



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-23020E

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

## Wire Rod for Construction (Products in Sendai)



### 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: Sendai Works

Representative Standards:

SS, SWRM, SWRH, SWRS, SWRCH

Shape: Wire Rod

Size range (mm):

φ5.5 - φ18

### 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-23020E
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-23020
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		1.0E+03	kg-CO <sub>2</sub> eq
Acidification		5.8E-01	kg-SO <sub>2</sub> eq
Eutrophication		3.3E-03	kg-PO <sub>4</sub> <sup>3-</sup> 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 <sub>2</sub> eq	1.0E+03	2.0E+02	3.5E+01	7.6E+02	3.3E+02
Ozone layer destruction		kg-CFC-11eq	2.2E-07	1.6E-07	2.9E-10	5.7E-08	6.0E-08
Acidification		kg-SO <sub>2</sub> eq	5.8E-01	1.4E-01	1.2E-01	3.2E-01	5.1E-01
Photochemical ozone		kg-C <sub>2</sub> H <sub>4</sub> eq	1.6E-02	1.3E-03	3.5E-04	1.4E-02	7.1E-02
Eutrophication		kg-PO <sub>4</sub> <sup>3-</sup> eq	3.3E-03	4.9E-06	2.5E-13	3.3E-03	6.1E-03

**2. Life cycle inventory analysis (LCI)**

Parameter	Unit
Non-renewable material resources	2.3E+01 kg
Non-renewable energy resources	1.6E+04 MJ
Renewable material resources	1.3E+01 kg
Renewable primary energy	2.9E+02 MJ
Consumption of freshwater	1.4E+00 m <sup>3</sup>

**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.	8.3E-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]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	
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/>)