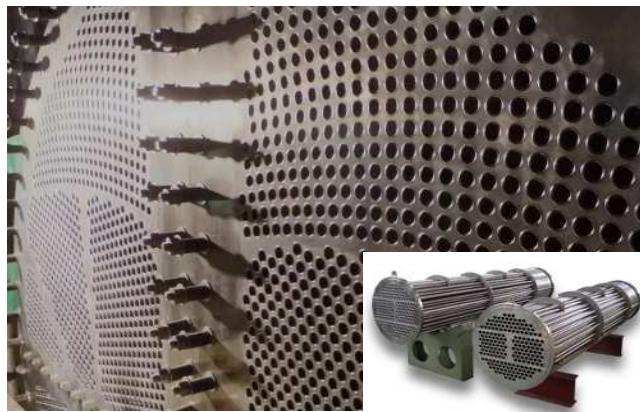


NIPPON STEEL | NIPPON STEEL CORPORATION

Titanium Plates [TranTixxii®-Eco]



It is manufactured from titanium ingots containing at least 50% titanium scrap.



Condenser tube plate

Functional unit

1t

System boundary

final products intermediate products

Production Stage(Raw material supply,Transport,Manufacturing)

Main specifications of the product

Production sites : East Nippon Works , Kyushu Works

Main standards : JIS H 4600 , ASTM B265 , ASME , SB265

NIPPON STEEL original See Table 8.Remarks for details.

Type : Plate

Main sizes(unit:mm,t:thickness) t=4.0 ~ 60.0

Company Information

NIPPON STEEL CORPORATION

<https://www.nipponsteel.com/en/product/sheet/list/>

Registration#	JR-BZ-24002E
PCR number	PA-201590-BZ-03
PCR name	Titanium products
Publication date	6/24/2024
Verification date	6/10/2024
Verification method	Product-by-product
Verification#	JV-BZ-24002
Expiration date	6/9/2029

PCR review was conducted by:

Approval date	9/1/2023
PCR review panel chair	Ken Yamagishi Sustainable Management Promotion Organization

Third party verifier*

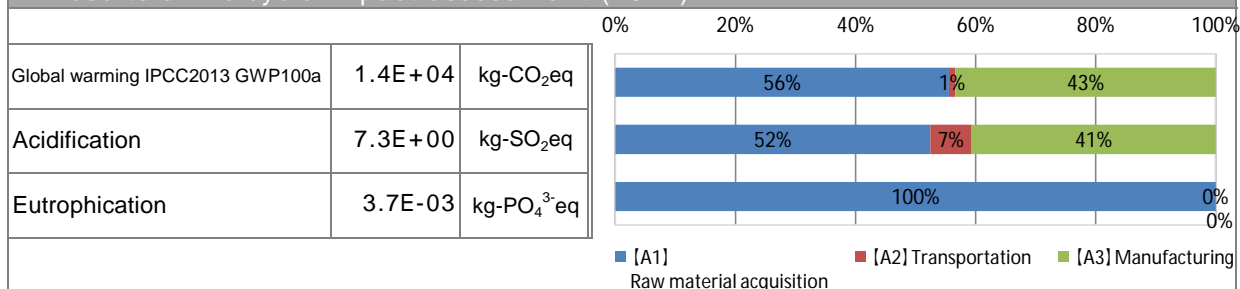
Yasuo Koseki

Independent verification of data & declaration in accordance with ISO14025

internal external

* Auditor's name is stated if system certification has been performed.

1. Results of life cycle impact assessment (LCIA)



Parameter	stage	Unit	Total	[A1] Raw material acquisition	[A2] Transportation	[A3] Manufacturing
Global warming IPCC2013 GWP100a		kg-CO ₂ eq	1.4E+04	7.8E+03	1.5E+02	6.1E+03
Ozone layer destruction		kg-CFC-11eq	1.9E-03	1.9E-03	1.3E-09	1.6E-05
Acidification		kg-SO ₂ eq	7.3E+00	3.9E+00	5.1E-01	3.0E+00
Photochemical ozone		kg-C ₂ H ₄ eq	3.1E-01	1.3E-01	9.3E-04	1.7E-01
Eutrophication		kg-PO ₄ ³⁻ eq	3.7E-03	3.7E-03	1.1E-12	4.7E-07

2. Life cycle inventory analysis (LCI)

Parameter	Value	Unit
Renewable energy resources	6.2E+03	MJ
Non-renewable energy resources	2.2E+05	MJ
Renewable material resources	3.2E+02	kg
Non-renewable material resources	8.0E+02	kg
Consumption of freshwater	3.2E+01	m ³

3. Material composition

Material	Value	Unit
Ti	99	%
C	0.08	%
H	0.015	%
O	0.40	%
N	0.05	%
Fe	0.50	%

*The above values are for pure titanium

4. Waste to disposal

Parameter	Value	Unit
Hazardous waste	0.0E+00	kg
Non-hazardous waste.	1.7E-01	kg

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

5. Additional explanation

- Scenarios of transport to site follow the PCR. For the transportation of coke and inter-factory transportation for intermediate products, distances were measured using mapping software. For titanium scrap transportation, 500km of the PCR scenario was selected. Transport of titanium ore and synthetic rutile are included in the inventory database on which this estimation is based, so those are not included in [A2] transport in 1. Result of life cycle impact assessment.
- Primary data collected in 2022. The source of the unit power consumption is the average of 10 electric power suppliers of Japan in 2014.

6-1. Supplementary environmental information

Each production area has ISO 14001 certificate.

6-2. Regulated hazardous substances

Substance	CAS No.	Reference to standards or regulations
-		



SuMPO EPD

Type III Environmental Declaration (EPD)

Registration number : JR-BZ-24002E

Japan EPD Program by SuMPO

Sustainable Management Promotion Organization

14-8, Uchikanda 1-chome, Chiyoda-ku, Tokyo Japan

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

7. Assumptions of secondary data used

The IDEA2.1.3 data is used. IDEA v2.3 is used for titanium ore and synthetic rutile

8. Remarks

○NIPPON STEEL Grade

Super-TIX®800N, Super-TIX®05CU

○About TranTixii®-Eco

By adding more than 50% titanium scrap as the raw material for titanium ingots, CO2 emission is significantly reduced in the smelting process.

- 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/>)

Registration number : JR-BZ-24002E