Environmental Product Declaration

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

STS300

from

POSCO CO., LTD

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0016771:001
Publication date:	2024-10-24
Valid until:	2029-10-24

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 www.environdec.com

General information

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Product Category Rules for Construction Products (PCR 2019:14) version 1.3.4 and UN CPC code: 41213(Flat-rolled products of alloy steel(except of silicon-electrical steel), not further worked than hot-rolled, of a width of 600 mm or more), 41223(Flat-rolled products of alloy steel (except of silicon-electrical steel), not further worked than cold-rolled, of a width of 600 mm or more), 41224(Flat-rolled products of alloy steel (except of silicon-electrical or high-speed steel), not further worked than cold-rolled, of a width of less than 600 mm)
PCR review was conducted by: The International EPD® System Technical Committee Chair of the PCR review: *CI* Visit www.environdec.com for full list of members. *audia A. Peña, University of Concepción, Chile.* The review panel may be contacted via www.environdec.com/contact
Life Cycle Assessment (LCA)
LCA accountability: *Yoosung Park, H.I.Pathway Co.,Ltd. yoosung.park@hipathway.com* EPD owner's contact person: Sung Hyun Choo, POSCO CO., LTD, sh.choo@posco.com
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by accredited certification body Third-party verification: *Noh-hyun Lim, Certiquality Srl* is an approved certification body accountable for the third-party verification The certification body is accredited by: *Accredia*
Procedure for follow-up of data during EPD validity involves third party verifier: ☒ Yes ☐ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical

declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

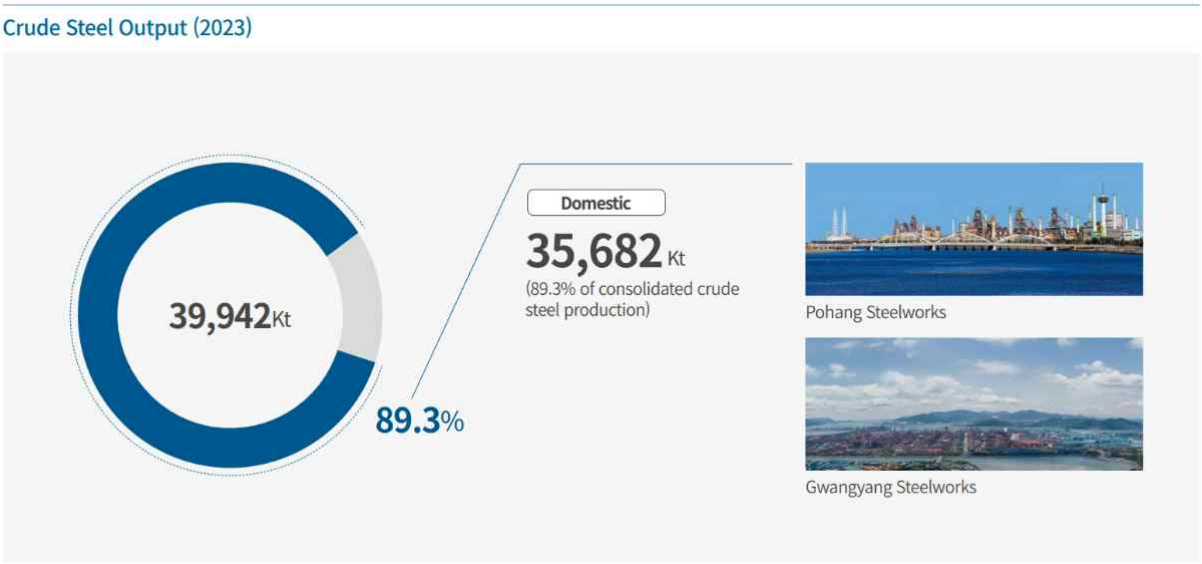
Owner of the EPD: POSCO CO., LTD
Contact: Sung-Hyun Choo, e-mail: sh.choo@posco.com, tel: +82 61 790 1325
Description of the organisation:

Steel is an essential element of modern life. Backed by industry-leading competitiveness, POSCO Group steers the transition to low-emission steelmaking.

Domestic Operations

By shifting to decarbonized processes and reinforcing the sustainable product portfolio, we are positioned for future market leadership.

- Install electric arc furnaces (EAF) and develop bridge technologies to reduce carbon emissions in existing facilities
- Promote sales growth for sustainable products and make forward-looking investments
- Integrate digital and innovative process to enhance operational efficiency



Overseas Operations

Across the world, we oversee multiple operations including steel mills, processing centers, and raw materials sourcing subsidiaries. Investments in Indonesia, India, and the Americas, the three fast-growing steel markets, are considered to scale our global business.

- Invest in growth markets via diverse avenues, e.g., JV, local manufacturing capacity building and eco-friendly process application
- Seek partnerships with raw materials and energy suppliers, e.g. Australia

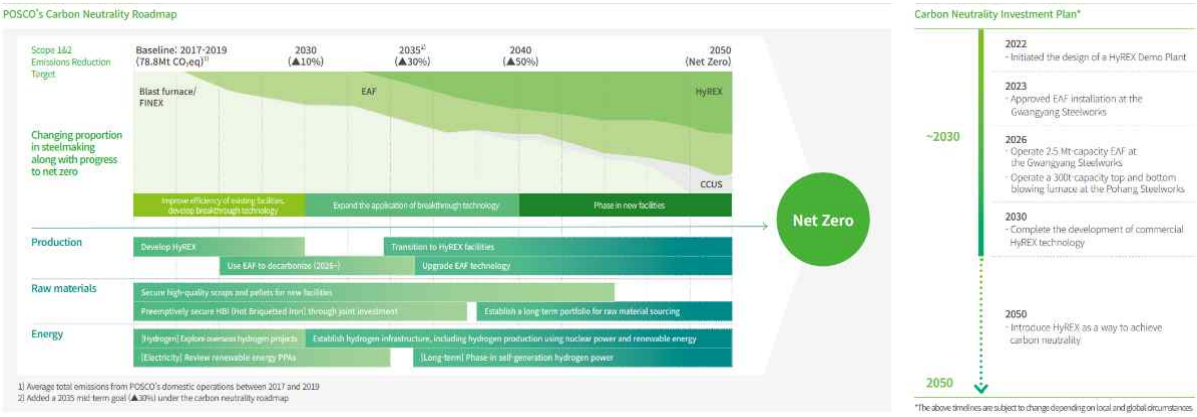
POSCO's Carbon Neutrality Roadmap

POSCO established its 2050 Carbon Neutrality Roadmap encompassing its overarching mid/long-term strategies for raw materials, investment, energy, and technology development to reach net zero by 2050.

POSCO plans to reduce its carbon emissions by 10% by 2030, 30% by 2035, and 50% by 2040 against the baseline of 78.8 million tons, its three-year average carbon emissions between 2017 and 2019, and become net zero by 2050.

Journeying towards its 2050 net zero goal, POSCO will shift to low-carbon fuels and raw materials for its currently-operating facilities and develop low-HMR (Hot Metal Ratio) technology along with improving the efficiency of existing facilities in the short term while introducing highly feasible bridge technologies such as Electric Arc Furnace (EAF) and CCUS in the mid term.

Ultimately, POSCO aims to develop HyREX (Hydrogen Reduction) technology to ensure its steelmaking process does not generate GHG emissions.



Water Resources

POSCO commits to minimizing the risk of water shortages by optimizing its water management and increasing water recycling. To keep the environmental impact of its steelworks on the surrounding waters to a minimum, POSCO applies stringent standards to managing the quality of effluents. POSCO implements the MES (Manufacturing Execution System) for its steelworks operations to keep track of energy supply/demand in real time, including water consumption by water source, and monitors water consumption of each plant on a monthly basis.

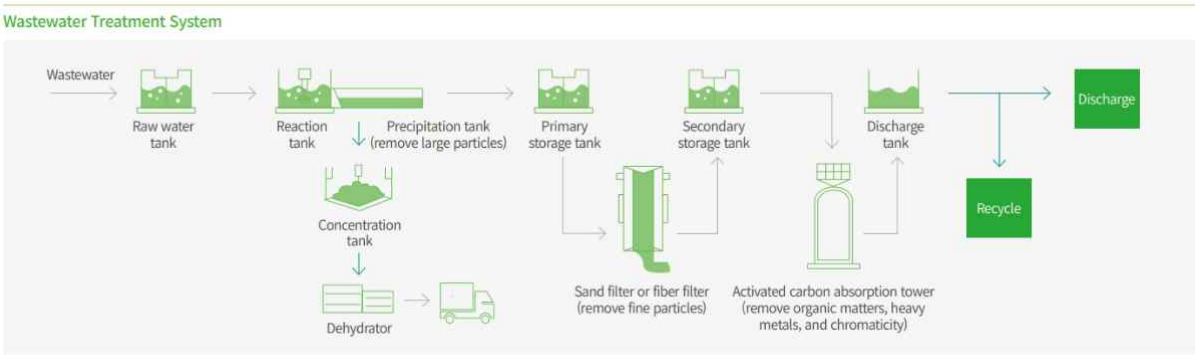
POSCO has received water security assessments under CDP's water disclosure project since 2016. In 2023, POSCO was rated Leadership A- in the leadership band.

Water Conservation and Wastewater Recycling

POSCO Group committed to minimizing environmental footprint in our environmental policy by reducing the consumption of water and other resources as much as possible and ensuring proper wastewater management. In August 2023, Gwangyang where our key production site is located was ranked Water Stress High, indicating its water stress level is in the 40~80% range according to WRI (World Resources Institute)'s water stress criteria. As the location of the Gwangyang Steelworks was classified as Water Stress High, we are seeking out ways to conserve water and maximize the use of available water resources. These include recycling wastewater discharged at appropriate quality levels from the water treatment facilities of unit plants, and research projects are ongoing to recycle final effluents such as end-of-pipe treated drainage water through reverse osmosis to use them as industrial water rather than for road or yard sprinkling. Such efforts to reduce water withdrawal while increasing water recycling represents our commitment to bracing for water stress concerns.

POSCO, which accounts for 80% and more of Group-wide domestic water withdrawal, is securing alternative industrial water sources to reduce its use of surface and ground water. The Pohang Steelworks has been reusing treated wastewater to avoid the use of 80,000 tons of fresh water a day since 2015, and the Gwangyang Steelworks has been producing desalinated water with its seawater desalination plant since 2014 to replace the use of up to 30,000 tons of freshwater a day. Such efforts enabled POSCO to recycle 26% of its total water withdrawal in 2023, doing its part in addressing the risk of water shortage facing local communities.

While minimizing the generation of wastewater at the steelworks and maximizing the recycling of wastewater, POSCO also ensures that unrecyclable wastewater undergoes rigorous end-of-pipe treatment before released into the environment. Wastewater receives primary treatment (physical/chemical) at each plant within the steelworks and wastewater containing organic matters receives additional secondary treatment (biological) before their final treatment at the wastewater treatment plant. Final effluents are controlled for their discharge concentrations of SS, TOC, T-N and other key pollutants, and POSCO's internal criteria are set at 80% of the legal threshold. Consuming large quantities of water is unavoidable due to the inherent characteristics of integrated still mill operations. Still, POSCO recycles as much water withdrawn as possible to reduce its water consumption. For instance, water use is minimized through wastewater circulation within the process, and stormwater and yard/road spraying water is collected through stormwater treatment facilities for treatment and is recycled afterwards.



Chemical Substances

POSCO's steelworks respectively operate a rigorous monitoring system throughout the entire process of safely transporting, using and discarding chemical substances. The location tracking system has been introduced since 2016 for vehicles transporting chemicals according to the conditions of steelworks to ensure prompt response in the event of an accident. POSCO also abides by safety standards for chemical handling facilities, and makes facility improvements including leak detection systems to further raise the bar on safety.

POSCO works on multiple fronts to prevent chemical spills. To this end, the company established an emergency response system to ensure the safety of facilities handling hazardous chemicals and minimize the damage should any accidents occur. The company provides employees with chemical spill response training and safety training to help them strengthen response capabilities. Both steelworks set up departments responsible for chemicals management and appointed over 50 chemicals\ managers to ensure management accountability. POSCO operates the safety disaster prevention center equipped with special vehicles and professionals to enhance its early response capabilities, and conducts regular public-private joint drills and self-defense fire drills for increased response capabilities. Serving as the representative of the chemical safety community organized for local chemical safety, POSCO supports small/mid-sized companies with chemical safety while also joining the chemical safety committee of local governments.

POSCO raises the bar on chemicals management through supply chain partnerships and focuses on the safe distribution and handling of chemicals. The company embraces innovative technology and approaches for the the sustainable development of chemical handling practices, fully adheres to applicable laws and regulations, and works to strike the right balance between environmental protection and economic growth.

POSCO's chemical management system verifies the content of hazardous chemicals designated by the government for their significant hazards/risks within the materials it introduces for the first time through the use of the MSDS. When unauthorized hazardous chemicals are contained, the concerned

materials are prevented from entering its operations, and they are replaced with non-hazardous alternatives through collaboration with the supplier. If such a switch is not viable, POSCO makes sure these materials are handled with appropriate protection facilities and equipment, including improved facilities and protective gear, under the approval of the government.

POSCO applies standards more stringent than government regulations to the management of its working environment to minimize the exposure of workers to any hazardous substances. Since 2022, the company has adopted its internal policy specifying prohibited chemicals to shift to low-toxicity alternatives and reduce the chemical exposure for both workers and the environment. POSCO also issues material-specific environmentally hazardous substances reports for respective manufactured products and discloses them on the electronic transaction system (E-Sales) for external stakeholders.

Byproducts

POSCO is progressing toward a circular economy by maximizing the recycling of byproducts generated from its steel production process such as slag, dust, and sludge. Since designated as an enterprise subject to resource recycling performance management in 2018, POSCO has been setting annual recycling targets and tracking its performance. To minimize the landfill and incineration of waste that is not readily recyclable, POSCO works to increase the recycling of byproducts by discovering potential consumers and developing recycling technology with a goal of maintaining its byproduct recycling rate at 98% and above.

Slag accounts for over 75% of total byproducts generated at the steelworks, and is classified into blast furance slag and steelmaking slag. Blast furnace slag, a rock-like byproduct generated when molten iron is produced at the blast furnace, morphs into sand-like granulated slag by spraying high-pressure water for rapid cooling. Over 90% of blast furnace saag exists in this granulated form. Granulated slag, mostly composed of calcium oxide and silicon dioxide, is able to substitute for cement clinker and is noted for its environmental benefits for reducing GHG emissions that are normally generated during limestone calcination as part of the conventional cement manufacturing process. In partnership with RIST and POSCO E&C, POSCO is distributing PosMent it developed to raise the content of granulated slag to up to 58% compared to traditional slag cement, contributing to mitigating GHG emissions and recycling byproducts in so doing. Furthermore, granulated slag can be used as feedstock for silicate fertilizers and contains a large amount of silicate which is an essential nutrient for the growth of rice. Silicate serves to more than triple the strength of the rice stem to increase the crop yield and enhance the overall quality of rice with improved taste and texture. It was also discovered through joint efforts with professional research institutes that iron ions (Fe3+) that exist in trace amounts in slag inhibit the activity of methanogens and produce the effect of lowering GHG (methane) emissions by nearly 14% in the rice cultivation process. Steelmaking slag is generated when impurities are removed from molten iron in the converter during the steelmaking process.

Steelmaking slag undergoes magnetic separation to reclaim the iron content: magnetic slag is repurposed into scrap iron substitutes and non-magnetic slag, which is mainly composed of limestone, silica and other natural rock substances, is used as natural aggregate substitutes. In particular, civil engineering sites using slag aggregates comply with the slag management guidelines published by the Korean Iron and Steel Association to manage potential leachate that may occur when slag aggregates come into contact with water during construction. Meanwhile, dust and sludge are generated when operating duct collectors, water treatment facilities and other environmental facilities: dust and sludge with high iron content are reused in their original form, or processed into pellets or briquettes and are fed back into the ironmaking and steelmaking processes as raw materials.

Initiative Participation

POSCO is enhancing its interactions and collaborations with various stakeholders via active involvement in diverse global initiatives. We are publicly affirming our commitment to achieving carbon neutrality by 2050 and reinforcing our capacity to execute this commitment. Our aim is to showcase leadership in sustainability management through pioneering and proactive engagement.

Selected as a UNGC LEAD Group

POSCO has been a member of the United Nations Global Compact (UNGC) since 2012. The UNGC represents the world's largest voluntary initiative for corporate citizenship, advocating for sustainability management practices through its 10 principles that encompass human rights, labor rights, environmental stewardship, and anti-corruption measures. POSCO is actively working towards contributing to the United Nations' Sustainable Development Goals (SDGs), a set of international commitments expected of every global stakeholder in our pursuit of a better future. In recognition of these endeavors, POSCO was selected for the 'UNGC Network Korea LEAD Group' for four years in a row, beginning with 2020.

The World Steel Association's Sustainability Champion

The World Steel Association has recognized Sustainability Champions from among its 140 member companies since 2018. These companies exemplify leadership in the steel industry' s commitment to sustainability. To qualify for this title, companies must adhere to the nine principles laid out in the Sustainability Charter, provide data on their carbon emissions, broken down by materials and processes used, and actively participate in sustainability programs. Recognized for its dedication and remarkable accomplishments in ESG management, POSCO has been selected as a Sustainability Champion for two consecutive years since 2022.

ResponsibleSteel Site Certification

POSCO, as a leading global steelmaker, is dedicated to fulfilling its social responsibilities and exerting strong leadership, especially in light of the recent emergence of ESG as the new normal in corporate governance. As a part of its efforts, in 2022 POSCO joined ResponsibleSteel, a global ESG initiative for the steel industry, to assess and enhance its ESG performance, obtaining certification for its business sites. To achieve this certification from ResponsibleSteel, companies need to meet all 370 stringent requirements that align with global ESG benchmarks. These requirements encompass a wide range of areas, such as climate change, greenhouse gases, environmental management, health and safety, human rights, labor rights, community engagement, and biodiversity. To meet these requirements, successful completion of written and on-site audits conducted by a third-party certification body is necessary. In addition, certification requires successful validation from an expert panel comprising external professionals, as well as interviews with various external stakeholders such as civil societies, environmental organizations, and academia. Thanks to our commitment to ESG management activities and results based on our philosophy of corporate citizenship, which are embedded in our entire company processes and systems, POSCO was able to seamlessly handle the assessment. As a result, in October 2022, POSCO's Pohang and Gwangyang steelworks, which are ranked first and second globally in terms of single-site capacity, became the first steel facilities in Asia to obtain ResponsibleSteel site certification.

Company Overview

<table>
<tr><td>Company Name</td><td>POSCO CO., LTD</td><td>Business Description</td><td>Ironmaking, steelmaking, and the production and sales of rolled steel products</td></tr>
<tr><td>CEO</td><td>Si-Woo Lee</td><td rowspan="2">Product</td><td rowspan="2">Hot rolled steel, thick plates, wire rods, cold rolled steel, hot-dip galvanized steel, electro-galvanized steel, electrical steel sheets, stainless steel, titanium, and more</td></tr>
<tr><td>Headquarters</td><td>6261, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do (Goedong-dong), Republic of Korea</td></tr>
<tr><td>Founded</td><td>March 2, 2022(Corporate spin-off, Unlisted new company)</td><td>Website</td><td>www.posco.co.kr</td></tr>
</table>

POSCO Overseas Subsidiaries

Product-related or management system-related certifications: ISO 9001- and 14001-certificates
Name and location of production site(s):

- Pohang Steelworks, 6262, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do, the Republic of Korea

[Overview]
Name: POSCO CO., LTD, Establishment April 1, 1956
President Si-woo Lee
Website https://www.posco.co.kr/
Head office 6261, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do, the Republic of Korea

Product information

Product name: STS300
Product identification:
A general purpose steel, it is used to make products such as construction product, home appliances, drum containers, furniture, etc.

Type		Mechanical Properties				Physical Properties			
KS(JIS)	POSCO	Yield Strength (0.2%) (N/mm²)	Tensile Strength (N/mm²)	Elongation (%)	Hardness (Hv)	Specific Heat J/g °C	Specific Gravity	Thermal Expansion Coefficient W/m·°C (20-100°C)	Thermal Conductivity W/m·°C (100°C)
301	301	205~	520~	40~	~218	0.5	7.93	16.9	16.3
301L	301L	215~	550~	45~	~218	0.5	7.93	16.9	16.3

304	304	205~	520~	40~	~200	0.5	7.93	17.3	16.3
304L	304L	175~	480~	40~	~200	0.5	7.93	17.3	16.3
304LN	304LN	245~	550~	40~	~200	0.5	7.93	17.3	16.3
304N1	304N1	275~	550~	35~	220~	0.5	7.93	17.3	16.3
304J1	304J1	155~	450~	40~	~200	0.5	7.93	17.3	16.3
305	305EG	175~	480~	40~	~200	0.5	7.93	17.3	16.3
309S	309S	205~	520~	40~	~200	0.5	7.98	15.9	14.2
310S	310S	205~	520~	40~	~200	0.5	7.98	15.9	14.2
316	316	205~	520~	40~	~200	0.5	7.98	15.9	16.3
316L	316L	175~	480~	40~	~200	0.5	7.98	15.9	16.3
316LN	316LN	245~	550~	40~	~220	0.5	7.98	15.9	16.3
316Ti	316Ti	205~	520~	40~	~200	0.5	7.98	15.9	16.3
317L	317L	175~	480~	40~	~200	0.486	7.98	16.5	14.4
321	321	205~	520~	40~	~200	0.5	7.93	16.7	16.1
347	347	205~	520~	40~	~200	0.5	7.98	16.7	16.1
XM15J1	XM15J1	205~	520~	40~	~218	0.5	7.75	13.8	16.3

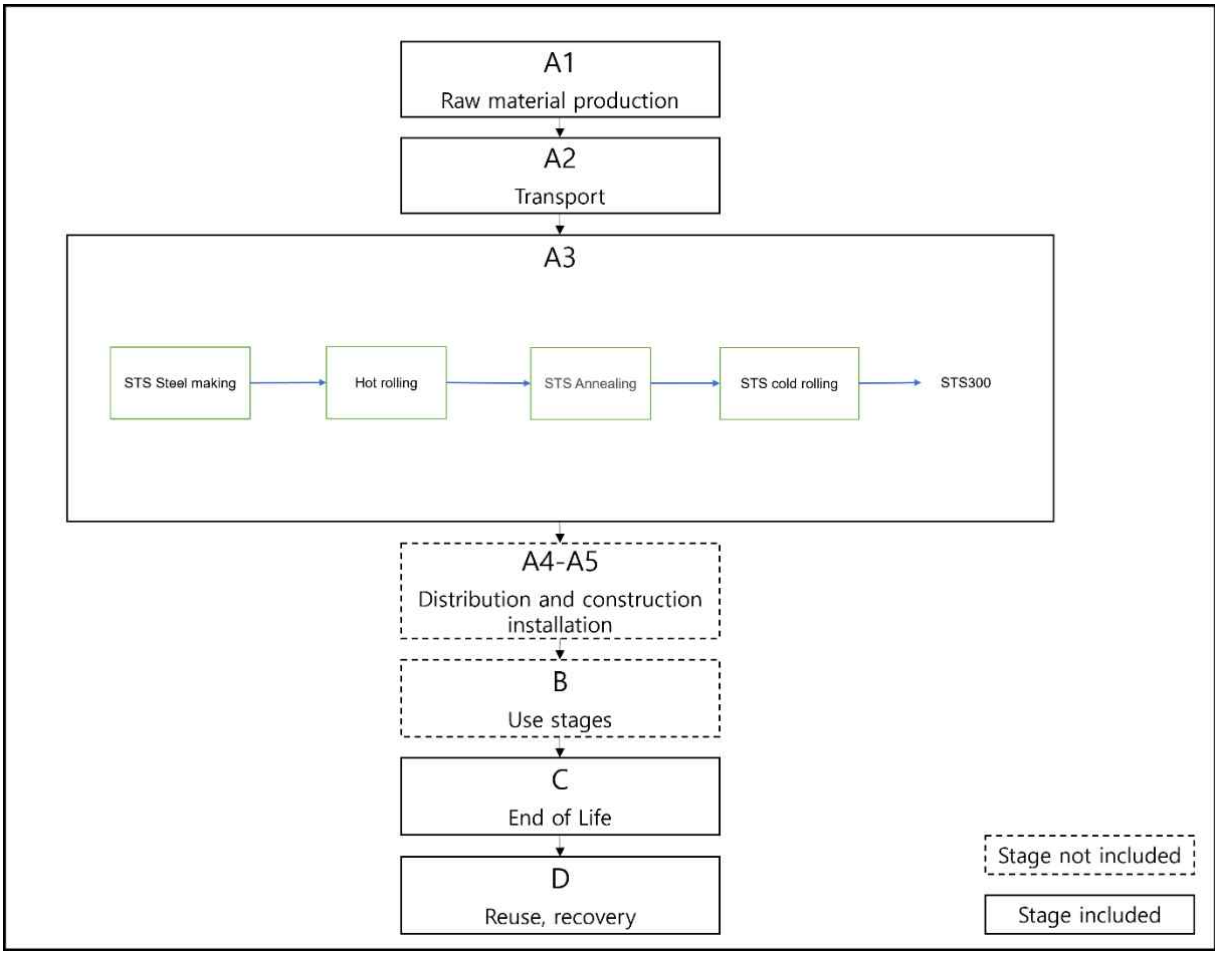
Product description:
This stainless steel is the most widely used of all its kinds. It contains chrome and nickel and features good formability, weldability and anti-corrosion. The most common austenitic stainless steel is Type 304. There are also other notable austenitic stainless steels-Types 316L, 321 and 304J1 to name a few-produced by adding different alloy elements such as Mo, Ti and Cu. Main applications of austenitic stainless steel include kitchen utensils, construction and chemical instruments.

UN CPC code: 41213, 41223, 41224
Geographical scope: The product is produced at the Pohang Steelworks (6262, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do, the Republic of Korea) located in Rep. of Korea. Product use was excluded from the scope of environmental impact calculations in this study. For the end of life stage, the environmental impact was calculated based on product disposal statistics from the World Steel Association, 2020.

LCA information

Functional unit / declared unit: 1 metric ton (1,000 kg)
Reference service life: Not applicable
Time representativeness: The production data are from 2023, and the database data are from 2024 i.e., no data is older than 10 years.
Database(s) and LCA software used: Database used is mainly Ecoinvent 3.10. The LCA software used is SimaPro 9.6.0.1
Description of system boundaries:
EPD scope: a (Cradle to gate with modules C1-C4 and module D(A1-A3+C+D)
LCA is made in “Cradle to gate (A1–A3)” form. All major materials, production energy use and waste are included for product stages A1, A2 and A3. The product is a hot rolled steel. After the customer purchases the product, it is manufactured as a construction product and then applied to the construction site, so, POSCO does not have control over subsequent processes, and the usage data for each sector to which certified products are applied is not managed. Therefore, the installation (A4-A5) and use(B1-B7) are not the responsibility of POSCO. All life cycle impacts are included, see flowchart below. The following information describes the scenarios in the different modules of the EPD. All major raw materials and all the essential energy are included. All raw material and energy flows were included in the environmental impact assessment.

System diagram:



More information: Electricity, waste and ancillary materials in production are calculated as an average weight per produced tonne of all products using yearly production data and the rate for 2023. For manufacturing processes, the specific country mix of electricity is considered. For secondary data on materials' flow information has been gathered from the Ecoinvent 3.10 database. In addition, the allocation is made following the provisions of PCR 2019:14 Construction products (EN 15804:A2) (1.3.4). The transportation of the material is considered in this analysis. The polluter pays and modularity principles are followed. The processes excluded from analysis are environmental impacts from infrastructure, construction, production equipment, and tools that are not directly consumed in the production process and personnel-related impacts.

In this study, environmental impacts were calculated for all inputs of steel plate. In other words, 100% of inflow was considered, and proxy data was not used.

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	rial supply		uring		ion installation		nce		ent	ment	al energy use	al water use	uction demolition		ocessing		covery-Recycling-

Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules declared	X	X	X	ND	ND	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	RoW	RoW	KR	ND	ND	ND	ND	ND	ND	ND	ND	ND	GLO	RER	RoW	RoW	RoW
Specific data used	> 90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X = declared stage, ND = Not Declared

- Raw material supply (A1)

The materials that are needed to produce ‘hot rolled steel’ products are iron ore and cokes from lignite. Since Pohang factories operate a steel making process.

- Transport (A2)

Iron ore, lignite and limestone are transported from Australia, Brazil, Canada, Republic of South Africa, Kingdom of Bahrain, Chile, Russia, Republic of Mozambique, U.S.A, Indonesia, Peru, China and Rep. of Korea.

- Manufacturing (A3)

The processes that are included in the manufacturing phase are the pig iron process, , of which energy consumption, auxiliary material consumption, waste and gaseous emissions have been modeled.

The manufacturing process of module A3 is Rep. of Korea, and the environmental impact of electricity comsumption from national electricity grid was calculated using the "Electricity, medium voltage {KR} | market for electricity, medium voltage | Cut-off" LCI database of Ecoinvent v3.10. Its climate impact is 6.53E-01 $kgCO_2$-eq./kWh of GWP_{total}. (GWP_{fossil} = 6.52E-01 $kgCO_2$-eq./kWh, $GWP_{biogenic}$ = 2.75E-04 $kgCO_2$-eq./kWh, GWP_{luluc} = 3.76E-04 $kgCO_2$-eq./kWh)

The environmental impact of electricity from off-gas power plant in each steelwork was assessed using primary data of the off-gas power plants.

Climate change impact of electricity from off-gas power plant of Pohang steelwork is 2.04E+00 $kgCO_2$-eq./kWh of GWP_{total}. (GWP_{fossil} = 2.04E+00 $kgCO_2$-eq./kWh, $GWP_{biogenic}$ = 6.33E-06 $kgCO_2$-eq./kWh, GWP_{luluc} = 6.24E-06 $kgCO_2$-eq./kWh)

- De-construction demolition (C1)

Energy consumption of a demolition process is on average 10kWh/m^2 (Bozdag, Ö & Seçer, M. 2007). The average mass of a reinforced concrete building is about 1000 kg/m^2. Therefore, energy consumption during demolition is 0,01 kWh/kg. A conservative assumption has been made that the energy consumed during demolition of a steel building is the same as that of a concrete building. The

source of energy is diesel fuel used by work machines. It is assumed that 100% of the waste is collected and transported to the waste treatment centre.

- Transport (C2)

Transportation distance to treatment is assumed as 300 km and the transportation method is assumed to be lorry.

- Waste processing (C3)

Approximately 95% of steel is assumed to be recycled based on World Steel Association, 2020.

- Disposal (C4)

It is assumed that the remaining 5 % of steel is taken to landfill for final disposal.

- Reuse-Recovery-Recycling-potential (D)

Due to the recycling process, the end-of-life product is converted into recycled steel. In module C, it is assumed that 95% of the product is recycled, so 0.950 tons per declared unit is recycled. The target product of this report has a secondary material input of 0 tons at module A. Therefore, the net recycling amount of 0.95 tons.

Content information

Product components	Weight, %	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Iron scrap	59.7%		
Iron scrap(internal)	17.6%		
STS raw material (chromium)	9.3%		
Iron-nickel-chromium alloy	4.3%	100%	
Ferro-silicon	2.5%		
Processing raw material(scrap)	1.8%		
Lignite	1.7%		
Others	3.2%		
TOTAL	100%		
Packaging materials	**Weight, %**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
OPP(Package)	0.8%		
Steel(Package)	88.5%		
Corrugated board(Package)	8.4%		
HDPE(Package)	0.0%		
LDPE(Package)	2.4%		
Rubber(Package)	0.0%		
PET(Package)	0.0%		
PP(Package)	0.0%		
TOTAL	100%		

Results of the environmental performance indicators

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

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.05E+03	6.21E+01	3.05E+01	5.90E+01	3.58E+00	-6.52E+02
GWP-biogenic	kg CO_2 eq.	5.87E+00	1.43E-02	1.16E-02	1.35E-02	4.32E-03	2.84E-01
GWP-luluc	kg CO_2 eq.	9.25E-01	6.99E-03	1.56E-02	6.64E-03	1.00E-03	-1.40E-02
GWP-total	kg CO_2 eq.	2.06E+03	6.21E+01	3.05E+01	5.90E+01	3.59E+00	-6.52E+02
ODP	kg CFC 11 eq.	1.67E-05	9.88E-07	5.18E-07	9.39E-07	6.13E-08	-1.48E-12
AP	mol H^+ eq.	9.78E+00	5.76E-01	8.35E-02	5.47E-01	3.20E-02	-1.45E+00
EP-freshwater	kg P eq.	4.85E-01	1.91E-03	2.56E-03	1.81E-03	1.43E-04	-1.23E-04
EP-marine	kg N eq.	3.20E+00	2.67E-01	2.20E-02	2.54E-01	1.46E-02	-2.56E-01
EP-terrestrial	mol N eq.	2.23E+01	2.90E+00	2.27E-01	2.76E+00	1.58E-01	-2.24E+00
POCP	kg NMVOC eq.	6.52E+00	8.59E-01	1.20E-01	8.16E-01	4.75E-02	-1.04E+00
ADP-minerals&metals*	kg Sb eq.	3.83E-02	2.17E-05	8.54E-05	2.06E-05	2.03E-06	-1.69E-03
ADP-fossil*	MJ	1.74E+04	8.14E+02	4.60E+02	7.73E+02	5.07E+01	-6.21E+03
WDP*	m^3	1.36E+02	1.75E+00	2.34E+00	1.67E+00	4.30E-01	-8.11E+03
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						

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2.05E+03	6.21E+01	3.05E+01	5.90E+01	3.58E+00	-6.52E+02
Additional voluntary indicators e.g. the voluntary indicators from EN 15804 or the global indicators according to ISO 21930:2017							

Resource use indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.78E+03	3.70E+00	4.39E+00	3.51E+00	2.68E-01	2.00E+01
PERM	MJ	4.09E+02	9.30E-01	1.44E+00	8.83E-01	7.81E-02	-2.09E-01
PERT	MJ	2.19E+03	4.63E+00	5.82E+00	4.40E+00	3.46E-01	1.98E+01
PENRE	MJ	1.87E+04	8.65E+02	4.89E+02	8.22E+02	5.39E+01	-6.49E+03
PENRM	MJ	6.27E-01	6.78E-03	1.50E-02	6.44E-03	3.70E-03	0.00E+00
PENRT	MJ	1.87E+04	8.65E+02	4.89E+02	8.22E+02	5.39E+01	-6.49E+03
SM	kg	5.89E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	1.14E+01	6.39E-02	7.34E-02	6.07E-02	1.17E-02	-2.84E+00
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						

[1] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

Waste indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	6.20E-02	5.47E-03	2.90E-03	5.20E-03	3.29E-04	0.00E+00
Non-hazardous waste disposed	kg	1.27E+02	1.16E+00	4.00E+01	1.11E+00	4.99E+01	0.00E+00
Radioactive waste disposed	kg	2.88E-02	8.91E-05	1.00E-04	8.47E-05	6.53E-06	0.00E+00

Output flow indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	9.50E+02	0.00E+00	0.00E+00
Materials for energy recovery	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy, thermal	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Additional environmental information

Regulated Hazardous Substance

- The base material of the steel plate is iron. No substances required to be reported as hazardous are associated with the production of this product.

Dangerous Substance

- All chemicals used in the Pohang steelworks are managed in accordance with the Korean Toxic Chemicals Control Act. Substances listed on the Candidate List of Substances of Very High Concern (SVHC) for authorization published by European Chemicals Agency (ECHA) are not contained in the steel in declarable quantities.

Additional social and economic information

Not applicable

Information related to Sector EPD

This is an individual EPD.

References

General Programme Instructions of the International EPD® System. Version 4.0.
PCR 2019:14 Construction products (EN 15804:A2) (1.3.4)
EN 15804:2012+A2:2019. Sustainability of construction works – Environmental product declarations –
ISO 14025:2006. Environmental labels and declarations — Type III environmental declarations — Principles and procedures
ISO 14040:2006. Environmental management – Life cycle assessment – Principles and framework
ISO 14044:2006. Environmental management – Life cycle assessment – Requirements and guidelines
LCA software SimaPro 9.6.0.1

THE INTERNATIONAL EPD SYSTEM

www.epd-southkorea.com

www.environdec.com