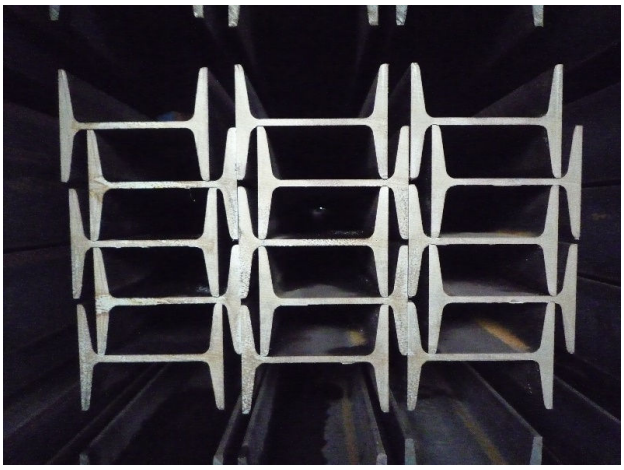
SuMPO EPD
Type III Environmental Declaration (EPD)
Registration number : JR-AJ-24057E

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.

I-Beams



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
Main sizes(unit:mm,t:thickness)
H150(t8.5)×B125(t14)～H600(t16)×B190(t35)

Company Information

Yamato Steel Co., Ltd.
http://www.yamatokogyo.co.jp/steel/

Registration#	JR-AJ-24057E
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-24057
Expiration date	13/January/2030

PCR review was conducted by:

Approval date	10/May/2023
PCR review panel chair	Yasunari Matsuno (Chiba University)

Third party verifier*

Yuki Sakamoto

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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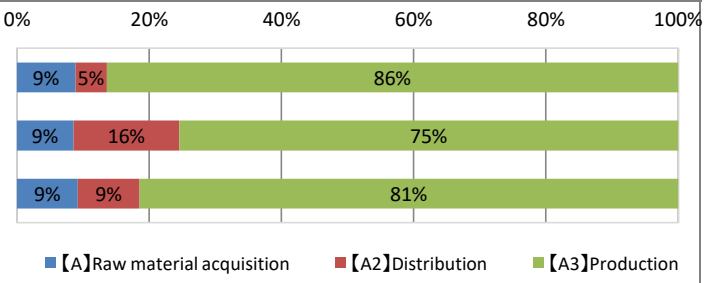
1. Results of life cycle impact assessment (LCIA)

Global warming IPCC2013 GWP100a	510	kg-CO_2eq
Acidification	0.47	kg-SO_2eq
Urban area air pollution	0.0092	kg-Sbeq



Parameter \ stage	Unit	Total	【A】Raw material acquisition	【A2】Distribution	【A3】Production		【D】Scrup recyclig
Global warming IPCC2013 GWP100a	kg-CO_2eq	5.1E+02	4.5E+01	2.4E+01	4.4E+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-SO_2eq	4.7E-01	4.0E-02	7.5E-02	3.6E-01		3.4E-01
Urban area air pollution	kg-SO_2eq	3.1E-01	2.9E-02	2.9E-02	2.5E-01		2.5E-01
Photochemical ozone	kg-C_2H_4eq	1.4E-02	2.1E-04	1.6E-04	1.4E-02		4.8E-02
Toxic chemicals(cancer)	kg-C_6H_6eq	6.3E-02	2.8E-04	1.2E-04	6.3E-02		-2.1E+00
Toxic chemicals(chronic disease)	kg-C_6H_6eq	1.6E-03	5.2E-05	7.8E-05	1.5E-03		-2.2E-04
Aquatic toxicity	kg-C_6H_6eq	6.8E-01	1.4E-02	3.8E-06	6.7E-01		-5.3E+00
Biological toxity	kg-C_6H_6eq	1.6E+01	3.5E-01	6.4E-05	1.6E+01		6.4E+00
Eutrophication	kg-PO_4^{3-}eq	7.9E-05	5.6E-07	2.5E-10	7.8E-05		4.1E-03
Land use(Occupation)	m^2/year	4.8E+00	5.9E-02	3.0E+00	1.7E+00		0.0E+00
Land use(Transformation)	m^2	1.1E-01	1.5E-03	6.0E-02	4.8E-02		0.0E+00
Resources consumption	kg-Sbeq	9.2E-03	6.2E-03	1.0E-04	2.9E-03		-5.2E-01

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	6.5E+00	kg
Non-renewable energy resources	1.9E+02	kg
Non-renewable energy resources	8.1E+03	MJ
Renewable material resources	1.5E+02	kg
Renewable primary energy	2.2E+03	MJ
Consumption of freshwater	7.4E-02	m^3
Emissions,C02,fossil resource,air,unspecified	4.9E+02	kg
Resources,crude oil, 44.7MJ/kg, ground,Nonrenewable energy resources	1.8E+01	kg
Emissions,Volatile Organic Compounds,air,unspecified	3.0E-08	kg

3. Material composition

Material		Unit
Iron【Fe】	≦99.0	%
Carbon【C】	≦1	%
Manganese【Mn】	≦5	%
Nickel【Ni】	≦1	%
Chromium【Cr】	≦1	%
Molybdenum【Mo】	≦0.5	%

4. Waste to disposal

Parameter		Unit
Hazardous waste	1.70E+01	kg
Non-hazardous waste.	3.04E+00	kg
Treated MSW for landfill	1.32E-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

①Each 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).
②Transport to site scienario is based on PCR.
③The first data was acquired from 2023.
④The 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/2000] and is published for convenience purposes. Only the original EPD is valid and binding between parties.