

ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804 for:

Hot rolled Bars and Rods of Non-alloy Structural Steels

From

Tianjin Nanxiang Steel Strip Processing Co., Ltd.



Declared product:

Hot rolled Bars and Rods of Non-alloy Structural Steels



Programme operator:	EPD China
Registration number:	EPD-CN-00057
Issued date:	2026-06-16
Valid until:	2031-06-15



Programme Information

EPD Owner	Tianjin Nanxiang Steel Strip Processing Co., Ltd. Address: Mazhuo Village North, Yuelong Town, Ninghe District, Tianjin, China Website: www.cnzxbd.com Email: tinxhr@sina.com
Product Name	Hot rolled bars and rods of non-alloy structural steels (short name: hot rolled flat bars)
Production Site	North of Matuo Village, Yuelong Town, Ninghe District, Tianjin, China
Identification of product	UNCPC code: 41241 — Bars and rods, hot-rolled, of iron or non-alloy steel
Field of Application	Industrial manufacturing, serves as embedded fittings and is applied alongside cement in construction works.
Programme Operator	EPD China Address of Headquarter: Tianping Road, Xuhui District, Shanghai Website: www.epdchina.cn Email: info@epdchina.cn secretary@epdchina.cn
LCA Practitioner	Zhongzhijie Technical Service (Qingdao) Co., Ltd. Website: www.zhongzhijie.net Email: wei.kq@top-pdca.com
Responsibility	The EPD owner has the sole ownership, liability, and responsibility for the EPD
Comparability	EPDs within same category of product in different programme operator are not suggested to be compared. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible even applying the same PCR.
Liability	The EPD owner has the sole ownership, liability, and responsibility for the EPD.
Validity	The EPD is published on 2026-06-16 and valid to 2031-06-15
LCA Software (version)	Open LCA 2.6.1
LCI Dataset (version)	Ecoinvent 3.12, worldsteel 2020
Year(s) of Primary Data	2025-01-01 to 2025-12-31
PCR	EPDCN-PCR-202204 V2.1; EN 15804:2012+A2:2019
Other Reference Document	ISO 14040:2006; ISO 14044:2006; ISO 14025:2010
Verification statement according EN15804	
Independent verification of the declaration and data according to ISO 14025:2010 ☐ internal ☒ external Third-party institution verification: Mr. Micheal Ge, SGS-CSTC Standards Technical Services Co., Ltd. is an approved certification body accountable for third-party verification Approved by: EPD China	
Procedure for follow-up of data during EPD validity involves a third-party certification body: ☐ Yes ☒ No	



General Information

1.1 Company information

Tianjin Nanxiang Steel Strip Processing Co., Ltd., established in 2012, is a wholly-owned subsidiary of Zhenxiang Group. As the Group's specialised international trading platform, the company focuses on the export and processing of hot rolled flat bars and other steel products. Leveraging the Group's integrated manufacturing capabilities — spanning steel strip slitting, hot rolling, high-frequency welded pipe production, hot-dip galvanizing, and scaffold manufacturing — Nanxiang delivers quality steel products to over 100 countries and regions worldwide, including the European Union, the Americas, the Middle East, Africa and Southeast Asia. The company is committed to the business philosophy of integrity, trustworthiness, mutual benefit and service and has earned lasting trust and a strong reputation among global customers.

1.2 Scope and type of EPD

EPD is a specific EPD covering the cradle-to-gate (A1-A3) life cycle stages of hot rolled flat bars (cut-to-length) produced by Tianjin Nanxiang Steel Strip Processing Co., Ltd.

The system boundary covers the product stage (modules A1-A3) only. Modules A4, A5, B1-B7, C1-C4 and D are not declared as the EPD type is Cradle-to-Gate.

Applied background database: Ecoinvent 3.12 (electricity, fuels, raw material production, transport and waste treatment processes) and worldsteel 2020 (steel sector background data). Datasets representative of China or Asia are prioritised.

Applied LCA software: openLCA 2.6.1.

Data quality: Foreground data cover the full 2025 production year (12 months), with stable production months selected and cross-validated. Background data meet the 10-year currency, geographical and technological relevance requirements. Mass-balance and energy cross-checks confirm internal consistency.

Table: Process stages and and EPD modules.

X = Module declared; ND (not declared).

PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE					BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Production	Transport from the gate to the gate to the	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	reuse- recovery- recycling- potential	
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D	
X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND

This EPD covers cradle-to-gate (A1-A3). Modules A4, A5, B1-B7, C1-C4 and D are Module Not Relevant for this EPD type.



2 Detailed Product Description

1. Description of the product

Hot rolled flat bars are steel products manufactured by mechanical processing of as-rolled (non-cut-to-length) hot-rolled long bar through levelling, cut-to-length processing, sanding and bundling. The product features good dimensional accuracy and is widely used in industrial manufacturing and metal processing applications. The A3 production process is purely mechanical cold-working and involves no smelting or chemical reactions.



Figure: Picture of the declared product.

The declared hot rolled flat bars is produced through the following sequence:

A1 — Raw material supply

The A1 stage covers the production of hot-rolled long bar (non-cut-to-length semi-product) from purchased steel billet at Zhenxiang Plate and Strip Processing Co., Ltd. The production process includes incoming billet inspection, gas-fired reheating in a continuous furnace, high-pressure water descaling, roughing and finishing rolling on a 16-stand continuous mill, dividing shear cutting to standard-length multiples, cooling on a walking-beam cooling bed, and optional cold bending for special sections. Finished long bars are bundled and transferred to the warehouse, with a slow-cooling pit available for stress-relief grades.

A2 — Transport

A2 covers the short-distance internal forklift transport of hot-rolled long bar from Zhenxiang to Nanxiang within the same industrial park.

A3 — Manufacturing

Hot rolled flat bars are versatile steel products used across a broad range of industrial manufacturing and metal processing applications. Key application sectors include:

- Structural engineering and construction: structural frameworks, supports, brackets and base plates
- Machinery manufacturing: machine frames, rails, guides and mechanical components



- General metal fabrication: fabricators, forging and stamping.
- Agricultural and industrial equipment.

The declared product is supplied in three steel grades conforming to EN 10025-2:

Parameter	Unit	S235JR+AR	S275JR+AR	S355JR+AR
Mechanical properties				
Minimum yield strength ($t \leq 16$ mm)	MPa	≥ 235	≥ 275	≥ 355
Minimum yield strength ($16 < t \leq 40$ mm)	MPa	≥ 225	≥ 265	≥ 345
Tensile strength	MPa	360 – 510	410 – 560	470 – 630
Minimum elongation	%	≥ 26	≥ 22	≥ 21
Chemical composition (max., %)				
Carbon (C)	%	≤ 0.19	≤ 0.22	≤ 0.24
Silicon (Si)	%	≤ 0.35	≤ 0.35	≤ 0.55
Manganese (Mn)	%	≤ 1.50	≤ 1.50	≤ 1.60
Phosphorus (P)	%	≤ 0.045	≤ 0.045	≤ 0.045
Sulphur (S)	%	≤ 0.045	≤ 0.045	≤ 0.045
Nitrogen (N)	%	≤ 0.14	≤ 0.012	≤ 0.012
Copper (Cu)	%	≤ 0.60	≤ 0.55	≤ 0.55

Common customer equivalent grades:

Q235/Q235B (S235JR), SS400/A36 (S235JR), Q275 (S275JR), Q355B/ASTM A572 Grade 50/SM490B (S355JR).

Products are supplied in the as-rolled condition (+AR). No heat treatment is applied after hot rolling. Delivery condition: bundles of ≤ 10 tonnes, wrapped in anti-rust paper with a moisture-proof film overwrap and secured with external steel strapping. Each bundle carries two identification labels. Final inspection and Mill Test Certificate issuance in accordance with EN 10204 3.1.

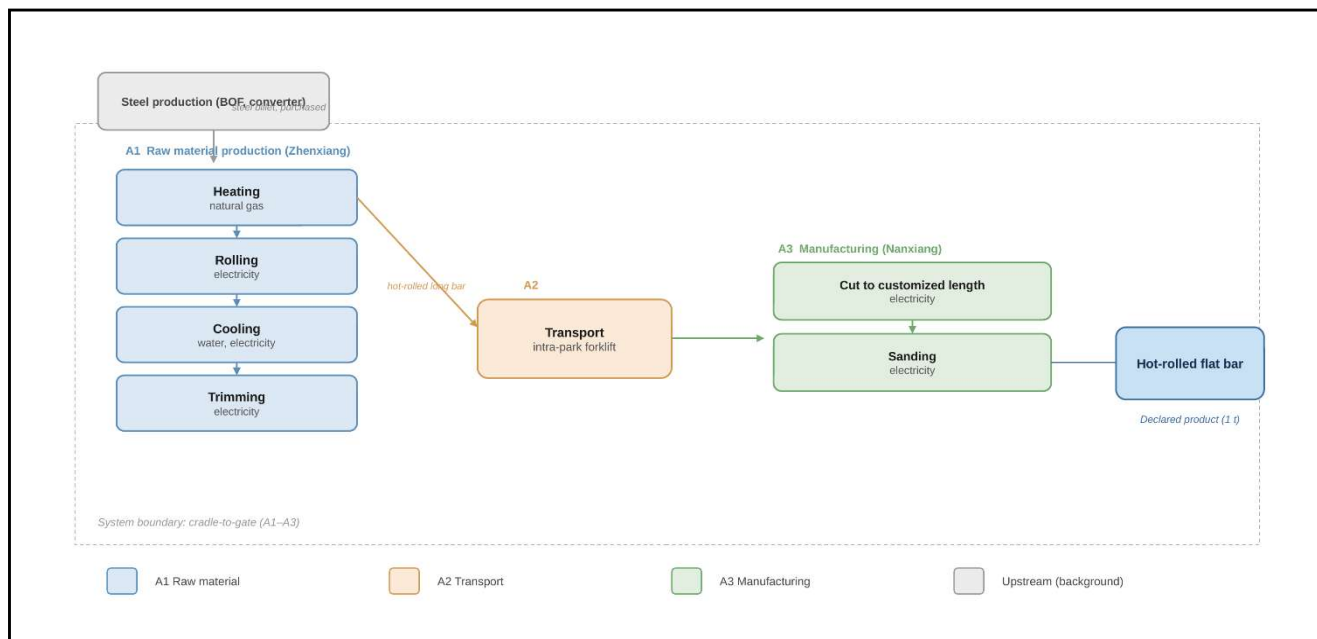


Figure: The production process in selected stages.

The description of product components is intended to enable the user of the EPD to understand the composition of the product as delivered and also support safe and effective installation, use and disposal of the product.



Table: Main product components and packaging materials per unit.

Product components	Weight, kg	Weight-% (versus the product)
Steel (hot rolled flat bars)	998.9	99.89 %
Packaging materials	1.0958	0.11 %
TOTAL	1 000	100 %
Packaging materials	Weight, kg	Weight-% (versus the product)
Plastic film	1.0949	0.1095 %
Kraft paper	8.99E-04	0.0001 %
TOTAL	1.0958	0.11 %

No substances from the Candidate List of Substances of Very High Concern (SVHC) for authorisation are present in the declared product above the registration thresholds.

The product is a steel alloy composed primarily of iron (Fe) with alloying elements within standard specification limits. The declared hot rolled flat bars is supplied in three steel grades conforming to EN 10025-2: S235JR+AR, S275JR+AR and S355JR+AR. These grades are also designated under alternative international standards commonly referenced by customers: S235JR corresponds to Q235 / Q235B / SS400 / A36; S275JR corresponds to Q275; S355JR corresponds to Q355B / ASTM A572 Grade 50 / SM490B. All grades are supplied in the as-rolled condition (+AR) with no subsequent heat treatment.

This EPD represents the weighted average environmental performance of S235JR, S275JR and S355JR hot rolled flat bars products manufactured by Nanxiang during the 2025 production year. The LCA results are calculated based on the production-weighted average of input and output flows across all three grades. All three grades share the same production process (cold mechanical processing of hot-rolled long bar) and are produced on the same line; the grade variation results solely from the chemical composition and mechanical properties of the input long bar supplied by Zhenxiang (A1 stage). The declared environmental impact values represent the product group average and are valid for any individual grade within the covered range.



3 LCA results according to EN 15804

3.1 Environmental Impacts

The results of the underlying LCA are provided in this section as environmental impacts. All results are reported per declared unit (1 000 kg of hot rolled flat bars).

Table: Environmental impacts according to EN 15804.

RESULTS OF THE LCA - ENVIRONMENTAL IMPACT per functional or declared unit				
Core indicator	Unit	A1	A2	A3
Global Warming Potential total (GWP-total)	[kg CO ₂ eq.]	2.17E+03	1.59E+00	1.18E+00
Global Warming Potential fossil fuels (GWP-fossil)	[kg CO ₂ eq.]	2.17E+03	1.59E+00	1.18E+00
Global Warming Potential biogenic (GWP-biogenic)	[kg CO ₂ eq.]	6.95E-01	9.89E-05	1.17E-04
Global Warming Potential land use and land use change (GWP-luluc)	[kg CO ₂ eq.]	8.16E-01	8.03E-05	1.08E-04
Depletion potential of the stratospheric ozone layer (ODP)	[kg CFC 11 eq.]	8.22E-06	0	4.53E-09
Acidification potential, Accumulated Exceedance (AP)	[mol H ⁺ eq.]	8.01E+00	1.33E-02	4.28E-04
Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater)	[kg P eq.]	7.25E-02	2.07E-06	3.32E-06
Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine)	[kg N eq.]	1.98E+00	6.72E-03	9.32E-05
Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	[mol N eq.]	2.13E+01	7.37E-02	9.70E-04
Formation potential of tropospheric ozone (POCP)	[kg NMVOC eq.]	6.82E+00	1.95E-02	1.20E-02
Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	[kg Sb eq.]	2.07E-03	0	1.62E-06
Abiotic depletion potential for fossil resources (ADP-fossil)	MJ, net calorific value	2.04E+04	2.02E+01	1.13E+00
Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	[m ³ world eq. Deprived]	5.79E+02	0	8.74E-01

GWP-total = GWP-fossil + GWP-biogenic + GWP-luluc = 2170.47 + 0.70 + 0.82 = 2171.98 kg CO₂ eq. (declared unit, A1–A3)



3.2 Resource use and waste categories

Table: Resource use and waste categories according to EN 15804.

RESULTS OF THE LCA - Resource use and waste categories per functional or declared unit				
Core indicator	Unit	A1	A2	A3
Use of renewable primary energy excluding renewable primary energy resources used as raw materials (PERE)	MJ	7.79E+02	4.78E-02	9.30E-02
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0.00E+00	0.00E+00	0.00E+00
Total use of renewable primary energy resources (PERT) (primary energy and primary energy resources used as raw materials)	MJ	7.79E+02	4.78E-02	9.30E-02
Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (PENRE)	MJ	2.04E+04	2.02E+01	1.13E+00
Use of non-renewable primary energy resources used as raw materials (PENRM)	MJ	0.00E+00	0.00E+00	0.00E+00
Total use of non-renewable primary energy resources (PENRT) (primary energy and primary energy resources used as raw materials)	MJ	2.04E+04	2.02E+01	1.13E+00
Use of secondary material (SM)	kg	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels (RSF)	MJ	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels (NRSF)	MJ	0.00E+00	0.00E+00	0.00E+00
Net use of fresh water (FW)	m3	1.16E+01	4.98E-04	2.03E-02
Hazardous waste disposed (HWD)	kg	5.61E+02	2.43E-02	4.01E-02
Non-hazardous waste disposed (NHWD)	kg	4.36E+03	9.76E-02	2.36E-01
Radioactive waste disposed (RWD)	kg	0.00E+00	0.00E+00	0.00E+00
Components for re-use (CRU)	kg	0.00E+00	0.00E+00	0.00E+00
Materials for recycling(MR)	kg	0.00E+00	0.00E+00	0.00E+00
Materials for energy recovery (MER)	kg	0.00E+00	0.00E+00	0.00E+00
Exported energy (EE)	MJ	0.00E+00	0.00E+00	0.00E+00

MNR = Module Not Relevant (cradle-to-gate EPD type).

The EN 15804 resource-use and waste parameters (PERE, PERM, PERT, PENRE, PENRM, PENRT, SM, RSF, NRSF, FW, HWD, NHWD, RWD, CRU, MFR/MR, MER, EEE/EET) for modules A1–A3 were obtained from a dedicated EN 15804 +A2 inventory-indicator calculation on the same product system and are reported above. Values are per declared unit (1 t); columns A1, A2 and A3 sum to the total. Indicators with a value of 0.00E+00 are quantified as zero for this cradle-to-gate product system.

SM = 0: A1 feedstock is purchased steel billet only (1,059 kg/t); no scrap steel is charged as raw material input.

MR = 0: Ferrous by-products generated in A1 (mill scale and crop ends) and in A3 (crop-end scrap) are collected by the upstream operator (Zhenxiang) and leave the system boundary under the cut-off model. No recycling credit is claimed; no external materials for recycling are generated within the declared system.

EE = 0: No electrical or thermal energy is exported from the product system. Waste heat emissions (212.22 MJ total) are released to the environment and do not qualify as exported energy.



*Note on EN 15804 inventory indicators: the resource-use and waste parameters (PERE, PERM, PERT, PENRE, PENRM, PENRT, SM, RSF, NRSF, FW, HWD, NHWD, RWD, CRU, MFR, MER, EEE, EET) were obtained from a dedicated EN 15804 +A2 inventory-indicator calculation on the same product system used for the EF v3.1 impact results, in openLCA with Ecoinvent 3.12. Net fresh water (FW) and the waste/output flows are taken from this calculation; all three stages A1–A3 are fully covered. Values are per declared unit (1 t).

3.3 Information on biogenic carbon content

Information on biogenic carbon content which shall be included in the EPD as follows:

*Note: The product is a steel alloy containing no biogenic carbon. Packaging materials applied at A3 (plastic film and kraft paper,

Biogenic carbon content	Unit (expressed per functional unit or per declared unit)
Biogenic carbon content in product	0 kg C
Biogenic carbon content in accompanying packaging	8.2E-07 kg C
NOTE: 1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂ .	

totalling 1.0958 kg per declared unit) are included in the LCI model. The kraft-paper component (8.2E-07 kg C per declared unit) contains a negligible amount of biogenic carbon and is reported as zero in accordance with the cut-off criteria.



The following table is an example how biogenic carbon could be declared for the different modules. In EN 15804 biogenic carbon indicators are mandatory. The indicators can be expanded according to this list which is adapted from ISO 21930:2017.

Table: Optional LCI indicators of biogenic carbon.

RESULTS OF THE LCA — BIOGENIC CARBON per functional or declared unit				
Parameter	Unit	A1	A2	A3
Removals and emissions associated with biogenic carbon content of the bio-based product	[kg CO ₂]	0	0	0
Emissions from calcination and removals from carbonation	[kg CO ₂]	0	0	0
Removals and emissions associated with biogenic carbon content of bio-based packaging	[kg CO ₂]	0	0	0
Net emissions from combustion process of waste from renewable sources in A1-A3 *	[kg CO ₂ -Eq.]	0	0	0
Gross emissions from combustion of waste, primary and secondary fuels from renewable sources in A1-A3 *	[kg CO ₂ -Eq.]	0	0	0



4 Supplementary information

4.1 Calculation rules

The declared unit is 1 000 kg (1 tonne) of hot rolled flat bars (cut-to-length), representing the product in its finished state, ready for shipment from the finished goods warehouse.

Mass reference: 1 000 kg per declared unit.

This EPD is a cradle-to-gate declaration covering modules A1 (raw material supply), A2 (transport) and A3 (manufacturing). Modules A4, A5, B1–B7, C1–C4 and D are not declared (Module Not Relevant).

This study applies the cut-off system model in accordance with EN 15804:2012+A2:2019. Recycled materials entering the system carry no upstream environmental burden. Recyclable materials leaving the system receive no recycling credit. All material and energy flows with significant environmental contributions are included. Flows with negligible mass or energy contribution (below 1% of the declared unit) and lacking reliable monitoring data may be excluded. Two flows are excluded under this criterion: metal dust from grinding operations in A3, and municipal solid waste from packaging in A3. Neither exclusion materially affects the study conclusions.

Foreground data: Production data for the full 2025 calendar year (January–December), sourced from the company's production records, energy statistical ledgers, procurement records and hazardous waste manifests. Stable-production months are selected and cross-validated to eliminate the effect of production fluctuations.

Background data: Ecoinvent 3.12 (electricity, fuels, raw material production, transport and waste treatment processes) and worldsteel 2020 (steel sector data). Datasets matching the energy structure of China or Asia are prioritised. All background datasets meet the 10-year currency requirement.

Table: Electricity background dataset

Parameter	Value/Source
Electricity used on site	Medium-voltage grid electricity, CN-N-Grid (China North Grid)
Background dataset	Ecoinvent 3.12 — electricity, medium voltage; market for, CN-N-Grid
Upstream input to that market	electricity, high voltage, production mix, CN-N-Grid (1.025 kWh of high-voltage electricity per 1 kWh of medium-voltage electricity, including ~2.5% transformation and distribution losses)
Reference year	2024 (Ecoinvent 3.12)



Table: Generation mix of upstream high-voltage electricity (CN-N-Grid)

Generation source	Share	kWh per 1 kWh
Hard coal	81.42%	0.8142
Wind	10.65%	0.1065
Natural gas	5.09%	0.0509
Nuclear	1.31%	0.0131
Hydro	0.86%	0.0086
Blast-furnace gas	0.56%	0.0056
Oil	0.12%	0.0012
Total	100.00%	1.0000

Source: Ecoinvent 3.12, “electricity, high voltage, production mix, CN-N-Grid”. Shares represent the upstream generation structure of high-voltage electricity; medium-voltage electricity consumed on site inherits the same generation composition with the additional transformation and distribution losses described above.

Geographical coverage: Foreground data from Hebei Province, China. Electricity background data use the Chinese national grid mix (CN-N-Grid). Natural gas background data use China/Asia supply datasets.

Technological coverage: Foreground data reflect current cold mechanical processing technology and hot rolling production conditions. Background data represent global or regional average technology levels.

Data quality is rated using the five-level qualitative scale of EN 15804+A2 (Very good / Good / Fair / Poor / Very poor) along the four standard dimensions:

Table: Data quality rating (EN 15804+A2)

Quality dimension	Foreground data	Background data
Technological representativeness (TeR)	Very good	Good
Geographical representativeness (GeR)	Very good	Fair
Time-related representativeness (TiR)	Very good	Good
Precision / Completeness (P)	Good	Good
Overall	Very good	Good

Foreground data are rated “Very good” throughout (site-specific 2025 metering and procurement records). Background data are rated “Good” overall; geographical representativeness is “Fair” for a small number of upstream datasets where Rest-of-World data were used in absence of Chinese-region equivalents. Given A1’s dominant contribution and the use of recognised steel-sector background datasets, overall result reliability is considered Good.

All allocation follows EN 15804:2012+A2:2019 and PCR (EPDCN-PCR-202204_V2.1).

A1 stage: Steel billet input is allocated between the main product (hot-rolled long bar) and co-product (return steel) based on their respective mass output ratios. All electricity and production natural gas consumed in A1 are allocated



entirely to the main product; no allocation is applied to the co-product. In the LCI modelling, purchased steel billet consumption is determined to be 1,006.69 kg per tonne of hot-rolled long bar, with the material burden of the remaining 52.69 kg allocated to return steel. This allocation complies with EN 15804:2012+A2:2019, Section 6.4.2.

A3 stage: Crop-end scrap generated in A3 is collected by the upstream operator (Zhenxiang) and is not used in any downstream process associated with the declared product; it leaves the system boundary under the cut-off model in accordance with EN 15804:2012+A2:2019 and PCR EPDCN-PCR-202204_V2.1 §4.6.2. Electricity for shared equipment is split between A1 and A3 according to a fixed proportion agreed in writing between the two operators; the agreed proportion reflects the share of electricity consumed by the workshops in which each module's processes are carried out.

Hazardous waste treatment: Hazardous waste from both A1 and A3 is collected by Zhenxiang and transferred to a licensed third-party incinerator. The total transfer mass is allocated between A1 and A3 proportionally to their respective production volumes.

LCA software: openLCA 2.6.1.

LCI datasets: Ecoinvent 3.12 and worldsteel 2020. Impact assessment method: EN15804+A2 EF v3.1 (Environmental Footprint 3.1).

Normalisation and weighting: not applied.

Allocation method: cut-off.

EPDs within the same product category but registered under different programme operators are not suggested to be compared. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible even when applying the same PCR. Two EPDs can only be compared when they are based on the same PCR (including the same version number), cover products with identical functions, have equivalent system boundaries and data descriptions, apply equivalent data quality requirements, data collection methods and allocation methods, use identical cut-off rules and impact assessment methods (including the same version of characterisation factors), have equivalent content declarations, and are valid at the time of comparison.

Note on impact indicators: only the mandatory core impact indicators required by EN 15804+A2 are declared. The optional additional indicators (PM, IRP, ETP-fw, HTP-c, HTP-nc, SQP), which carry higher methodological uncertainty under EN 15804+A2, are not declared. Biogenic GWP, land-use-change GWP and ADP (metals/minerals and fossil) carry non-zero values driven by the upstream energy and material supply chains. ODP remains very small as no ozone-depleting substances are used on site. Columns A1, A2 and A3 sum to the declared total (A1–A3); all results are per declared unit (1 t).

4.2 Scenarios and additional technical information

Processes included within system boundary A1-A3:

A1 — Raw material

The A1 stage covers the production of hot-rolled long bar (non-cut-to-length semi-product) from purchased steel billet at Zhenxiang Plate and Strip Processing Co., Ltd. The production process includes incoming billet inspection, gas-fired reheating in a continuous furnace, high-pressure water descaling, roughing and finishing rolling on a 16-stand continuous mill, dividing shear cutting to standard-length multiples, cooling on a walking-beam cooling bed, and optional cold bending for special sections. Finished long bars are bundled and transferred to the warehouse, with a slow-cooling pit available for stress-relief grades.



A2 — Transport

A2 covers the short-distance internal forklift transport of hot-rolled long bar from Zhenxiang to Nanxiang within the same industrial park.

A3 — Manufacturing

All A3 process steps are electrically driven. No reheating, fossil fuel combustion, chemical treatment or pickling is involved. No process wastewater is generated. Domestic wastewater from the plant is treated and recirculated in a closed-loop system, achieving zero discharge. Solid waste generation is minimal.

Modules beyond A1-A3

This is a cradle-to-gate EPD. Modules A4, A5, B1–B7, C1–C4 and D are not declared (Module Not Relevant). No scenarios are provided for these downstream stages.

4.3 Dangerous substances

No dangerous substances from the Candidate List of SVHC for Authorisation are present in the declared product above the relevant thresholds. No release of dangerous substances into indoor air, soil or water is expected during the use stage of this intermediate steel product.

4.4 Other optional additional environmental information

No additional environmental information is declared.



References

- ISO 14040:2006. Environmental management — Life cycle assessment — Principles and framework.
- ISO 14044:2006. Environmental management — Life cycle assessment — Requirements and guidelines.
- ISO 14025:2006. Environmental labels and declarations — Type III environmental declarations — Principles and procedures.
- EN 15804:2012+A2:2019. Sustainability of construction works — Environmental product declarations — Core rules for the product category of construction products.
- EPDCN-PCR-202204_V2.1. Product Category Rules. EPD China.
- EPD China General Programme Instructions, Version 3.1. EPD China.
- Ecoinvent Database Version 3.12.
- World Steel Association, 2020. Life Cycle Inventory Data for Steel Products. worldsteel, Brussels, Belgium.
- European Commission, 2021. Environmental Footprint (EF) Method Version 3.1. JRC Technical Report.
- IPCC, 2021. Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report (AR6). IPCC.



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