

SuMPO EPD

Type III Environmental Declaration (EPD)

Registration number: JR-AJ-24056E

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization 14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan https://ecoleaf-label.jp/



Yamato Steel Co., Ltd.

H-Beams/Steel H piles



Functional unit

1t

System boundary

☐ final products ■ intermediate products

Production Stage and optional supplementary infomation

Main specifications of the product

Production sites: Head office (Himeji)

Main standards: SS400,SS490,SM400A.B,SM490A.B,

SM490YA.YB,SM520B,SN400A.B,SN490B,

SMA400AW.BW,SMA400AP.BP, SMA490AW.BW,SMA490AP.BP,

SHK400,SHK490M

Main sizes(unit:mm,t:thickness)

H-Beams : $H150(t7) \times B150(t10) \sim H912(t18) \times B302(t34)$ Steel H piles : $H200(t8) \times B200(t12) \sim H400(t13) \times B400(t21)$

Company Information

Yamato Steel Co., Ltd.

http://www.yamatokogyo.co.jp/steel/

Registration#	JR-AJ-24056E
PCR number	PA-180000-AJ-06
PCR name	Steel products for construction
Publication date	1/February/2025
Verification date	14/January/2025
Verification method	Product-by-product
Verification#	JV-AJ-24056
Expiration date	13/January/2030
PCR review was	conducted by:
Approval date	10/May/2023
PCR review	Yasunari Matsuno
panel chair	(Chiba University)

Third party verifier*

Yuki Sakamoto

Independent verification of data & declaration in accordance with ISO14025

external
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^{*}Auditor's name is stated if system certification has been performed.

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1. Results of life cycle im	pact assess	sment (LC	CIA)						
			0%	20%	40%	60	%	80%	100
Global warming IPCC2013 GWP100a	500	kg-CO₂eq	9% 5%			86%			
Acidification	0.47	kg-SO₂eq	9%	16%		-	75%		
Urban area air pollution	0.013	kg-Sbeq	9% 9	%		81	%		
			■ [A]Ra	w material ac	quisition	■【A2】Dis	tribution	■【A3】Pro	oduction
stage Parameter	Unit	Total	[A]Raw material acquisition	[A2] Distribu	Ι Δ3]Production		Scru	【D】 p recyclig
Global warming IPCC2013 GWP100a	kg-CO₂eq	5.0E+02	4.6E+01	2.4E+	01 4	4.3E+02		2.:	2E+02
Ozone layer destruction	kg-CFC-11eq	1.1E-04	2.0E-06	3.3E-	10	1.1E-04		4.	.1E-08
Acidification	kg-SO₂eq	4.7E-01	4.1E-02	7.5E-0	02 ;	3.5E-01		3.	4E-01
Urban area air pollution	kg-SO ₂ eq	3.1E-01	2.9E-02	2.9E-0	02 2	2.5E-01		2.	.5E-01

Parameter	Unit	Total	material acquisition	Distribution	[A3]Production	Scrup recyclig
Global warming IPCC2013 GWP100a	kg-CO₂eq	5.0E+02	4.6E+01	2.4E+01	4.3E+02	2.2E+02
Ozone layer destruction	kg-CFC-11eq	1.1E-04	2.0E-06	3.3E-10	1.1E-04	4.1E-08
Acidification	kg-SO₂eq	4.7E-01	4.1E-02	7.5E-02	3.5E-01	3.4E-01
Urban area air pollution	kg-SO₂eq	3.1E-01	2.9E-02	2.9E-02	2.5E-01	2.5E-01
Photochemical ozone	kg-C ₂ H ₄ eq	1.4E-02	2.1E-04	1.6E-04	1.4E-02	4.8E-02
Toxic chemicals(cancer)	kg-C ₆ H ₆ eq	6.3E-02	3.0E-04	1.2E-04	6.3E-02	-2.1E+00
Toxic chemicals(chronic disease)	kg-C ₆ H ₆ eq	1.6E-03	5.4E-05	7.8E-05	1.4E-03	-2.2E-04
Aquatic toxicity	kg-C ₆ H ₆ eq	6.7E-01	1.5E-02	3.8E-06	6.6E-01	-5.3E+00
Biological toxity	kg-C ₆ H ₆ eq	1.6E+01	3.5E-01	6.4E-05	1.6E+01	6.4E+00
Eutrophication	kg-PO ₄ 3-eq	8.1E-05	5.8E-07	2.5E-10	8.1E-05	4.1E-03
Land use(Occupation)	m²/year	4.8E+00	6.0E-02	3.0E+00	1.7E+00	0.0E+00
Land use(Transformation)	m ²	1.1E-01	1.5E-03	6.0E-02	4.7E-02	0.0E+00
Resources consumption	kg-Sbeq	1.3E-02	1.0E-02	1.0E-04	2.8E-03	-5.2E-01

2. Life cycle inventory analysis (LCI)		
Parameter		Unit
Non-renewable material resources	5.5E+00	kg
Non-renewable energy resources	1.8E+02	kg
Non-renewable energy resources	8.0E+03	MJ
Renewable material resources	1.5E+02	kg
Renewable primary energy	2.1E+03	MJ
Consumption of freshwater	7.4E-02	m³
Emissions,C02,fossil resource,air,unspecified	4.8E+02	kg
Resources,crude oil, 44.7MJ/kg, ground,Nonrenewable energy resources	1.8E+01	kg
Emissions, Volatile Organic Compounds, air, unspecified	2.9E-08	kg

3. Material composition			
Material		Unit	
Iron[Fe]	≦99.0	%	
Carbon[C]	≦1.0	%	
Manganese[Mn]	≦5.0	%	
Nickel [Ni]	≦1.0	%	
Chromium[Cr]	≦1.0	%	
Molybdenum [Mo]	≦0.5	%	

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4. Waste to disposal			
Parameter		Unit	
Hazardous waste	1.70E+01	kg	
Non-hazardous waste.	3.04E+00	kg	
Treated MSW for landfill	1.31E-10	kg	
Treated industrial waste for landfill	3.04E+00	kg	

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

5. Additional explanation

① Each LCI figure includes allocation for scrap recycling as a optional supplementary infomation[D]. The recycling effect is calculated with the following totals. One is load accompanied with the scrap injection to the product production site. It is the credit accompanied with the scrap collection of the used steel product one more. Recycling rate(RR) of this EPD is 93%(the average of Japan in 2018).

Transport to site scienario is based on PCR.

- 3The first data was acquired from 2023.
- The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2018.
- ⑤A component about the material and a substance mentioned the number quoted from our safe data seat (SDS).

6-1. Supplementary environmental information

Manufactured at ISO 14001 certified factories.

Manufactured at medical waste disposal certified factories.

6-2. Regulated hazardous substances			
Substance	CAS No.	Reference to standards or regulations	
Manganese[Mn]	7439-96-5	Industrial Safety and Health Act	
Molybdenum [Mo]	7439-98-7	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 IDEA3.1.0 data and scrup iron data from the Japan Iron and Steel Federation(J.I.S.F).

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/)
- This is a selfdeclared translation of EPD that can be accessed at [https://ecoleaf-label.jp/en/epd/1999] and is published for convenience purposes. Only the original EPD is valid and binding between parties.

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