



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-23025E

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization

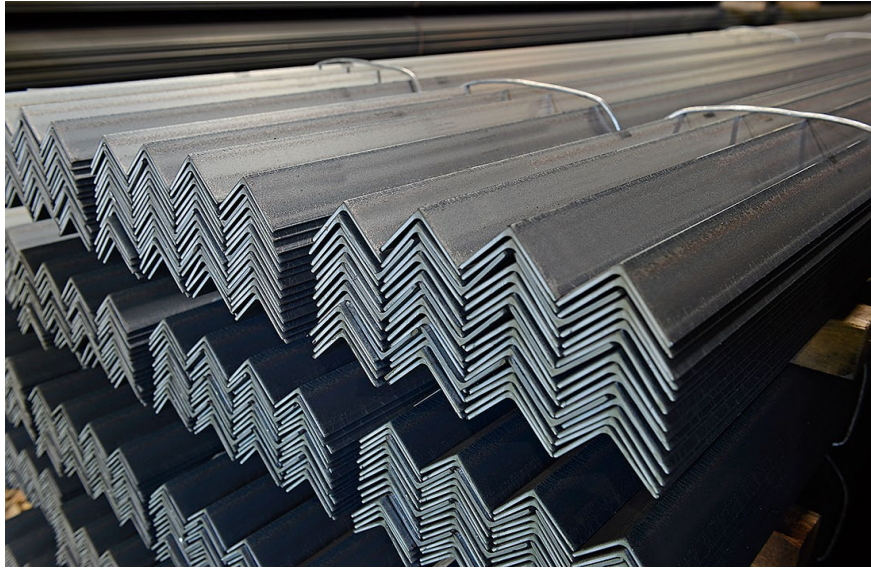
14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan

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



**OSAKA STEEL CO., LTD.**

**Angles**



**Functional unit**

1 t

**System boundary**

final products     intermediate products

Production Stage and optional supplementary information

**Main specifications of the product**

Production sites : Sakai Works,  
Nishi-Nippon Kumamoto Works

Main standards :

- JIS G 3101 (SS400, SS540)
- JIS G 3106 (SM400A, SM400B, SM490A, SM490B)
- JIS G 3136 (SN400A, SN400B, SN490B)

Shapes : Angles

Sizes (mm) :

- L20×20×3~L150×150×15 [Equal angles]
- L90×75×9~L150×100×15 [Unequal angles]

**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-23025E
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-23025
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.

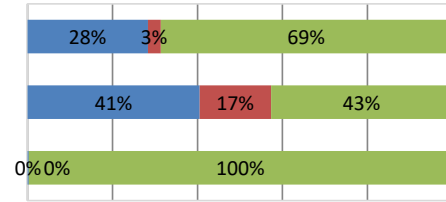
Registration number : JR-AJ-23025E



1. Results of life cycle impact assessment (LCIA)

Parameter	stage	[A1~A3] + [D]	[A1~A3]	Unit
Global warming IPCC2013 GWP100a		930	760	kg-CO2eq
Acidification		0.69	0.43	kg-SO2eq
Eutrophication		0.0039	0.00079	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 <sub>2</sub> eq	7.6E+02	2.2E+02	2.3E+01	5.2E+02	1.7E+02
Ozone layer destruction		kg-CFC-11eq	2.2E-06	2.1E-06	1.9E-10	3.6E-08	3.1E-08
Acidification		kg-SO <sub>2</sub> eq	4.3E-01	1.7E-01	7.2E-02	1.8E-01	2.6E-01
Photochemical ozone		kg-C <sub>2</sub> H <sub>4</sub> eq	1.3E-02	1.9E-03	1.3E-04	1.1E-02	3.7E-02
Eutrophication		kg-PO <sub>4</sub> <sup>3-</sup> eq	7.9E-04	2.3E-06	1.6E-13	7.9E-04	3.1E-03

2. Life cycle inventory analysis (LCI)

Parameter	Unit
Non-renewable material resources	3.1E+01 kg
Non-renewable energy resources	1.2E+04 MJ
Renewable material resources	2.1E+02 kg
Renewable primary energy	2.6E+02 MJ
Consumption of freshwater	5.9E-01 m <sup>3</sup>

3. Material composition

Material	Unit
iron [Fe]	≥96.0 %
carbon [C]	≤0.30 %
silicon [Si]	≤0.55 %
manganese [Mn]	≤1.65 %
phosphorus [P]	≤0.050 %
sulfur [S]	≤0.050 %

4. Waste to disposal

Parameter	Unit
Hazardous waste	0.0E+00 kg
Non-hazardous waste.	1.2E+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 96.0%, 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.



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-23025E

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization

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

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

#### 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

#### 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

-

- 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-23025E