



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-21004E

Ecoleaf Environmental Labeling Program

Sustainable Management Promotion Organization

2-1, Kaji-cho 2 chome, Chiyoda-ku, Tokyo Japan

<https://ecoleaf-label.jp/>**KYOEI STEEL**

(KYOEI STEEL LTD.)

Flat bar of steel

**Functional unit**

1t

System boundary final products intermediate products

Production Stage and optional supplementary information

Main specifications of the product

Production sites: Yamaguchi Works

Main standards: JIS G 3101(SS400)

JIS G 3136(SN400A、SN400B、SN490B)

Type: Flat

Size: (Thickness)4.5~16mm (High)25~150mm

Company Information

KYOEI STEEL LTD.

<http://www.kyoeisteel.co.jp>

| | |
|-------------------------------------|---------------------------------|
| Registration# | JR-AJ-21004E |
| PCR number | PA-180000-AJ-03 |
| PCR name | Steel products for construction |
| Publication date | 4/20/2021 |
| Verification date | 4/8/2021 |
| Verification method | Product-by-product |
| Verification# | JV-AJ-21004 |
| Expiration date | 4/7/2026 |
| PCR review was conducted by: | |
| Approval date | 10/1/2019 |
| PCR review | Yasunari Matsuno |
| panel chair | (Chiba University) |

Third party verifier*

Hiroyuki Uchida

Independent verification of data & declaration in accordance with ISO14025 and ISO21930.

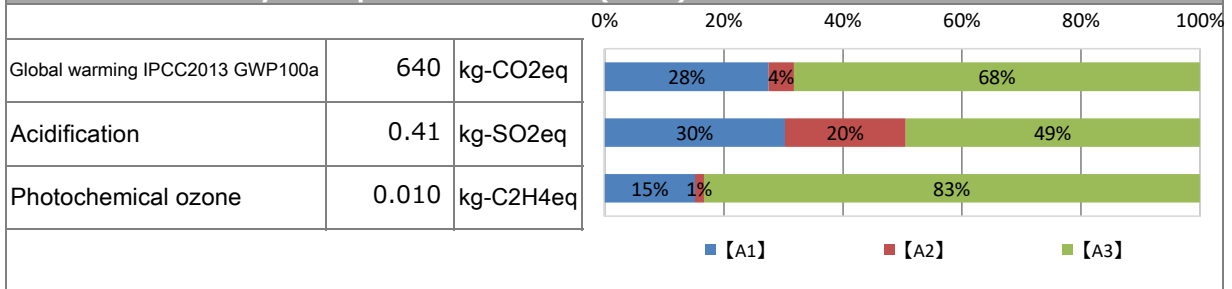
 internal external

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

Registration number : JR-AJ-21004E



1. Results of life cycle impact assessment (LCIA)



| Parameter | stage | Unit | [A1~A3] | [A1] | [A2] | [A3] | [D] |
|---------------------------------|-------|-------------------------------------|---------|---------|---------|---------|---------|
| Global warming IPCC2013 GWP100a | | kg-CO ₂ eq | 6.4E+02 | 1.8E+02 | 2.7E+01 | 4.3E+02 | 1.6E+02 |
| Ozone layer destruction | | kg-CFC-11eq | 1.9E-07 | 1.8E-07 | 2.2E-10 | 1.2E-08 | 2.9E-08 |
| Acidification | | kg-SO ₂ eq | 4.1E-01 | 1.3E-01 | 8.4E-02 | 2.0E-01 | 2.4E-01 |
| Photochemical ozone | | kg-C ₂ H ₄ eq | 1.0E-02 | 1.6E-03 | 1.5E-04 | 8.7E-03 | 3.4E-02 |
| Eutrophication | | kg-PO ₄ ³⁻ eq | 1.9E-04 | 5.0E-06 | 1.9E-13 | 1.8E-04 | 2.9E-03 |

2. Life cycle inventory analysis (LCI)

| Parameter | Value | Unit |
|----------------------------------|----------|----------------|
| Non-renewable material resources | -6.8E+01 | kg |
| Non-renewable energy resources | 9.2E+03 | MJ |
| Renewable material resources | 2.8E+02 | kg |
| Renewable primary energy | 2.1E+02 | MJ |
| Consumption of freshwater | 7.2E-02 | m ³ |

3. Material composition

| Material | Value | Unit |
|----------------|--------|------|
| Iron [Fe] | ≥96.72 | % |
| Carbon [C] | ≤0.58 | % |
| Silicon [Si] | ≤0.6 | % |
| Manganese [Mn] | ≤2 | % |
| Phosphorus [P] | ≤0.05 | % |
| sulfur [S] | ≤0.05 | % |

4. Waste to disposal

| Parameter | Value | Unit |
|----------------------|----------|------|
| Hazardous waste | 0.00E+00 | kg |
| Non-hazardous waste. | 3.3E+01 | kg |

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

5. Additional explanation

- ①Each LCI figure includes allocation for scrup recycling as a optional supplementary infomation[D].Recycling rate(RR) of this EPD is 93.1%(the average of Japan in 2014).
- ②Transport to site scienario is based on PCR.
- ③The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
- ④The first data was acquired from 2019.
- ⑤Each material figure(except iron) is the maximum value of these product standers.
- ⑥ Electric furnace slag is sold to the outside as products.



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-21004E

Ecoleaf Environmental Labeling Program

Sustainable Management Promotion Organization

2-1, Kaji-cho 2 chome, Chiyoda-ku, Tokyo Japan

<https://ecoleaf-label.jp/>

6-1. Supplementary environmental information

| |
|--|
| |
|--|

6-2. Regulated hazardous substances

| Substance | CAS No. | Reference to standards or regulations |
|----------------|-----------|---------------------------------------|
| Manganese [Mn] | 7439-96-5 | Industrial Safety and Health Act |
| Copper [Cu] | 7440-50-8 | Industrial Safety and Health Act |
| Chrome [Cr] | 7440-47-3 | Industrial Safety and Health Act |
| Nickel [Ni] | 7440-02-0 | Industrial Safety and Health Act |

7. Assumptions of secondary data used

We use the IDEA2.1.3 data and scrap iron data from the Japan Iron and Steel Federation(J.I.S.F).

8. Remarks

| |
|--|
| |
|--|

- 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/>)

Registration number : JR-AJ-21004E