



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-23019E

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, 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 acquisition,
Transportation to factory, manufacturing) and
Indirect effect

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: φ16 - φ90

Bar in Coil: φ16 - φ38

Wire Rod: φ4.2 - φ19

Deformed Wire Rod: D10 - D16

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-23019E
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-23019
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 and ISO21930

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]+[D] ¹⁾	[A1,A2,A3] ²⁾	Unit
Global warming IPCC2013 GWP100a		1.2E+03	2.2E+03	kg-CO ₂ eq
Acidification		-1.7E+00	-3.8E-02	kg-SO ₂ eq
Eutrophication		1.8E-02	3.8E-02	kg-PO ₄ ³⁻ eq

1)[A1,A2,A3]+[D]:sum of [A1],[A2],[A3] and [D]

2)[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 ₂ eq	2.2E+03	7.8E+02	8.8E+00	1.5E+03	-1.1E+03
Ozone layer destruction		kg-CFC-11eq	-7.3E-07	1.9E-07	5.9E-11	-9.2E-07	-1.9E-07
Acidification		kg-SO ₂ eq	-3.8E-02	4.0E-01	4.0E-02	-4.8E-01	-1.6E+00
Photochemical ozone		kg-C ₂ H ₄ eq	1.4E-02	6.4E-03	7.7E-04	6.8E-03	-2.3E-01
Eutrophication		kg-PO ₄ ³⁻ eq	3.8E-02	1.2E-05	5.3E-14	3.8E-02	-1.9E-02

2. Life cycle inventory analysis (LCI)

Parameter	Unit
Non-renewable material resources	8.1E+02 kg
Non-renewable energy resources	3.3E+04 MJ
Renewable material resources	9.3E+02 kg
Renewable primary energy	2.4E+02 MJ
Consumption of freshwater	8.9E-01 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.	1.7E+00 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]Indirect 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	

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/>)