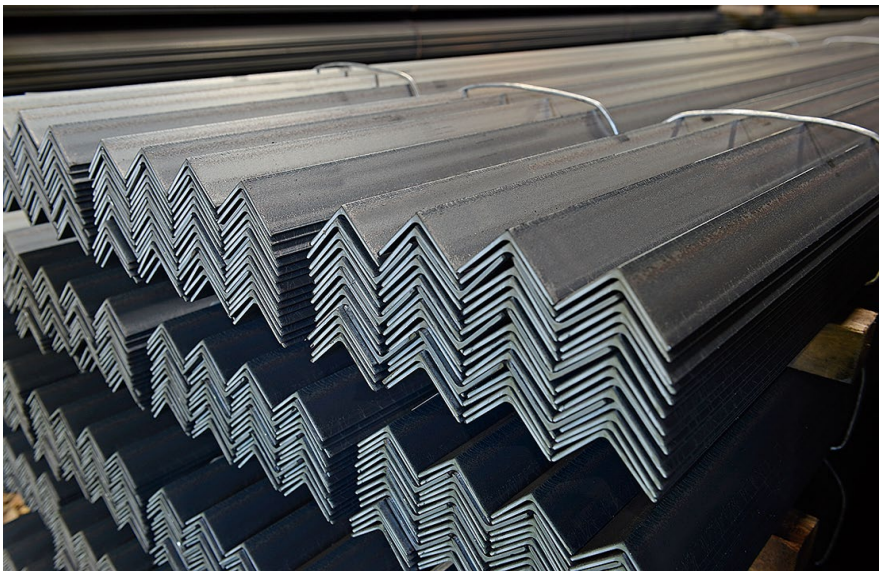
SuMPO EPD
Type III Environmental Declaration (EPD)
Registration number： JR-AJ-23025E-A

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-seitetu.co.jp/en/contact/

Registration#	JR-AJ-23025E-A
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.

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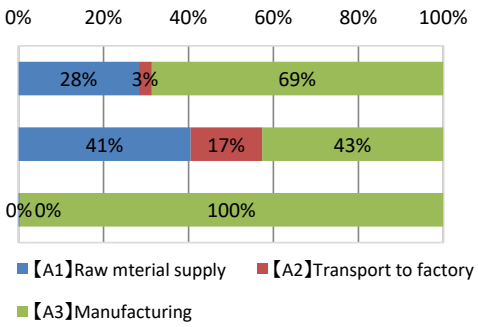
1. Results of life cycle impact assessment (LCIA)

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

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_2eq	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_2eq	4.3E-01	1.7E-01	7.2E-02	1.8E-01		2.6E-01
Photochemical ozone	kg-C_2H_4eq	1.3E-02	1.9E-03	1.3E-04	1.1E-02		3.7E-02
Eutrophication	kg-PO_4^{3-}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^3

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

1) 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).
2) Scenarios of transport to site follow the PCR.
3) 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.
4) 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

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

1. Additional information

Follpwing Steel grade standards are available in addition to thw standards listed on page 1:

1) Other than Japan

・Steel grade standards: BS EN 10025-2(2019) S235JR/J0/J2, S275JR/J0/J2, S355JR/J0/J2,MS EN 10025-2(2011) S235JR/J0/J2, S275JR/J0/J2, S355JR/J0/J2, AS/NZS 3679.1:2016 Grade 300, OSC standard SS400/A36-M

2. Change log

・2025/02/14 from the EcoLeaf mark to the SuMPO EPD mark.
・2025/08/18 Addition of overseas steel grade standards.

- 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/)