

# Environmental Product Declaration



THE INTERNATIONAL EPD SYSTEM



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

## Hot rolled steel

from

POSCO Co., LTD



Programme:

The International EPD® System, [www.environdec.com](http://www.environdec.com)

Programme operator:

EPD International AB

EPD registration number:

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*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](http://www.environdec.com)*



## General information

### Programme information

<b>Programme:</b>	The International EPD® System
<b>Address:</b>	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
<b>Website:</b>	<a href="http://www.environdec.com">www.environdec.com</a>
<b>E-mail:</b>	<a href="mailto:info@environdec.com">info@environdec.com</a>

### 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: 41211(Flat-rolled products of non-alloy steel, not further worked than hot-rolled, of a width of 600 mm or more)

PCR review was conducted by: The International EPD® System Technical Committee  
Visit [www.environdec.com](http://www.environdec.com) for full list of members.

Chair of the PCR review: *Claudia A. Peña, University of Concepción, Chile.*

The review panel may be contacted via [info@environdec.com](mailto:info@environdec.com)

#### Life Cycle Assessment (LCA)

LCA accountability: *Yoosung Park, H.I.Pathway Co.,Ltd.*

#### 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

Contact: Sung-Hyun Choo, e-mail: sh.choo@posco.com, tel: +82 61 790 1325

Description of the organisation:

### Named 'World's Most Competitive Steel Company' for 13 consecutive years by World Steel Dynamics

POSCO is an integrated steel producer, specializing in the production of hot rolled, cold rolled, and stainless steel. It boasts ownership of Pohang and Gwangyang Steelworks, which are globally recognized as the largest producers of crude steel. In its global operations, POSCO manages 13 production subsidiaries (comprising 3 upstream processes and 10 single-stand rolling mills) and 26 processing centers spread across 13 countries abroad.

#### Vision and Core Values

Management Philosophy

**Corporate Citizenship: Building a Better Future Together**

Management Vision

**With POSCO**

Areas of Activity

#### BUSINESS

**Biz Partners  
(Contractors,  
Customers, Suppliers)**

- Fair, transparent, and ethical practices
- Shared growth
- Offering the best products and services

#### SOCIETY

**Communities & Individuals  
(Local Communities  
and Neighbors)**

- Empathizing with pressing social issues and contributing to the development of solutions
- Developing local communities and engaging in environmental management practices
- Participating in philanthropic activities

#### PEOPLE

**POSCO Group  
Employees**

- Creating a safe and pleasant work environment
- Upholding fair human resource practices and stable labor-management relations
- Embracing diversity and helping employees achieve a work-life balance

Ideal Skilled Personnel Profile

**Innovative and talented personnel with an active mindset of active and ethical behavior**

Code of Conduct

Substance

Execution

Pragmatism

Core Values

Safety

Win-Win

Ethics

Creativity

### Company Overview

<b>Company Name</b>	POSCO	<b>Business Description</b>	Ironmaking, steelmaking, and the production and sales of rolled steel products
<b>CEO</b>	Si-Woo Lee	<b>Product</b>	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
<b>Headquarters</b>	6261, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do (Goedong-dong), Republic of Korea		
<b>Founded</b>	March 2, 2022(Corporate spin-off, Unlisted new company)	<b>Website</b>	www.posco.co.kr

### POSCO Overseas Subsidiaries



**13** production subsidiaries and **26** processing centers across **13** countries

\* Based on steel corporations where we have obtained management control

## Business Strategy

In March 2022, POSCO was relaunched as a sustainable steel business, revamping its management system and bolstering its market leadership through efforts to enhance its specialty in steel and execution capabilities. In the midst of the rapid deterioration of the steel market in the latter half of the year, September witnessed the devastating flooding of the Naengcheon caused by Typhoon Hinnamnor, inflicting significant damage on our Pohang Steelworks and marking a challenging year filled with heartache. However, 2023 will be a year of powerful resurgence, on in which we will leverage our ability to overcome challenges as a stepping stone for growth. As global austerity measures and geopolitical tensions escalate, we are confronted with a multifaceted crisis characterized by shrinking markets, surging costs, and unstable supply chains, which in turn amplifies economic uncertainty. At the same time, competition is intensifying as investments in eco-friendly sectors for sustainable growth and the race to secure a foothold in future markets are rapidly escalating. Amidst these challenges, POSCO is poised to take a major leap forward by capitalizing on growth opportunities and securing our sustainable competitive advantage. With the monumental transition towards a low-carbon, eco-friendly era, we remain steadfast in our pursuit of continuous technological innovation and enhancing our ESG management strategies in an ever-evolving business landscape. We are more committed than ever to generating the social value that is at the heart of our corporate citizenship.

## GREEN Framework

Guided by our corporate citizenship management philosophy, POSCO is promoting an eco-friendly leadership, fostering a sustainable social community, and practicing an ESG management philosophy via an advanced management system. As part of this commitment, we have developed a five key ESG initiatives, encompassing Environmental (E), Social (S), and Governance (G) under the keyword GREEN, a term symbolic of our focus on sustainable future materials. To implement and systematically manage these ESG commitments, POSCO has identified nine core areas linked to the GREEN framework. These efforts are designed to build a consensus on ESG management practices throughout the organization while enhancing and embedding employee understanding.



We commit to combating climate change by advancing low-carbon production processes, improving energy efficiency, and developing environmentally friendly products. In this process, we aim to minimize our impact on the environment, driving towards a future where humans and nature can thrive together.



We are committed to assisting our business partners in attaining the highest standards in all ESG areas, as we view the ongoing efforts of fostering sustainability from a value chain perspective.



We are dedicated to fostering a safe work environment in a culture that respects human rights and diversity, cultivating innovative and skilled personnel that can navigate the ever-changing industry landscape with the goal of making our company a place of happiness for all employees.



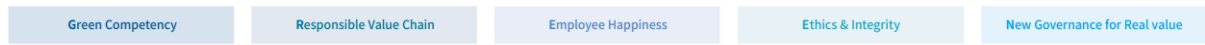
Every business decision we make must be rooted in stringent ethical beliefs, as we continuously work to advance our ethical standards and compliance levels while diligently striving to foster a fair trading environment.



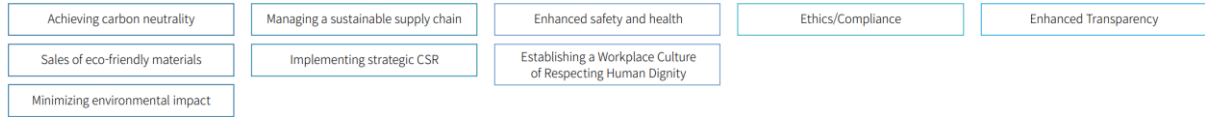
Through enhancing our management system and transparency in our information disclosures, we believe we can strengthen ESG communications and substantially increase the real value of POSCO.

**GREEN Framework**

Strategy

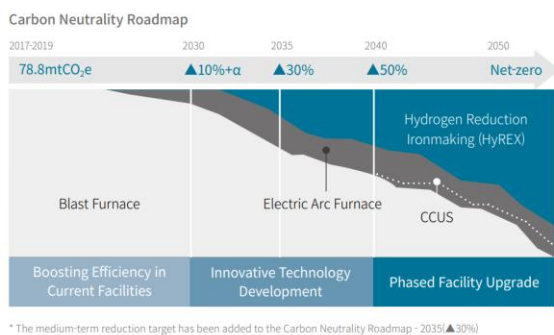


Core Areas



**Low Carbon Response Strategy**

POSCO has formulated a 2050 carbon neutrality roadmap, outlining a comprehensive medium- to long-term strategy that covers raw materials, investments, energy, and technological development. This roadmap serves as a detailed plan to effectively execute POSCO's vision for carbon neutrality by 2050. Our goal is to significantly reduce our carbon emissions: 30% by 2035, 50% by 2040, using our average emissions of 78.8 million tons for the 3-year period between 2017 and 2019 as the benchmark, and to achieve full carbon neutrality by 2050. Our low carbon response strategy is categorized into three core areas: Green Process, Green Product, and Green Partnership. Our Green Process initiative involves the development and investment in technologies designed to lower GHG emissions across our operations, and includes measures such as enhancing energy efficiency in steel and materials production, advancing low-carbon investment and technological development, increasing the utilization of steel scrap, implementing CCUS technologies, and bringing hydrogen-based steelmaking technologies to commercial use. Being committed to the Green Product strategy, we produce low-carbon steel, innovative materials, and emissions-reducing by-products, expanding their supply to contribute to avoided emissions. Moreover, we plan to reinforce our Green Partnership by transparently disclosing carbon information to investors, customers, and governments, while fostering collaboration on domestic and international carbon policies and technology development.



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
- Gwangyang Steelworks, 20-26, Pokposarang-gil, Gwangyang-si, Jeollanam-do, the Republic of Korea

[Overview]

Name: POSCO, Establishment April 1, 19568

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: Hot Rolled Steel

Product identification:

Hot-rolled steel products are divided into two groups: hot-rolled steel produced by hot strip mill and hot-rolled steel plates, which are made by cutting material from hot-rolled coils. Some of the hot-rolled coils produced at our hot-rolling plants are sold as finished products while others are used as intermediary materials for cold-rolled or electrical steel production, thus being reprocessed into high value added products. Hot-rolled steel products are widely used in many different industries due to their high strength as well as good weldability, machinability and corrosion resistance.

Types		JIS	SAE	DN	POSCO	
High carbon steel for machine structures	General high carbon steel	S30C, S35C, S40C, S45C, S50C, S55C	1030, 1035, 1040, 1045, 1050, 1055	C30, C45, C50, C55	POS20FB, POS45FB	
	Alloy high carbon steel	Ni-Cr-Mo	SNCM220	8620, 8622, 8660	20NiCrMo2, 20NiCrMoS2	-
		Cr	SCr415, 420, 430	5046	34Cr4, 34CrS4	POS1062Cr, 1077Cr
		Cr-Mo	SCM415, 430, 435, 440	4120, 4130, 4135, 4140	34CrMo4, 34CrMoS4	-
		Mn	SMn443	1527, 1536, 1541, 1552	34CrMn4, 34CrMnS4	-
		B	-	10B22, 15B27, 15B35	20MnB5, 30MnB5, 27MnCrB5	Autobeam, STAB, POS10B22, POSPM35P
		Others	SUP9	6150	50CrV4, 51CrV4	POS1031MA, 1047MA
High carbon steel for tools	General high carbon steel	S60C, S65C, S70C, S75C, SK65, SK75, SK85, SK95, SK105, SK120	1060, 1065, 1070, 1075, 1080, 1085, 1090, 1095	C80W1	-	
	Alloy high carbon steel	SKS51, SKS81	-	75Cr1	POS10A0Cr, POS10A2Cr	

Product description:

High carbon steel is used where greater strength is required and this high strength is obtained through final heat treatment. There are two product groups: high carbon steel products with carbon content of more than 0.30wt.% or those with added alloy elements such as Mn, Cr, Mo, B, and Ni with carbon content of more than 0.15wt.%.

The final specified physical properties of high carbon steel are achieved mostly through the process of hot rolling, pickling, cold rolling and annealing. Final heat treatment is performed after the steel is processed and made into parts.

High carbon steel can be broadly categorized into high carbon steel for machine structures, high carbon steel for tools and construction products. Then, each category can be divided into general high carbon steel and alloy high carbon steel.

UN CPC code: 41211

Geographical scope: The product is produced at the Pohang Steelworks (6262, Donghaean-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do, the Republic of Korea) and Gwangyang Steelworks(20-26, Pokposarang-gil, Gwangyang-si, Jeollanam-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

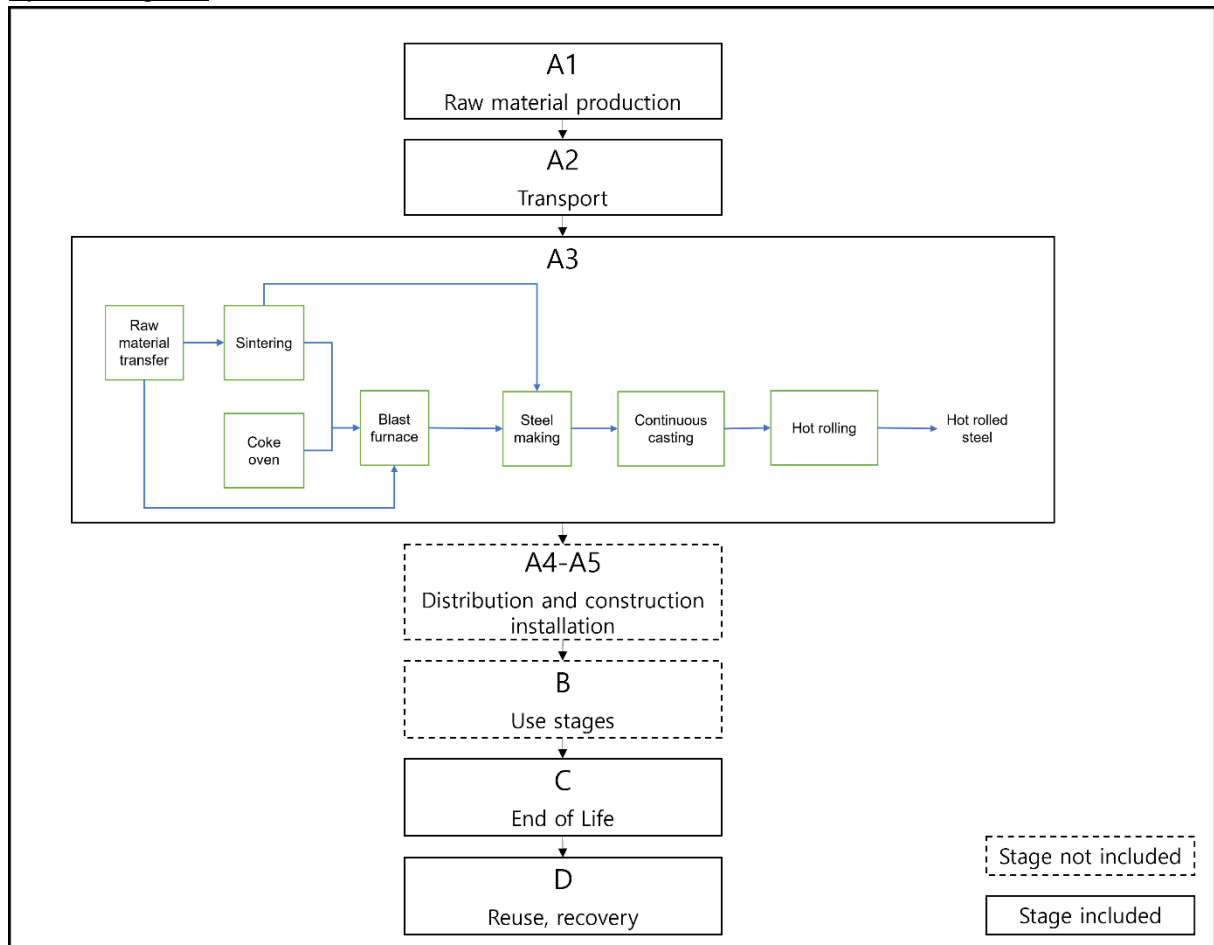
Time representativeness: The production data are from 2023, and the database data are from 2022 i.e., no data is older than 10 years.

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:

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 3.9.1. 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
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
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	> 80%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	Not relevant			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	6.17%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

\* The reported environmental impact is a weighted average based on product production by factory.

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 and Gwangyang 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 consumption from national electricity grid was calculated using the "Electricity, medium voltage {KR} | market for electricity, medium voltage | Cut-off" LCI database of Ecoinvent v3.9.1. Its climate impact is  $7.00E-01$  kgCO<sub>2</sub>-eq./kWh of GWP<sub>total</sub>. (GWP<sub>fossil</sub> =  $6.97E-01$  kgCO<sub>2</sub>-eq./kWh, GWP<sub>biogenic</sub> =  $2.94E-03$  kgCO<sub>2</sub>-eq./kWh, GWP<sub>luluc</sub> =  $3.71E-04$  kgCO<sub>2</sub>-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<sub>2</sub>-eq./kWh of GWP<sub>total</sub>. (GWP<sub>fossil</sub> =  $2.04E+00$  kgCO<sub>2</sub>-eq./kWh, GWP<sub>biogenic</sub> =  $7.13E-06$  kgCO<sub>2</sub>-eq./kWh, GWP<sub>luluc</sub> =  $6.14E-06$  kgCO<sub>2</sub>-eq./kWh)

Climate change impact of electricity from off-gas power plant of Gwangyang steelwork is  $1.72E+00$  kgCO<sub>2</sub>-eq./kWh of GWP<sub>total</sub>. (GWP<sub>fossil</sub> =  $1.72E+00$  kgCO<sub>2</sub>-eq./kWh, GWP<sub>biogenic</sub> =  $1.18E-05$  kgCO<sub>2</sub>-eq./kWh, GWP<sub>luluc</sub> =  $8.85E-06$  kgCO<sub>2</sub>-eq./kWh)

#### - De-construction demolition (C1)

Energy consumption of a demolition process is on average 10kWh/m<sup>2</sup> (Bozdog, Ö & Seçer, M. 2007). The average mass of a reinforced concrete building is about 1000 kg/m<sup>2</sup>. 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 ore	62.4%		
Lignite	20.0%		
Limestone	6.9%		
Iron scrap	3.4%	100%	
Lime	2.9%		
Processing raw material(Steelmake)	2.2%		
Dolomite	0.9%		
Others	1.3%		
TOTAL	100%		
Packaging materials	Weight, %	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Steel band	99.9%		
Fastener	0.1%		
TOTAL	100%		

## Results of the environmental performance indicators

### Mandatory impact category indicators according to EN 15804+A2(EF3.1)

Results per functional or declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO <sub>2</sub> eq.	2.15E+03	6.27E+01	3.12E+01	5.96E+01	4.04E+00	-1.59E+03
GWP-biogenic	kg CO <sub>2</sub> eq.	2.63E+00	5.05E-03	5.24E-03	4.80E-03	4.36E-04	5.84E-01
GWP-luluc	kg CO <sub>2</sub> eq.	4.62E-01	5.45E-03	1.30E-02	5.17E-03	1.94E-03	-3.40E-02
GWP-total	kg CO <sub>2</sub> eq.	2.15E+03	6.27E+01	3.12E+01	5.96E+01	4.04E+00	-1.58E+03
ODP	kg CFC 11 eq.	6.57E-06	9.60E-07	5.01E-07	9.12E-07	6.74E-08	-3.60E-12
AP	mol H <sup>+</sup> eq.	6.99E+00	5.66E-01	7.95E-02	5.38E-01	3.32E-02	-3.53E+00
EP-freshwater	kg P eq.	1.35E+00	1.83E-03	2.53E-03	1.74E-03	1.67E-04	-2.99E-04
EP-marine	kg N eq.	4.07E+00	2.63E-01	2.02E-02	2.49E-01	1.50E-02	-6.22E-01
EP-terrestrial	mol N eq.	1.71E+01	2.87E+00	2.18E-01	2.73E+00	1.64E-01	-5.46E+00
POCP	kg NMVOC eq.	4.74E+00	8.57E-01	1.20E-01	8.14E-01	5.00E-02	-2.52E+00
ADP-minerals&metals*	kg Sb eq.	1.61E-03	2.24E-05	8.80E-05	2.13E-05	3.45E-06	-4.10E-03
ADP-fossil*	MJ	1.35E+04	8.20E+02	4.69E+02	7.79E+02	5.71E+01	-1.51E+04
WDP*	m <sup>3</sup>	6.50E+01	1.78E+00	2.40E+00	1.69E+00	4.64E-01	-1.97E+04
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 <sup>1</sup>	kg CO <sub>2</sub> eq.	2.15E+03	6.27E+01	3.12E+01	5.96E+01	4.04E+00	-1.59E+03

*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	1.55E+02	4.08E+00	4.72E+00	3.87E+00	3.52E-01	9.53E+02
PERM	MJ	1.22E+02	9.59E-01	1.44E+00	9.11E-01	9.97E-02	-5.99E-01
PERT	MJ	2.77E+02	5.04E+00	6.16E+00	4.78E+00	4.52E-01	9.52E+02
PENRE	MJ	1.43E+04	8.72E+02	4.99E+02	8.29E+02	6.07E+01	-1.60E+04
PENRM	MJ	1.52E+00	6.74E-03	2.29E-02	6.41E-03	1.06E-02	0.00E+00
PENRT	MJ	1.43E+04	8.72E+02	4.99E+02	8.29E+02	6.07E+01	-1.60E+04
SM	kg	1.35E-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 <sup>3</sup>	1.13E+00	5.87E-02	7.10E-02	5.58E-02	1.22E-02	-6.90E+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						

<sup>1</sup> 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<sub>2</sub> 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	3.10E-02	5.68E-03	3.16E-03	5.39E-03	3.89E-04	0.00E+00
Non-hazardous waste disposed	kg	2.08E+01	5.02E-01	3.99E+01	4.77E-01	5.02E+01	0.00E+00
Radioactive waste disposed	kg	6.10E-03	9.02E-05	1.01E-04	8.57E-05	7.83E-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 and Gwangyang 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<sup>®</sup> 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 9.5.0.1

