



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AW-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.**

**Rails**



### 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

Main standards :

JIS E 1101 (30kg rail)

JIS E 1103 (6kg rail, 9kg rail, 10kg rail,  
12kg rail, 15kg rail, 22kg rail)

Shapes : Rails

Main cross-sectional shapes : R6KG, R9KG,  
R10KG, R12KG, R15KG, R22KG, R30KG

### 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-AW-23025E
PCR number	PA-180000-AW-05
PCR name	Steel products except for construction use
Publication date	12/25/2023
Verification date	11/21/2023
Verification method	Product-by-product
Verification#	JV-AW-23025
Expiration date	11/20/2028
<b>PCR review was conducted by:</b>	
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.

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	(1)+(2)+(3)	(1)+(2)	Unit
Global warming IPCC2013 GWP100a		2300	1600	kg-CO2eq
Acidification		1.9	0.76	kg-SO2eq
Eutrophication		0.015	0.0013	kg-PO43-eq

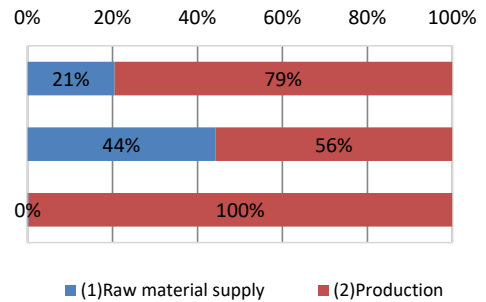


Table Legend  
 (1)+(2):sum of (1)and(2) (cradle to gate)  
 (1)+(2)+(3): sum of (1),(2)and(3) (cradle to gate with allocation for scrap recycling)

Parameter	stage	Unit	(1)+(2)	(1)Raw material supply	(2)Production	(3)Recycling potential
Global warming IPCC2013 GWP100a		kg-CO <sub>2</sub> eq	1.6E+03	3.3E+02	1.3E+03	7.5E+02
Ozone layer destruction		kg-CFC-11eq	3.4E-06	3.4E-06	7.6E-08	1.4E-07
Acidification		kg-SO <sub>2</sub> eq	7.6E-01	3.3E-01	4.2E-01	1.2E+00
Photochemical ozone		kg-C <sub>2</sub> H <sub>4</sub> eq	2.9E-02	2.8E-03	2.6E-02	1.6E-01
Eutrophication		kg-PO <sub>4</sub> <sup>3-</sup> eq	1.3E-03	2.9E-06	1.3E-03	1.4E-02

**2. Life cycle inventory analysis (LCI)**

Parameter	Unit
Non-renewable material resources	4.6E+01 kg
Non-renewable energy resources	2.6E+04 MJ
Renewable material resources	4.0E+02 kg
Renewable primary energy	5.4E+02 MJ
Consumption of freshwater	1.2E+00 m <sup>3</sup>

**3. Material composition**

Material	Unit
iron [Fe]	≥96.0 %
carbon [C]	≤0.70 %
silicon [Si]	≤0.40 %
manganese [Mn]	≤0.90 %
phosphorus [P]	≤0.045 %
sulfur [S]	≤0.050 %

**4. Waste to disposal**

Parameter	Unit
Hazardous waste	0.0E+00 kg
Non-hazardous waste.	2.0E+02 kg

**5. Additional explanation**

- Each LCI includes allocation for scrap recycling as an optional supplementary information (3) 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 2022. 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

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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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