



JFE Steel Corporation

Welded light gauge H-Sections



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:

Light Shapes Plant (Kurashiki)

Representative Standards: SWH400, SWH400-M

Shape: Light gauge H-Sections

Representative Section Size:

Web Height (H); 100 - 300mm

Flange Width (B); 60 - 150mm

Web thickness (t1); 2.8 - 6.0mm

Flange thickness (t2); 3.2 - 9.0mm

| | |
|-------------------------------------|--|
| Registration# | JR-AJ-24065E |
| PCR number | PA-180000-AJ-06 |
| PCR name | Steel products for construction |
| Publication date | 21 March 2025 |
| Verification date | 13 February 2025 |
| Verification method | Product-by-product |
| Verification# | JV-AJ-24065 |
| Expiration date | 12 February 2030 |
| 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 & Marketing Dept., Construction Materials & Services Business 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 | 2.5E+03 | 3.5E+03 | kg-CO ₂ eq |
| Acidification | -8.1E-01 | 7.5E-01 | kg-SO ₂ eq |
| Photochemical ozone | 2.5E-02 | 4.4E-02 | kg-PO ₄ ³⁻ eq |

| Parameter \ Stage | Unit | Total | [A1] Raw material supply | [A2] Transport to factory | [A3] Manufacturing | [D] Recycling potential |
|---------------------------------|-------------------------------------|---------|--------------------------|---------------------------|--------------------|-------------------------|
| Global warming IPCC2013 GWP100a | kg-CO ₂ eq | 3.5E+03 | 8.9E+02 | 1.0E+01 | 2.6E+03 | -1.0E+03 |
| Ozone layer destruction | kg-CFC-11eq | 4.4E-07 | 2.6E-07 | 6.9E-11 | 1.8E-07 | -1.8E-07 |
| Acidification | kg-SO ₂ eq | 7.5E-01 | 4.5E-01 | 4.8E-02 | 2.5E-01 | -1.6E+00 |
| Photochemical ozone | kg-C ₂ H ₄ eq | 1.1E-02 | 7.1E-03 | 9.0E-04 | 3.2E-03 | -2.2E-01 |
| Eutrophication | kg-PO ₄ ³⁻ eq | 4.4E-02 | 1.4E-05 | 6.1E-14 | 4.4E-02 | -1.9E-02 |

2. Life cycle inventory analysis (LCI)

| Parameter | Value | Unit |
|----------------------------------|---------|----------------|
| Non-renewable material resources | 1.6E+03 | kg |
| Non-renewable energy resources | 4.2E+04 | MJ |
| Renewable material resources | 1.1E+03 | kg |
| Renewable primary energy | 1.5E+02 | MJ |
| Consumption of freshwater | 5.1E+00 | m ³ |

3. Material composition

| Material | Value | Unit |
|----------------|-------|------|
| iron [Fe] | ≥98.0 | wt% |
| carbon [C] | ≤0.20 | wt% |
| silicon [Si] | ≤0.35 | wt% |
| manganese [Mn] | ≤1.40 | wt% |
| phosphorus [P] | ≤0.03 | wt% |
| sulfur [S] | ≤0.02 | wt% |

4. Waste to disposal

| Parameter | Value | Unit |
|----------------------|---------|------|
| Hazardous waste | 0.0E+00 | kg |
| Non-hazardous waste. | 2.4E+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 |
| copper [Cu] | 7440-50-8 | • 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 |
| cobalt [Co] | 7440-48-4 | • 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

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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/>)