EcoLeaf
Type III Environmental Declaration (EPD)
Registration number： JR-AJ-20004E

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.

Steel Sheet 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 standareds ： SY295,SY390,SYW295

Main sizes(unit:mm,t:thickness) ：
W400×H100(t10.5)～W600×H180（t13.4)

Company Information

Yamato Steel Co., Ltd.

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

Registration#	JR-AJ-20004E
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-20004
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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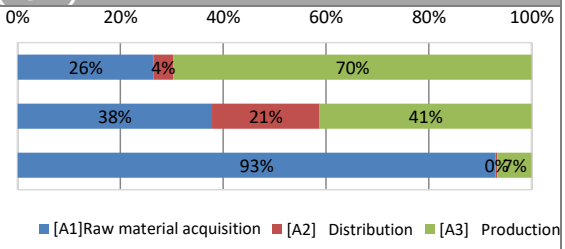
1. Results of life cycle impact assessment (LCIA)

Global warming IPCC2013 GWP100a	640	kg-CO2eq
Acidification	0.37	kg-SO2eq
Resources consumption	0.032	kg-Sbeq



Parameter \ stage	Unit	Total	[A1]Raw material acquisition	[A2] Distribution	[A3] Production		[D]scrap recycling effect for
Global warming IPCC2013 GWP100a	kg-CO2eq	6.4E+02	1.7E+02	2.5E+01	4.5E+02		2.5E+02
Ozone layer destruction	kg-CFC-11eq	7.9E-08	1.6E-08	2.0E-10	6.3E-08		4.5E-08
Acidification	kg-SO2eq	3.7E-01	1.4E-01	7.7E-02	1.5E-01		3.9E-01
Urban area air pollution	kg-SO2eq	1.8E-01	9.1E-02	3.0E-02	5.5E-02		2.8E-01
photochemical oxidants	kg-C2H4eq	3.4E-02	1.7E-03	1.4E-04	3.2E-02		-3.3E-03
Toxic chemicals(cancer)	kg-C6H6eq	3.7E+01	3.2E-04	8.1E-09	3.7E+01		-2.3E+00
Toxic chemicals(chronic disease)	kg-C6H6eq	3.3E-04	4.7E-05	1.2E-09	2.8E-04		-2.5E-04
Aquatic ecotoxicity	kg-C6H6eq	5.1E-01	7.2E-02	1.8E-06	4.4E-01		-6.0E+00
Covance	kg-C6H6eq	1.2E+01	1.7E+00	4.4E-05	1.1E+01		7.2E+00
Eutrophication	kg-PO43-eq	4.1E-05	1.4E-07	1.7E-13	4.1E-05		4.6E-03
Land use(no-change)	m2/year	3.9E+00	1.4E-01	3.1E+00	7.0E-01		0.0E+00
Land transformation(change)	m2	7.8E-02	2.9E-03	6.1E-02	1.4E-02		0.0E+00
Resources consumption	kg-Sbeq	3.2E-02	3.0E-02	1.0E-04	2.1E-03		-5.8E-01

2. Life cycle inventory analysis (LCI)

Parameter		Unit
Non-renewable material resources	-2.2E+00	kg
Non-renewable energy resources	2.5E+02	kg
Non-renewable energy resources	1.1E+04	MJ
Renewable material resources	1.8E+02	kg
Renewable primary energy	2.3E+02	MJ
Consumption of freshwater	7.9E-02	m^3
Emissions,C02,fossil resource,air,unspecified	6.3E+02	kg
Resources,crude oil,44.7MJ/kg,ground,Non-renewable energy resources	-3.7E+01	kg
Emissions,Volatile Organic Compounds,air,unspecified	5.4E-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.	7.2E+00	kg
Non-Industrial for landfill	0.0E+00	kg
industrial waste for landfill	7.2E+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 93.1%(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)

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 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/)