



EcoLeaf

Type III Environmental Declaration (EPD)

Registration number : JR-AJ-20006E

Ecoleaf Environmental Labeling Program

Sustainable Management Promotion Organization

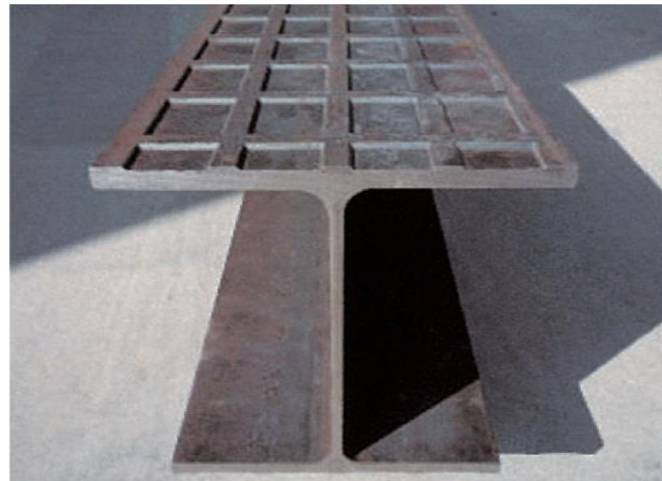
2-1, Kaji-cho 2 chome, Chiyoda-ku, Tokyo Japan

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



Yamato Steel Co.,Ltd.

Patterned H-Beams



### Functional unit

1t

### System boundary

final products       intermediate products

Production Stage and optional supplementary information

### Main specifications of the product

Production sites : Head office (Himeji)

Main standards : SM490A-type

Main sizes(unit:mm,t:thickness)

H196(t6)× B197(t8)

### Company Information

Yamato Steel Co., Ltd.

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

Registration#	JR-AJ-20006E
PCR number	PA-180000-AJ-03
PCR name	Steel products for construction
Publication date	8/23/2020
Verification date	7/31/2020
Verification method	Product-by-product
Verification#	JV-AJ-20006
Expiration date	7/30/2025
PCR review was conducted by:	
Approval date	10/1/2019
PCR review panel chair	Yasunari Matsuno (Chiba University)

### Third party verifier\*

Tomoko Fuchigami

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)

stage	Parameter	Unit	Total	[A1]Raw material acquisition	[A2] Distribution	[A3] Production	scrap recycling effect for
	Global warming IPCC2013 GWP100a	kg-CO2eq	560	8.9E+01	2.5E+01	4.4E+02	2.5E+02
	Acidification	kg-SO2eq	0.30	6.9E-02	7.6E-02	1.5E-01	3.9E-01
	Resources consumption	kg-Sbeq	0.014	1.2E-02	1.0E-04	2.1E-03	-5.8E-01

Parameter	Unit	Total	[A1]Raw material acquisition	[A2] Distribution	[A3] Production	scrap recycling effect for
Global warming IPCC2013 GWP100a	kg-CO2eq	5.6E+02	8.9E+01	2.5E+01	4.4E+02	2.5E+02
Ozone layer destruction	kg-CFC-11eq	7.2E-08	8.9E-09	2.0E-10	6.4E-08	4.5E-08
Acidification	kg-SO2eq	3.0E-01	6.9E-02	7.6E-02	1.5E-01	3.9E-01
Urban area air pollution	kg-SO2eq	1.3E-01	4.5E-02	3.0E-02	5.5E-02	2.8E-01
photochemical oxidants	kg-C2H4eq	3.3E-02	1.0E-03	1.4E-04	3.2E-02	-3.3E-03
Toxic chemicals(cancer)	kg-C6H6eq	3.7E+01	1.9E-04	8.0E-09	3.7E+01	-2.3E+00
Toxic chemicals(chronic disease)	kg-C6H6eq	3.1E-04	2.9E-05	1.2E-09	2.8E-04	-2.5E-04
Aquatic ecotoxicity	kg-C6H6eq	4.8E-01	4.4E-02	1.8E-06	4.3E-01	-6.0E+00
Covance	kg-C6H6eq	1.2E+01	1.1E+00	4.4E-05	1.0E+01	7.2E+00
Eutrophication	kg-PO43-eq	4.1E-05	7.5E-08	1.7E-13	4.1E-05	4.6E-03
Land use(no-change)	m2/year	3.8E+00	8.4E-02	3.1E+00	6.9E-01	0.0E+00
Land transformation(change)	m2	7.7E-02	1.7E-03	6.1E-02	1.4E-02	0.0E+00
Resources consumption	kg-Sbeq	1.4E-02	1.2E-02	1.0E-04	2.1E-03	-5.8E-01

## 2. Life cycle inventory analysis (LCI)

Parameter	Unit
Non-renewable material resources	-9.9E+00 kg
Non-renewable energy resources	2.2E+02 kg
Non-renewable energy resources	9.6E+03 MJ
Renewable material resources	1.8E+02 kg
Renewable primary energy	2.2E+02 MJ
Consumption of freshwater	5.7E-02 m <sup>3</sup>
Emissions,CO2, fossil resource,air,unspecified	5.5E+02 kg
Resources,crude oil,44.7MJ/kg,ground,Non-renewable energy resources□	3.4E+01 kg
Emissions,Volatile Organic Compounds,air,unspecified□	2.7E-10 kg
Emissions,P total water,water,unspecified	1.2E-05 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	1.56E+01 kg
Non-hazardous waste.	7.1E+00 kg
Non-Industrial for landfill	0.0E+00 kg
industrial waste for landfill	7.1E+00 kg

## 5. Additional explanation

- ①Each LCI figure includes allocation for scrap recycling as a optional supplementary information[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 93.1%(the average of Japan in 2014).
- ②Transport to site scienario is based on PCR.
- ③The first data was acquired from 2019.
- ④The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.
- ⑤A component about the material and a substance mentioned the number quoted from our safe data seat (SDS)



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#### 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 IDEA2.1.3 data and scrap 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/>)

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