added to the total value (sum of [A1], [A2], [A3]) in tables.
・Recycling ratio used in this calculation is 93.0% (calculated based on ISO 20915/JIS Q 20915 and using FY 2018 data from The Japan Iron and Steel Federatin, The Japan Steel Can recycling Association and The Japan ferrous raw materials
association).
・The source of unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
・Primary data collected in 2021.

・Each item (except iron) in table 3 is the maximum value of all product standards covered by this EPD.

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
Copper [Cu]	7440-50-8	・Industrial Safety and Health Act
Manganese [Mn]	7439-96-5	・Industrial Safety and Health Act
Nickel [Ni]	7440-02-0	・Act on the Assessment of Releases of Specified Chemical Substances in the Environment and the Promotion of Management Improvement
Chromium [Cr]	7440-47-3	
Molybdenum [Mo]	7439-98-7	
Lead [Pb]	7439-92-1	

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

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- 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/）