Environmental Product Declaration

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for:

ENVIRONMENTAL FOOTPRINT INSTITUTE

Hot Rolled Steel Round Bar

江苏长强钢铁有限公司

JIANGSU CHANGQIANG STEEL CO., LTD.

Programme :	**The EFI Program**
Programme Operator :	**The Environmental Footprint Institute**
EPD Registration No :	**260602EPD CPR-3100**
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Geographical Scope :	People's Republic of China
Reference Year :	2026

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at Jiangsu Changqiang Steel Co., Ltd.

General Information

Programme :	The EFI Programme
Address :	The Environmental Footprint Institute Calle Circe 49A Madrid, Spain
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Product Category Rules (PCR)

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PCR review was conducted by: The Environmental Footprint Institute.

Product category rules (PCR): Under the general rules of the Environmental Footprint Institute and PCR P-3100: Construction products in general (EN-15804)

PCR review was conducted by: Environmental Footprint Institute

Life Cycle Assessment (LCA)

LCA accountability: CQES International LLC

☐ **Internal Verification** ☑ **Third Party Verification**

Accredited by: THE ENVIRONMENTAL FOOTPRINT INSTITUTE

Third party verifier: Iván Jiménez
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Procedure for follow-up of data during EPD validity involves Internal verifier:
☐ Yes ☑ No

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Company Information

Owner of the EPD :

JIANGSU CHANGQIANG STEEL CO.,LTD

Contact :

Lily

Email:liyx@daofortune.com

Company Description:

Jiangsu Changqiang Steel Co., Ltd. is strategically located in the Yangtze River Delta Economic Zone, offering convenient access to major transportation hubs and unique logistical advantages for efficient raw material sourcing and product distribution.

The company is affiliated with Jiangsu Xin Changjiang City Group Co., Ltd., one of China's Top 500 enterprises, and comprises Jiangyin City Changjiang Steel Pipe Co., Ltd., Jiangsu Xin Changjiang Seamless Steel Tube Manufacturing Co., Ltd., and Jiangsu Changyang Metal Materials Market Co., Ltd. Together, they form a complete industrial chain covering raw materials, sintering, ironmaking, steelmaking, rolled pipe billets, seamless steel pipe production, and sales, integrated with comprehensive logistics services.

Changqiang has an annual production capacity of 2 million tons of steel, 1 million tons of bars (including Hot Rolled Steel Round Bars), and 1 million tons of seamless steel pipes, with annual seamless pipe sales reaching 1.2 million tons. The company is equipped with first-class process equipment, including regenerative reheating furnaces, 650 reciprocating rough rolling mills, and 550 short stress finishing mills, supported by advanced cooling, straightening, cutting, and inspection systems. With first-class production technology and service, Changqiang Iron & Steel is committed to steady and far-reaching progress on the track of high-quality development.

Certifications

The manufacturing facilities are certified to ISO 9001, ISO 14001, and ISO 45001 standards, along with API, PED, CPR, and other international approvals. The company is recognized among China's Top 500 Service Enterprises and Top 100 Steel Trade Enterprises, with a strong commitment to quality, reliability, and sustainable operations.

Product Information

Product Name : **Hot Rolled Steel Round Bar**

Product identification :

The environmental performance results presented in this EPD are representative of all Hot Rolled Steel Round bars manufactured at the production site of Jiangsu Changqiang Steel Co., Ltd. The results are calculated on a per-ton basis, considering the total production volume, total consumption of raw materials and energy, and the total generation of waste and emissions during the defined reference period.

UN CPC Code	41121 – Bars and rods of iron or non-alloy steel, hot-rolled
Geographical Scope	People's Republic of China
Location of Production Site :	No.8 Lianfeng Road, Jiangyin-Jingjiang Industrial Park, Jingjiang City, Jiangsu Province, China.

Product Description :

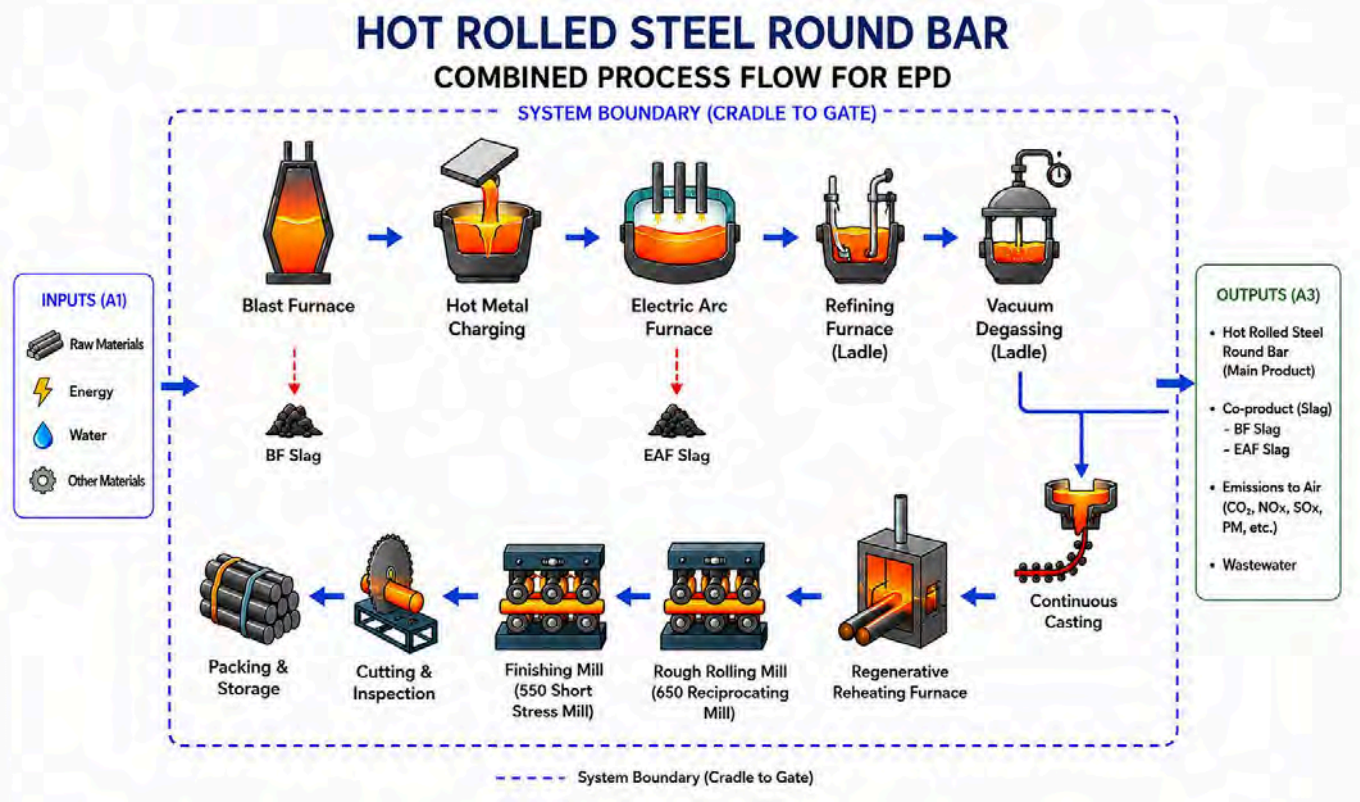
Hot Rolled Steel Round Bars are finished long steel products with a uniform round cross-section, produced to precise dimensional tolerances and mechanical properties based on customer and application requirements, and are used directly in construction, machinery manufacturing, forging, automotive components, and as input material for further processing. The bars are produced in an integrated melt shop and rolling mill complex using iron ore, coke, coal fine, scrap steel, graphite electrode and primary alloys as raw materials, following a complete production route that includes blast furnace operation, electric arc furnace steelmaking, ladle refining, vacuum degassing, continuous casting into round billet, regenerative reheating, rough rolling (650 mill), finishing rolling (550 short stress mill), cooling, straightening, cutting, and inspection. While all hot rolled steel round bars belong to the same product family, variations in steel grade, chemical composition, mechanical properties, and dimensional tolerances may occur depending on the required specification and end use. The controlled reheating, rolling, cooling, and straightening process ensures consistent metallurgical quality, structural integrity, uniform grain structure, and excellent surface finish suitable for direct end-use applications or further processing. Detailed ranges of raw material inputs and steel grades covered under this EPD are provided in the Product Content table (Page 8).

LCA Information

Declared Unit :	The Declared Unit of the Life Cycle Assessments is one tonne (1000 kilogram) of Hot Rolled Steel Round Bar. All direct and indirect environmental impacts, as well as the use of resources, are reported referred to this unit. This EPD presents the environmental impacts associated to the LCA of the analysed products.
Time Representativeness :	Jan 2025 to Dec 2025
Database(s) and LCA software used:	Version 3.21.0.5 of software Air.e LCA™ with Ecoinvent™ 3.12.0 database has been used for LCA modeling and impacts calculations. EN15804 system model is used in this LCA.
Electricity usage in A3 :	A specific dataset with the Life Cycle Inventory (LCI) corresponding to Electricity usage in A3: East China Power Grid mix with "electricity, high voltage" dataset is used. Carbon emission factor: 0.7845 kg CO2eq/kWh (GWP-GHG).
Cut-off rules:	More than 99% of the materials and energy consumption have been included. The Polluter Pays Principle and the Modularity Principle have been followed.
Allocation method:	During steel production, slag is generated as a co-product and is sold for use in cement production and road construction. In accordance with EN 15804 allocation rules, environmental impacts between Hot Rolled Steel Round Bar and slag have been allocated based on economic value. This allocation reduces the environmental burden attributed to Hot Rolled Steel Round Bar, reflecting the real-world application of co-product utilization.

Description of system boundaries:

This Environmental Product Declaration (EPD) for Hot Rolled Steel Round Bar follows a cradle-to-gate with options approach in accordance with EN 15804. The system boundary includes Modules A1–A5, C1–C4, and D. Modules A1–A3 cover raw material extraction and processing, transportation of raw materials to the manufacturing facility, and all manufacturing operations involved in the production of Hot Rolled Steel Round Bar. The manufacturing processes include blast furnace operation, hot metal charging, electric arc furnace steelmaking, refining, vacuum degassing, continuous casting into round billet, regenerative reheating, rough rolling (650 mill), finishing rolling (550 short stress mill), cooling, straightening, cutting, and inspection. Energy consumption, water use, process emissions, and co-products such as BF slag and EAF slag generated during production are also included within the system boundary. Module A4 includes transportation of the finished Hot Rolled Steel Round Bar from the manufacturing facility to the customer or project site based on standardized transport assumptions. Module A5 includes construction and installation activities at the project site, covering handling, lifting, positioning, and placement of Hot Rolled Steel Round Bars using diesel-powered machinery, with associated emissions from fuel combustion. Modules B1–B7 are excluded from the scope of this EPD, as Hot Rolled Steel Round Bar is a finished steel product and its use, maintenance, and operational performance depend on downstream applications outside the declared system boundary. End-of-life Modules C1–C4 and Module D are included using standardized assumptions to account for demolition, transport, waste processing, disposal, recycling, and potential benefits and loads beyond the system boundary associated with steel recovery and recycling.



Core Processes

Upstream Stage (A1–A2)

This stage includes the extraction and processing of raw materials, upstream material production, and transportation of all input materials to the manufacturing facility for the production of Hot Rolled Steel Round Bar.

A1-Raw Material Supply: The A1 module covers the extraction, processing, preparation, and upstream supply of raw materials and auxiliary materials used in the production of Hot Rolled Steel Round Bar at Jiangsu Changqiang Steel Co., Ltd. The primary materials include iron ore fines, pellets, lump ore, scrap steel, ferro alloys, limestone, dolomite, coke, coal fines, and other ancillary materials required for blast furnace and steelmaking operations. Coke used in the manufacturing process is not produced in-house and is fully procured from external suppliers. Therefore, the upstream production of coke and coal fines, including associated energy consumption and emissions, is included within this module. Raw materials are sourced from both domestic and international suppliers, and all upstream processing activities prior to manufacturing are considered within the system boundary.

A2 - Transport: The A2 module includes the transportation of raw materials from their point of extraction or processing to the Jiangsu Changqiang Steel Co., Ltd. manufacturing site in China. Transport of raw materials to production site is taken as the weight average values for transport from supplier for the year of 2025.

- Vehicle used for transport - 3.5-7.5t & >32t trucks, Euro 5
- Vehicle capacity - 3.5 -7.5 tons and 25 tons
- Fuel type and consumption - Diesel, 0.38 liters per km
- Capacity utilization (including empty poly cartages) - 50% as assumed in Eco invent
- Bulk transportation - Mass of the transported product.

Core Stage (A3–A4) and End-of-Life (C1–C4, D) — Hot Rolled Steel Round Bar

Core stage includes blast furnace, EAF, refining, degassing, casting, reheating, rolling (650/550), cooling, straightening, cutting, and inspection. Module A4 = transport to customer. Modules C1–C4 and D = end-of-life processing, recycling, disposal, and steel recovery benefits.

A3 - Manufacturing:

A3 – Manufacturing: The A3 stage includes all manufacturing processes occurring within the Jiangsu Changqiang Steel Co., Ltd. facility, from receipt of raw materials at the plant gate to the production and packaging of Hot Rolled Steel Round Bar. The manufacturing processes include blast furnace operation, electric arc furnace steelmaking, refining, vacuum degassing, continuous casting into round billet, regenerative reheating, rough rolling (650 mill), finishing rolling (550 short stress mill), cooling, straightening, cutting, and inspection. This stage also includes consumption of electricity, purchased coke, coal fines, natural gas, diesel, water, graphite electrodes, and other auxiliary materials, along with process emissions, slag generation, and waste treatment activities. CO_2 emissions are accounted from three sources: fuel combustion (coke, coal fines, natural gas, diesel) calculated using carbon content factors and the IPCC 44/12 conversion ratio; reduction emissions from iron ore reduction in the blast furnace and reduction reactions involving ferro alloys; and graphite electrode oxidation during electric arc furnace steelmaking, where electrodes are consumed at approximately 2 kg per tonne of steel and fully oxidized to CO_2. Electricity data used in this EPD is based on the China grid mix dataset from Ecoinvent ("market for electricity, low voltage"), while natural gas and coal datasets are based on "heat production, natural gas, at industrial furnace >100 kW" and "heat production, at coal coke industrial furnace 1–10 MW," respectively.

A4 - Transportation of Goods:

Stage A4 covers the transportation and distribution of Hot Rolled Steel Round Bar from the manufacturing facility of Jiangsu Changqiang Steel Co., Ltd. to customers, stockyards, or points of sale. This module includes emissions from fuel combustion during road, rail, and sea transport, taking into account the typical transport modes, distances, and logistics scenarios used for product delivery. The calculation is based on the mass of the transported Hot Rolled Steel Round Bars and representative average delivery distances. The vehicle types, capacities, fuel consumption, and bulk transport basis applied in this module are the same as described in Module A2. Please refer to A2 — Transport to Manufacturing Site for detailed transport assumptions.

A5 – Construction / Installation:

A5 – Construction / Installation: Module A5 covers the construction and installation activities associated with Hot Rolled Steel Round Bars at the project or customer site. This module assumes standard handling and placement of the steel bars using diesel-powered machinery including cranes, forklifts, and lifting equipment. Energy consumption for lifting, positioning, and installation is estimated at 0.5 kWh per tonne of Hot Rolled Steel Round Bar based on industry standard practices for steel product installation. Emissions from fuel combustion during construction activities are calculated using diesel combustion factors. The wooden packaging materials used for transporting the Hot Rolled Steel Round Bars are transported to the installation site as part of Module A4 and then become packaging waste at the installation stage. It is assumed that the wooden packaging is collected, transported to a waste processing facility, and disposed of accordingly.

End-of-Life Stage

C1 – Deconstruction / Demolition :

Module C1 covers the deconstruction or demolition of Hot Rolled Steel Round Bars at end of life. Based on Chinese standards (GB/T 51366-2019 and TY 01-31-2015), a standard energy consumption of 1.5 kWh per tonne is assumed for mechanical dismantling, cutting, and preparation of the steel bars for transport, and emissions from this energy use are included accordingly.

C2 – Transport :
Module C2 accounts for the transportation of deconstructed materials from the demolition site to appropriate recycling or disposal facilities. Transport of the demolished product to the recycling facility is considered, with an assumed average transport distance of 50 km by road. The vehicle types, capacities, fuel consumption, and bulk transport basis applied in this module are the same as described in Module A2. Please refer to A2 — Transport to Manufacturing Site for detailed transport assumptions.

C3 – Waste Processing
Module C3 covers the processing of materials after deconstruction for reuse, recycling, and recovery. This includes collection, sorting, and preparation of steel scrap for recycling and re-entry into the steel manufacturing process as secondary raw material. It is assumed that steel waste is separately collected, and electrical energy required for sorting is 0.05 kWh per kg of steel. At the end of its service life, 21% of the product is assumed to be recovered and recycled.

C4 – Disposal :
Module C4 represents the final disposal of waste materials that cannot be reused, recycled, or further treated. After the end of its useful life, the remaining 79% of the product is assumed to be disposed of via landfill.

Module D – Benefits and Loads Beyond the System Boundary :
Module D accounts for the potential environmental benefits and loads associated with the recycling of materials beyond the system boundary. Due to the absence of billet-specific end-of-life statistics, national steel recycling data for China is used as a proxy in accordance with EN 15804. Industry statistics indicate that approximately 21% of steel in China is recycled, based on the share of scrap used in crude steel production, while the remaining 79% is assumed to be disposed of or not recovered.

More Information

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	Product Stage			Construction Process Stage		Use Stage	End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use, maintenance, repair, replacement, refurbishment, operational energy and water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1-B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	ND	CN	CN	CN	CN	CN
Geography	CN GLO	CN GLO	CN	CN GLO	CN GLO	--	--	--	--	--	--
Specific data used	>75%			--	--	--	--	--	--	--	--

** X - Included CN - China ND - Not Included GLO - Global*

Assumptions and Allocations :

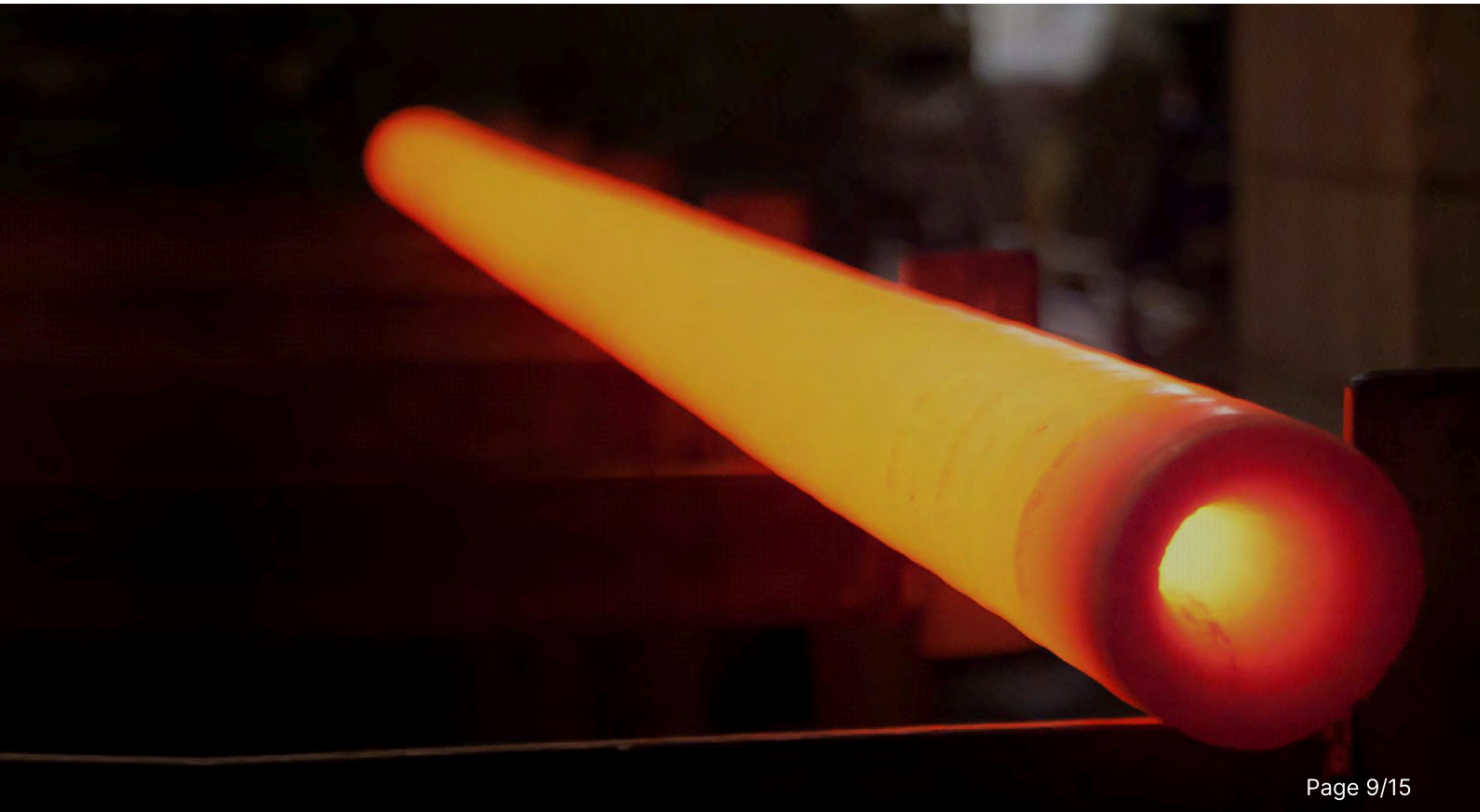
The life cycle assessment for Hot Rolled Steel Round Bar was developed using a cradle-to-gate with options approach in accordance with EN 15804 and ISO 14044. Primary production data was collected from Jiangsu Changqiang Steel Co., Ltd. for the reporting period 2025, while secondary data was sourced from Ecoinvent databases and internationally recognized literature where primary data was unavailable.

Weighted average transportation distances were used for raw material transport based on supplier-specific data, with international transport of imported raw materials modelled using marine freight transport datasets, and truck transportation modelled on Euro 5 vehicles with 50% capacity utilization including empty return trips following Ecoinvent assumptions.

Purchased coke and coal fines are sourced externally and their upstream production impacts are included within Module A1, while electricity consumption was modelled using the China grid mix dataset from Ecoinvent. Standardized assumptions were applied for end-of-life scenarios, including demolition, transport, recycling, and disposal processes.

For Module C1, based on Chinese standards (GB/T 51366-2019 and TY 01-31-2015), a standard energy consumption of 1.5 kWh per tonne is assumed for mechanical dismantling, cutting, and preparation of Hot Rolled Steel Round Bars for transport, and emissions from this energy use are included accordingly.

For Module A5, diesel-powered machinery including cranes and forklifts is assumed for on-site handling and installation with energy consumption of 0.5 kWh per tonne, and wooden packaging waste is assumed to be 100% collected and disposed of with no recycling. Environmental impacts were allocated between the main product and co-products based on economic allocation methodology. Hot Rolled Steel Round Bar was considered the main product and assigned 99.133% of the total environmental impacts, while co-products including blast furnace slag and EAF/BF slag were assigned 0.866% of the impacts based on their relative economic value.



Content Information

Product Content:

Product Components	Weight %	Post-Consumer material weight -%	Biogenic material, kg C/kg
Iron Ores & Concentrates	60-65	0	0
Coke	15-20	0	0
Coal Fine	5-10	0	0
Scrap Steel	10-15	0	0
Primary Alloys	0.1-1	0	0

Packaging Material Content:

Packaging Material	Weight (kg)/DU	Weight % (Versus the Product)	Weight biogenic carbon, kg C/kg
Wooden Blocks	5.00E-01	5.00E-02	2.23E-01

Dangerous substances from the candidate list of SVHC for Authorisation:

Dangerous substances from the candidate list of SVHC for Authorisation:	EC No.	CAS No.	Weight-% per declared unit
None	--	--	--
None	--	--	--

Biogenic carbon content:

Biogenic carbon content	A1-A3/Unit
Biogenic carbon content in product	0.00E+00 kg C
Biogenic carbon content in accompanying packaging	2.23E-01 kg C

Manufacturing Process:

Hot Rolled Steel Round Bar is produced through an integrated steelmaking and hot rolling route consisting of blast furnace ironmaking, hot metal charging, electric arc furnace steelmaking, refining, vacuum degassing, continuous casting into round billet, regenerative reheating, rough rolling (650 mill), finishing rolling (550 short stress mill), cooling, straightening, cutting, and inspection. Iron ore, purchased coke, coal fines, scrap steel, and primary alloys are used as primary inputs in the production process. Molten steel produced during steelmaking is refined to achieve the required chemical composition and quality before being continuously cast into round billets. The billets are then reheated, hot rolled, cooled, straightened, cut, inspected, and prepared for dispatch as finished Hot Rolled Steel Round Bar.

Technical information:

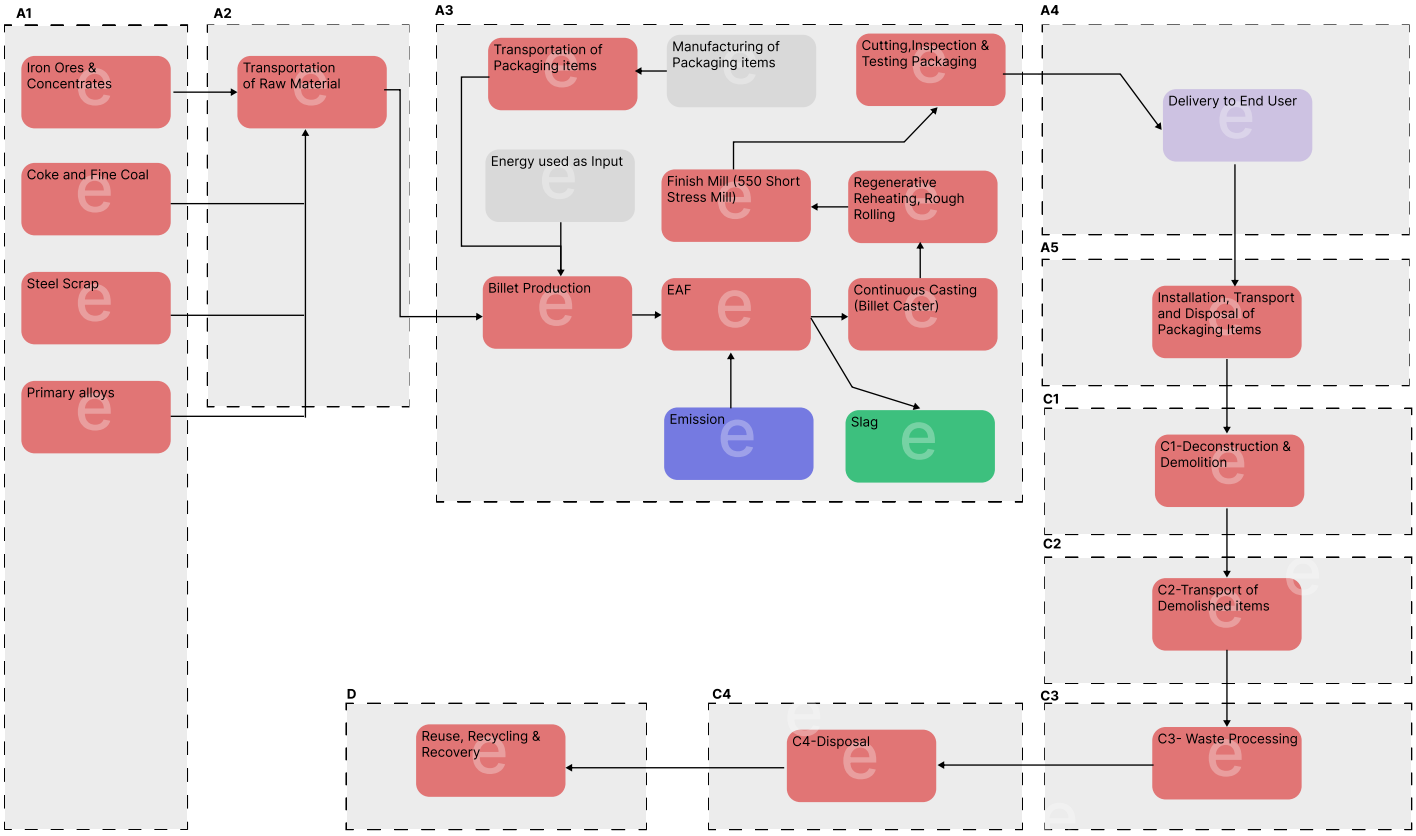
For more technical information about the Hot Rolled Steel Round Bar, please refer to the product TDS

Data quality:

The environmental impact has been calculated based on the international standards established for the development of environmental product declarations, such as ISO 14025 for the preparation of the environmental product declaration, ISO 14040 and ISO 14044 for the preparation of the life cycle analysis, UNE-EN 15804:2012+A2:2019 and the Product Category Rules PCR 2015:03, version 2.0, UN CPC code: 41121 for Hot Rolled Steel Round Bar. Data has been collected in 2025 and is representative of that year. Data for raw material supply, transport to the manufacturing plant, and production (A1–A3) is based on specific consumption data for the factory in China.

Generic background datasets were used for the upstream and downstream processes. Air.e LCA Version 3.21.0.5 software was used to prepare the life cycle analysis together with the Ecoinvent 3.12.0 database, with characterization factors from EN 15804:2012+A2:2019.

Life Cycle Assessment Modelling



Environmental Performance

Potential Environment Impacts

In the following tables, the environmental performance of the declared unit "One tonne of Hot Rolled Steel Round Bar" is presented for Jiangsu Changqiang Steel Co., Ltd. During the assessment it was not evident to distinguish the differences in the consumption of electricity, water, raw material, and chemicals during the manufacturing. Hence, the calculation is based on total production versus total consumption against production of the product.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding thresholds values, safety margins, or risks.

Core Environmental Impact Indicators

Impact category indicators according to EN 15804 (Results per declared unit)

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-Total	kg CO_2 eq.	2.43E+03	1.65E+01	3.25E-01	ND	ND	ND	ND	ND	ND	ND	1.51E-01	9.89E+00	3.88E-05	4.95E+00	-1.91E+01
GWP-fossil	kg CO_2 eq.	2.43E+03	1.65E+01	7.81E-02	ND	ND	ND	ND	ND	ND	ND	1.51E-01	9.88E+00	3.87E-05	4.94E+00	-2.51E+01
GWP-biogenic	kg CO_2 eq.	3.25E-01	3.66E-03	2.47E-01	ND	ND	ND	ND	ND	ND	ND	1.49E-05	2.24E-03	8.30E-09	1.52E-03	6.10E+00
GWP-luluc	kg CO_2 eq.	5.82E-01	7.25E-03	1.27E-05	ND	ND	ND	ND	ND	ND	ND	1.53E-05	4.45E-03	2.37E-08	2.81E-03	-3.75E-02
ODP	kg CFC 11 eq.	8.89E-06	2.25E-07	9.95E-10	ND	ND	ND	ND	ND	ND	ND	2.32E-09	1.44E-07	1.36E-13	1.44E-07	-3.17E-07
AP	mol H^+ eq.	9.79E+00	5.61E-02	5.34E-04	ND	ND	ND	ND	ND	ND	ND	1.35E-03	2.36E-02	2.26E-07	3.41E-02	-2.77E-01
EP-freshwater	kg P eq.	2.28E-01	1.80E-03	3.81E-05	ND	ND	ND	ND	ND	ND	ND	4.84E-06	1.08E-03	7.74E-09	4.36E-04	-1.37E-02
EP-marine	kg N eq.	2.27E+00	1.85E-02	1.10E-03	ND	ND	ND	ND	ND	ND	ND	6.33E-04	5.81E-03	4.70E-08	1.36E-02	-5.78E-02
EP-terrestrial	mol N eq.	2.47E+01	1.97E-01	2.57E-03	ND	ND	ND	ND	ND	ND	ND	6.91E-03	6.08E-02	4.97E-07	1.47E-01	-7.12E-01
POCP	kg NMVOC eq.	8.44E+00	7.76E-02	8.74E-04	ND	ND	ND	ND	ND	ND	ND	2.07E-03	3.29E-02	1.34E-07	5.31E-02	-2.10E-01
ADP-minerals & metals*	kg Sb eq.	1.74E-03	5.44E-05	4.68E-08	ND	ND	ND	ND	ND	ND	ND	5.33E-08	3.33E-05	2.00E-10	7.34E-06	-1.52E-03
ADP-fossil*	MJ	1.31E+04	2.08E+02	7.87E-01	ND	ND	ND	ND	ND	ND	ND	1.81E+00	1.25E+02	4.01E-04	1.10E+02	-3.38E+02
WDP*	m^3	3.93E+02	1.25E+00	-7.88E-02	ND	ND	ND	ND	ND	ND	ND	5.35E-03	7.72E-01	5.31E-06	5.35E+00	-4.70E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

Note on Declared Modules:

The environmental impacts presented above are for modules A1–A4 only.

- *Module B (Use Stage) is considered null for this semi-finished product, as its use phase depends on further downstream processing.*

**CO_2 emissions from fuel combustion in A3 were calculated using standard carbon content factors and the 44/12 molecular weight ratio, in accordance with IPCC guidelines.*

Environmental Impact -GWP-GHG

Additional mandatory and voluntary impact category indicators (Results per declared unit)

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO_2 eq.	2.58E+03	1.66E+01	3.40E-01	ND	ND	ND	ND	ND	ND	ND	1.53E-01	9.96E+00	3.88E-05	5.06E+00	1.09E+01

Use of Natural Resources

Resource use indicators (Results per declared unit)

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	6.94E+02	3.17E+00	-3.54E+00	ND	ND	ND	ND	ND	ND	ND	1.22E-02	1.93E+00	3.43E-05	1.12E+00	5.03E+00
PERM	MJ	5.67E+00	0.00E+00	3.55E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	6.99E+02	3.17E+00	7.96E-03	ND	ND	ND	ND	ND	ND	ND	1.22E-02	1.93E+00	3.43E-05	1.12E+00	5.03E+00
PENRE	MJ	1.11E+04	2.27E+02	-1.46E+00	ND	ND	ND	ND	ND	ND	ND	1.96E+00	1.37E+02	4.66E-04	1.21E+02	3.54E+01
PENRM	MJ	4.79E+03	0.00E+00	2.32E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.59E+04	2.27E+02	8.58E-01	ND	ND	ND	ND	ND	ND	ND	1.96E+00	1.37E+02	4.66E-04	1.21E+02	3.54E+01
SM	kg	3.35E+00	1.00E-01	3.46E-04	ND	ND	ND	ND	ND	ND	ND	8.11E-04	6.11E-02	6.38E-08	3.00E-02	6.42E-02
RSF	MJ	2.30E-01	1.30E-03	1.98E-06	ND	ND	ND	ND	ND	ND	ND	2.13E-06	7.94E-04	4.35E-10	6.29E-04	5.09E-03
NRSF	MJ	1.17E-02	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	4.67E+04	3.04E-02	-1.83E-03	ND	ND	ND	ND	ND	ND	ND	1.30E-04	1.88E-02	1.39E-07	1.25E-01	1.77E-02
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

End of Life – Outflows

Output flow indicators (Results per declared unit)															
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	2.57E+02	6.08E-03	1.92E-05	ND	ND	ND	ND	ND	ND	ND	3.41E-05	3.67E-03	6.32E-08	4.05E-03	2.02E+02
Materials for energy recovery	kg	6.48E-04	1.48E-05	2.25E-08	ND	ND	ND	ND	ND	ND	ND	2.64E-08	9.02E-06	1.60E-11	2.18E-06	6.97E-06
Exported energy, electricity	MJ	1.24E+00	1.94E-02	5.44E-05	ND	ND	ND	ND	ND	ND	ND	9.27E-05	1.18E-02	1.05E-08	7.46E-03	1.80E-02
Exported energy, thermal	MJ	1.04E+00	3.40E-02	3.71E-05	ND	ND	ND	ND	ND	ND	ND	4.35E-05	2.07E-02	2.57E-08	4.16E-03	4.98E-03

End of Life - waste

Waste indicators (Results per functional or declared unit)															
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	2.00E+02	1.58E+00	3.37E-03	ND	ND	ND	ND	ND	ND	ND	6.35E-03	9.59E-01	1.06E-05	3.92E-01	2.64E+00
Non-hazardous waste disposed	kg	1.51E+03	2.07E+01	1.37E+00	ND	ND	ND	ND	ND	ND	ND	3.17E-02	1.25E+01	3.79E-05	7.94E+02	1.69E+01
Radioactive waste disposed	kg	1.71E-02	4.26E-05	1.21E-07	ND	ND	ND	ND	ND	ND	ND	1.92E-07	2.59E-05	1.09E-09	1.64E-05	4.44E-05

Additional information

No additional information is provided.

Information related to Sector EPD

This is not sector EPD.

Differences versus previous versions

This is the first version of the EPD.

References

1. LCA & Software Documentation

- *LCA Report: Life Cycle Inventory of JIANGSU CHANGQIANG STEEL CO., LTD, China.*
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- *Main database: Ecoinvent 3.12.0. Available at: www.ecoinvent.org*
- *Geographical scope of the EPD: China.*

2. International Standards (ISO & EN)

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- *ISO 14044:2006. Environmental management – Life cycle assessment – Requirements and guidelines.*
- *ISO 14020:2000. Environmental labels and declarations – General principles.*
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3. Upstream Billet EPD

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4. Chinese Standards for End-of-Life (C1) (Updated)

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5. Steel Recycling Statistics

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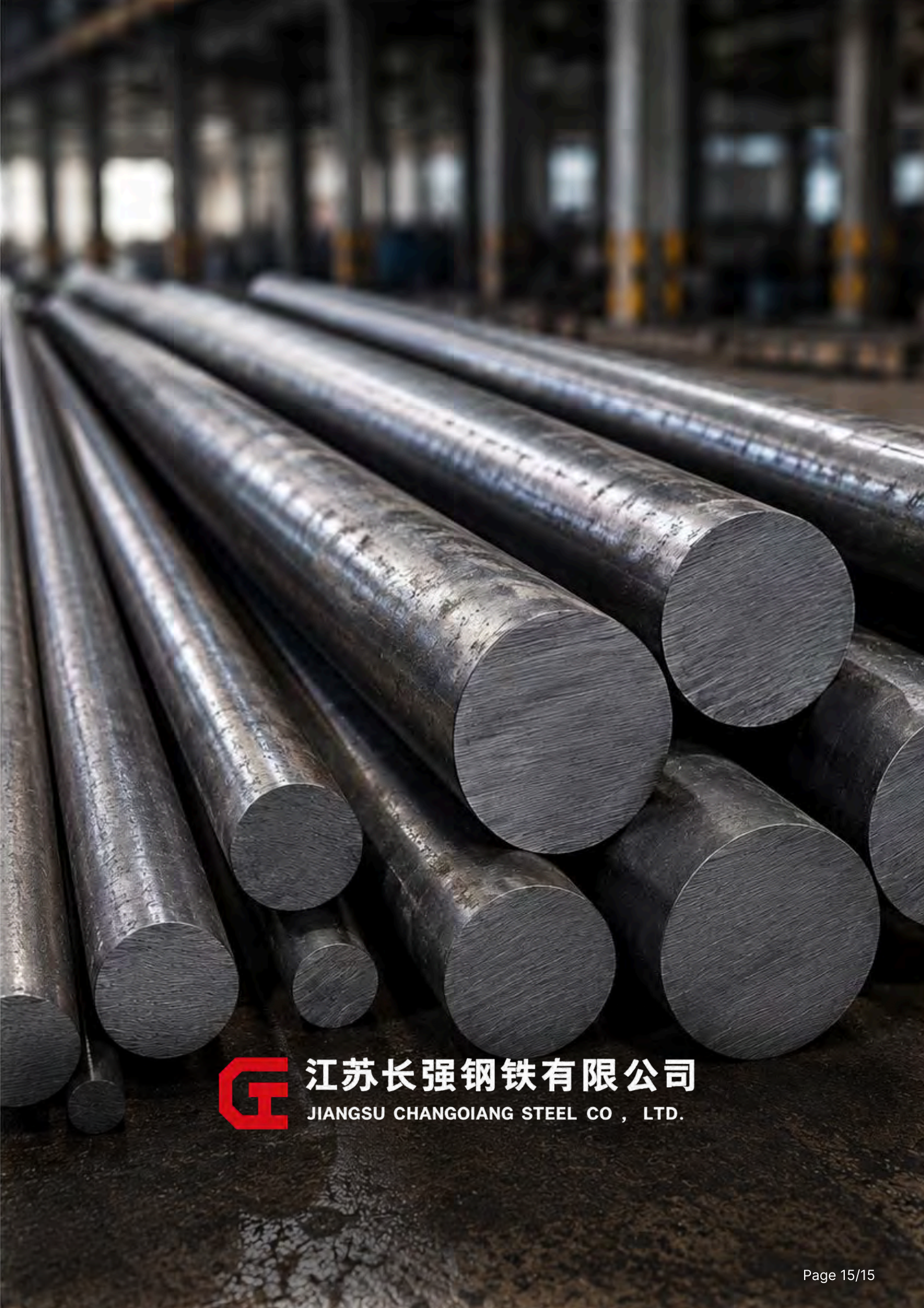
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