



EcoLeaf

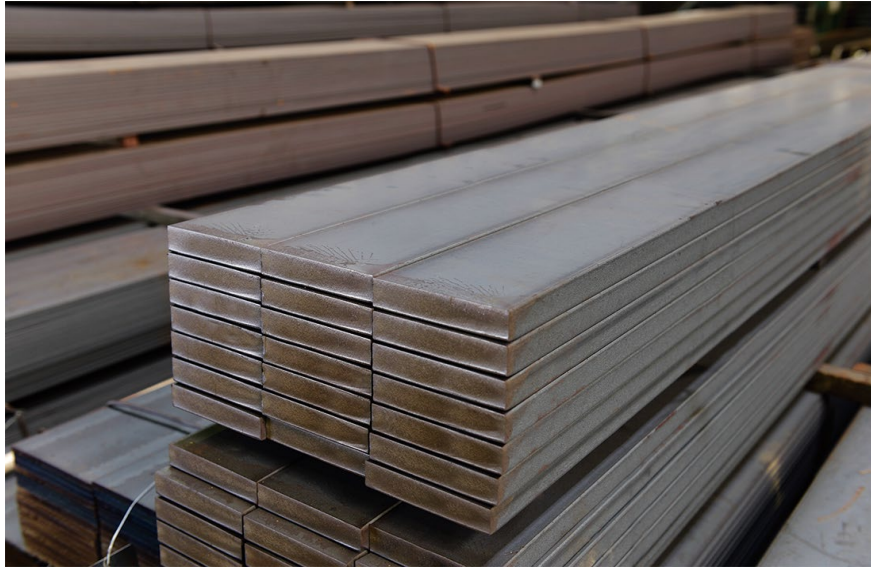
Type III Environmental Declaration (EPD)

Registration number : JR-AJ-23023E

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization

14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan

<https://ecoleaf-label.jp/>**OSAKA STEEL CO.,LTD.****Flat bars****Functional unit**

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System boundary

- final products intermediate products
- Production Stage and optional supplementary information

Main specifications of the product

Production sites : Kishiwada Works

Main standards :

JIS G 3101 (SS400)

JIS G 3106 (SM400A, SM490A, SM490YA, SM490YB)

JIS G 3136 (SN400A, SN400B, SN490B)

JIS G 4051 (S45C, S48C, S50C, S53C)

JIS G 4053 (SCM435, SCM440)

JIS G 4801 (SUP6, SUP9, SUP10, SUP11A)

Cross-sectional shapes : Rectangle

Sizes (mm) :

(thickness) 4.0~50.0, (width) 32~210

Company Information

OSAKA STEEL CO., LTD.

Production&Technical Control Div. Technical Control Group

TEL: +81-6-6204-0300 <https://www.osaka-seitetsu.co.jp/en/contact/>

Registration#	JR-AJ-23023E
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction use
Publication date	12/25/2023
Verification date	11/21/2023
Verification method	Product-by-product
Verification#	JV-AJ-23023
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*

Wataru Kawamura

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

 internal external

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

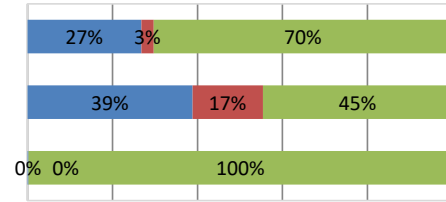
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1. Results of life cycle impact assessment (LCIA)

Parameter	stage	[A1~A3] + [D]	[A1~A3]	Unit
Global warming IPCC2013 GWP100a		1000	810	kg-CO2eq
Acidification		0.74	0.44	kg-SO2eq
Eutrophication		0.0044	0.001	kg-PO43-eq

0% 20% 40% 60% 80% 100%



■ [A1]Raw mterial supply ■ [A2]Transport to factory
■ [A3]Manufacturing

Table Legend

[A1~A3]:sum of [A1],[A2]and[A3](cradle to gate)

[A1~A3]+[D]: sum of [A1],[A2],[A3]and [D](cradle to gate with allocation for scrap recycling)

Parameter	stage	Unit	[A1~A3]	[A1]Raw mterial supply	[A2] Transport to factory	[A3] Manufacturing	[D] Recycling potential
Global warming IPCC2013 GWP100a		kg-CO ₂ eq	8.1E+02	2.2E+02	2.4E+01	5.7E+02	1.9E+02
Ozone layer destruction		kg-CFC-11eq	2.6E-06	2.6E-06	1.9E-10	4.3E-08	3.5E-08
Acidification		kg-SO ₂ eq	4.4E-01	1.7E-01	7.3E-02	2.0E-01	3.0E-01
Photochemical ozone		kg-C ₂ H ₄ eq	1.4E-02	2.0E-03	1.3E-04	1.2E-02	4.2E-02
Eutrophication		kg-PO ₄ ³⁻ eq	8.2E-04	2.1E-06	1.7E-13	8.2E-04	3.5E-03

2. Life cycle inventory analysis (LCI)

Parameter	Unit
Non-renewable material resources	2.7E+01 kg
Non-renewable energy resources	1.3E+04 MJ
Renewable material resources	2.7E+02 kg
Renewable primary energy	2.7E+02 MJ
Consumption of freshwater	1.1E+00 m ³

3. Material composition

Material	Unit
iron [Fe]	≥92.0 %
carbon [C]	≤0.64 %
silicon [Si]	≤1.8 %
manganese [Mn]	≤1.65 %
phosphorus [P]	≤0.05 %
sulfur [S]	≤0.05 %
nickel [Ni]	≤0.4 %
chromium [Cr]	≤1.2 %
molybdenum [Mo]	≤0.3 %
copper [Cu]	≤0.5 %
vanadium [V]	≤0.25 %
boron [B]	≤0.005 %
titanium [Ti]	≤0.02 %

4. Waste to disposal

Parameter	Unit
Hazardous waste	0.0E+00 kg
Non-hazardous waste.	1.3E+02 kg

5. Additional explanation

- Each LCI includes allocation for scrap recycling as an optional supplementary information [D] at table.1 . Recycling rate (RR) used in this calculation is 93.0% (calculated based on ISO 20915/JIS Q20915 and using Japan data in 2018 from Japan Iron and Steel Federation and Japan Steel Can Recycling Association).
- Scenarios of transport to site follow the PCR.
- Each item (except iron) in table 3 is the maximum value of all product standards covered by this EPD. However, the iron content in each product is never less than 92.0%, and the contents of other components are adjusted.
- Primary data collected in 2021. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.



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6-1. Supplementary environmental information

Each production site is certified to ISO 14001. (Certification Number E729)

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
chromium [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 IDEA v2.1.3 data and steel scrap data(JP-AJ-0001) from the Japan Iron and Steel Federation.

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/>)

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