# EcoLeaf Type III Environmental Declaration (EPD) Registration number: JR-AW-21005E-A

# Japan EPD Program by SuMPO

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

# NIPPON STEEL | NIPPON STEEL CORPORATION



# Wire Rod



#### **Functional unit**

1 t

#### **System boundary**

☐ final products ■ intermediate products

Production Stage and optional supplementary infomation

#### Main specifications of the product

Production sites: Muroran ,East Nippon and Kyushu Works
Main standards: S45C,SCR,SMN,SCM,SUP,SUJ,SUM
SGD,SWRY,SWRM,SWRH,SWRS,SWRCH,ASBO

ASMN,ASCM

\*Please refer to the pamphlet for details

SteeLinC(Bar and rod materials) | NIPPON STEEL

STEELType : Wirerod(Coil)

Main sizes

Wire Rod: φ3.6 ~ φ22.0

#### **Company Information**

#### NIPPON STEEL CORPORATION

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

	Registration#	JR-AW-21005E-A
	PCR number	PA-180000-AW-05
	PCR name	Steel products except for construction
	<b>Publication date</b>	1/21/2022
	Verification date	01/16/2024
	Verification method	Product-by-product
	Verification#	JV-AW-24011
	Expiration date	1/15/2029
S	PCR review was	conducted by:
	Approval date	05/10/2023
	PCR review	Yasunari Matsuno
	panel chair	Chiba University

#### Third party verifier\*

Shinichi Inoue

Independent verification of data & declaration in accordance with ISO14025

□internal	■external
	EXICHIAL

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<sup>\*</sup>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	(1)+(2)+(3)	(1)+(2)	Unit
Global warming IPCC2013 GWP100a	1300	2600	kg-CO <sub>2</sub> eq
Acidification	1.0	2.9	kg-SO₂eq
Eutrophication	0.024	0.047	kg-PO <sub>4</sub> <sup>3-</sup> eq

Table Legend
(1)Raw material supply
(2)Production
(3)Recycling potential
(1)+(2):sum of (1)and(2) (cradle to gate)
(1)+(2)+(3): sum of (1),(2)and(3) (cradle to gate with allocation for scrap recycling)

stage						
Parameter	Unit	(1)+(2)	(1)	(2)		(3)
Global warming IPCC2013 GWP100a	kg-CO₂eq	2.6E+03	6.4E+02	1.9E+03		-1.3E+03
Ozone layer destruction	kg-CFC-11eq	6.5E-08	1.6E-07	-1.0E-07		-2.3E-07
Acidification	kg-SO₂eq	2.9E+00	5.8E-01	2.4E+00		-1.9E+00
Photochemical ozone	kg-C₂H₄eq	1.5E-02	6.1E-03	8.5E-03		-2.7E-01
Eutrophication	kg-PO <sub>4</sub> 3-eq	4.7E-02	1.5E-03	4.5E-02		-2.3E-02

2. Life cycle inventory analysis (LCI)		LCI)	
Parameter		Unit	
Non-renewable material resources	8.1E+02	kg	
Non-renewable energy resources	2.7E+04	MJ	
Renewable material resources	1.1E+03	kg	
Renewable primary energy	-2.6E+02	MJ	
Consumption of freshwater	6.9E+00	m <sup>3</sup>	

Material		Unit
iron [Fe]	≥95.0	%
carbon [C]	≦1.10	%
silicon [Si]	≦3.00	%
manganese [Mn]	≤3.00	%
phosphorus [P]	≤0.05	%
sulfur [S]	≤0.05	%
		+

. Waste to disposal		
Parameter		Unit
Hazardous waste	0.00E+00	kg
Non-hazardous waste.	4.70E+00	kg
Landfill of general waste	0.00E+00	kg
Landfill of industrial waste	1.00E+01	kg

<sup>\*</sup>Data derived from LCA and not assigned to the impact categories of LCIA

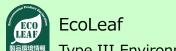
# 5. Additional explanation

① As an indirect effect, the recycling effect of steel materials based on JIS Q 20915 was evaluated, and in this declaration, the value is described in the indirect effect column of the life cycle impact evaluation result breakdown table.

The indirect effect is added to the total value in Tables A1 and A2 above.

The recycling rate used in the calculation is 93.0% (calculation is based on JISQ20915, domestic data for FY2018 (Source: Japan Iron and Steel Federation, Iron Source Association, Steel Can Recycling Association)

- ② The transport scenario followed PCR.
- ③ Regarding the constituents of materials and substances, except for iron, the maximum of each upper limit of the target steel material standard is shown.
- ④ For the primary data, the actual values for FY2018 were used. For the electric power intensity, "Electricity, average of 10 general electric power companies, FY2014" was used.



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#### 6-1. Supplementary environmental information

- Muroran ,East Nippon and Kyushu Works are certified to ISO 14001.
- We provide environment-friendly steel materials such as lead-free and steel materials that make it possible to reduce the weight of automobiles and omit manufacturing processes.

As a typical eco-products (environmentally friendly products), there is an OA shaft using lead-free free-cutting steel. Reference: Nippon Steel Catalog Steel Bar / Wire P7

https://www.nipponsteel.com/product/catalog\_download/pdf/B001en.pdf

Substance	CAS No.	Reference to standards or regulations
nanganese [Mn]	7439-96-5	Industrial Safety and Health Act

#### 7. Assumptions of secondary data used

We use the IDEA2.1.3 data and steel scrap data from The Japan Iron and Steel Federation (JISF).

#### 8. Remarks

January 2024; Modification about allocation method of by-product gases

- For data quantification, please refer to the PCR and the Rules on Quantification and Declaration.
- Comparative assertion is permitted only when the Rules on Quantification and Declaration are satisfied.
   (Reference URL: https://ecoleaf-label.jp/regulation/)

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