Environmental Product Declaration

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

Galvanized steel sheets(ALSUSTA)

Programme:	The International EPD® System, www.environdec.com
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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

General information

Product information

Programme:	The International EPD® System
Address:	EPD International AB, Box 210 60, SE-100 31 Stockholm, Sweden.
Website:	www.envirodec.com; www.environdecindia.com
E-mail:	Info@envirodec.com

Product category rules (PCR): PCR 2019:14 Construction products, version 1.3.4
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Massimo Marino Contact via info@environdec.com
Independent third-party verification of the declaration and data, according to ISO 14044:2006: EPD process certification ■ EPD verification
Third party verifier: <name, organisation and signature of the third party verifier> Ik Kim(Smart-Eco co,)
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 programs, 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14044.

LCA Study & EPD Design Conducted by

Byungjik Lee,

LCA Consultant, bj.lee@ecoplus.kr; www.ecoplus.kr

Sungwon Hwang,

LCA Consultant, sw.hwang@ecoplus.kr; www.ecoplus.kr

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EPDs within the same product category but registered in different EPD programs, 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14044.

Company information

Owner of the EPD:

POSCOSTEELEON Company Limited

Head office Address :

173, Cheolgang-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do

Factory Address :

173, Cheolgang-ro, Nam-gu, Pohang-si, Gyeongsangbuk-do

Contacts:

jklee3624@poscosteeleon.com

For more information on this environmental statement, please contact:

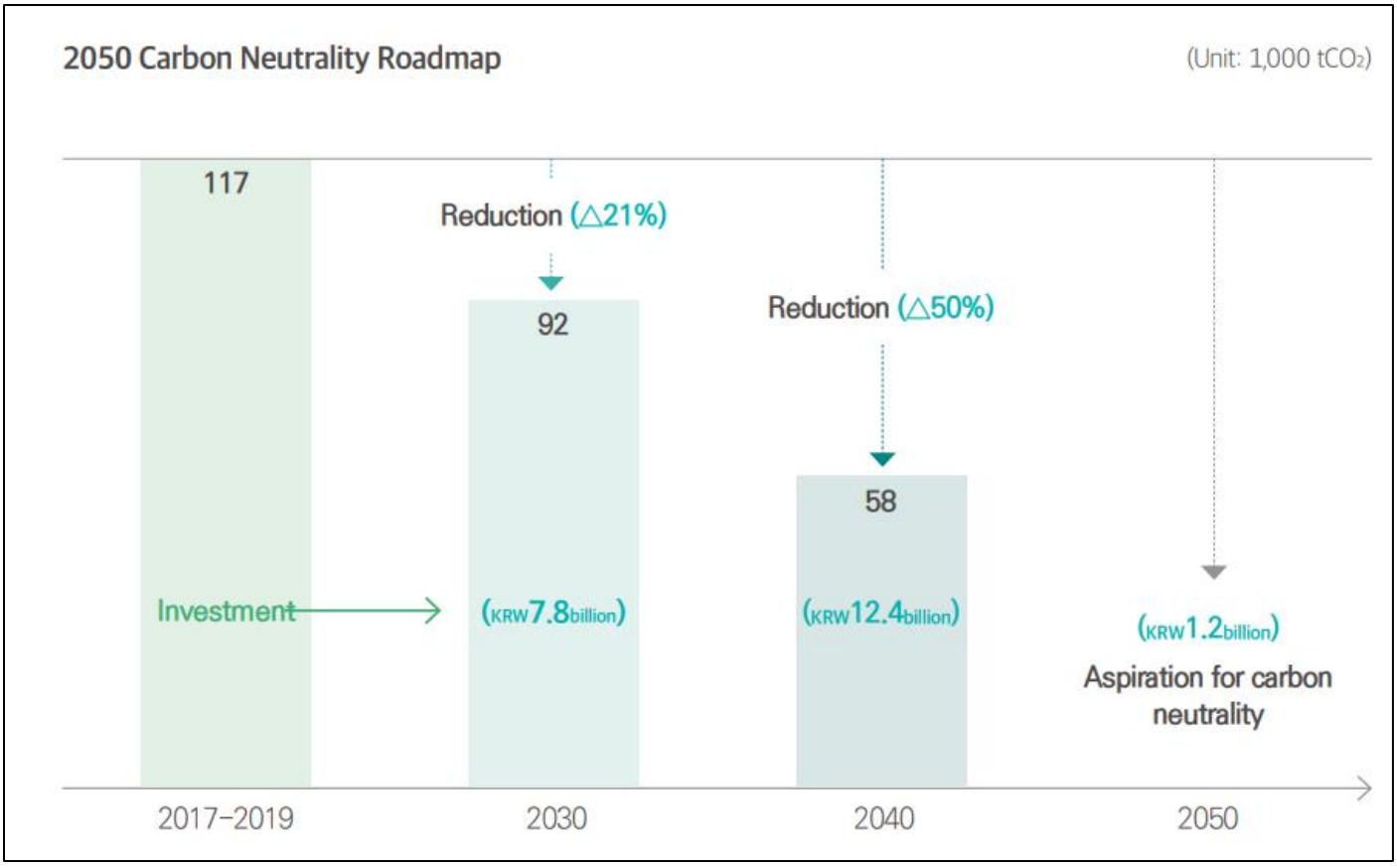
Tel : 054-280-6653
Fax : 054-280-6623
E-mail : jklee3624@poscosteeleon.com

Company Overview

Since its founding in 1988 as a specialist in steel surface treatment, POSCO STEELEON has led the plated/colored steel sheet market by pursuing continuous technological innovations and supplying products of the highest quality. Our main products are aluminum-, zinc-plated and color-coated steel sheets, which are supplied to various industrial sectors including the construction, home appliance, and automobile sectors in major global markets such as North America, China, and Europe. Based on our consolidated financial statements for 2023, our domestic sales amounted to KRW 668 billion (approximately 57.7%), while our overseas sales amounted to General Status KRW 491 billion (approximately 42.3%).

POSCOSTEELEON's Carbon Neutrality Action Plan

We are committed to implementing eco-friendly management to protect the global environment according to our previous declaration of "2050 Carbon Neutrality". To achieve this, POSCO STEELEON has set a stepby-step reduction target of 21% in 2030 and 50% in 2040, and has established a plan to gradually increase the related investment amount. The reduction target was determined based on the average emissions from 2017 to 2019. Some 54% of our GHGs are generated from direct emissions. In order to achieve the 21% reduction target by 2030, we will implement detailed plans in 10-year increments based on the reduction performance of direct and indirect emissions.



Products Information

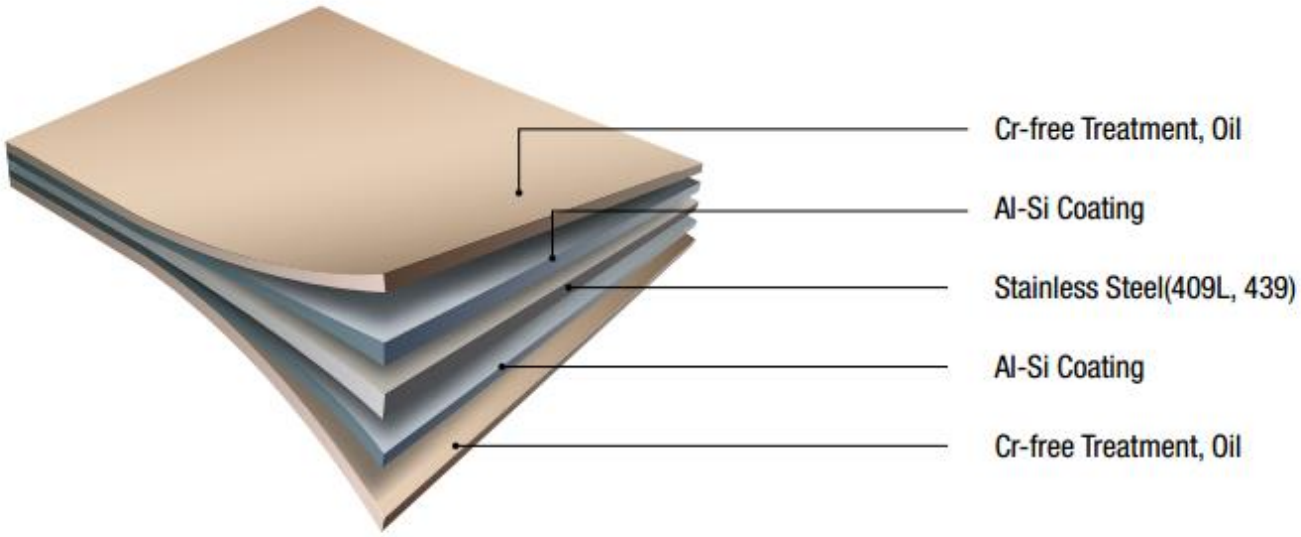
The following Life Cycle Assessment study is about the production of three types of Galvanized steel sheet used for various purposes depending on the galvanized properties.

Product name : Galvanized steel sheet

The productive process includes :

POSCO STEELEON manufactures products recognized for the highest quality in the galvanized steel sheet industry thanks to its unrivaled technological prowess, and now aims to become a worldclass surface treatment steel sheet company by pursuing continuous technological innovation. POSCO STEELEON produces the highest quality products in the field of coated steel based on its unrivaled technological expertise and is concentrating all its efforts on becoming a world-class company specializing in surface-treated steel sheets based on continuous technological innovation.

ALSUSTA



UN CPC Code : 41231

Geographical scope : A1-A3 : South Korea, C-D : Europe

It is assumed that the product is produced in Korea, but use and disposal are carried out in Europe.

LCA information

Functional unit / declared unit:

The declared unit is 1000 kg of manufactured stainless steel.

Description of system boundaries:

Cradle to gate (A1-A3) with options, modules C1-C4, module D

for manufactured stainless steel.

The below table is the life cycle stages covered and modules for the assessment.

According to the above system boundaries, the declared stages and associated mandatory modules are as follows.

(1) A1-A3: In this stage, the mandatory modules are A1, A2 and A3. Module A1 means raw material supply. Module A2 means transportation. Module A3 means manufacturing.

(2) C1-C4: In this phase, the mandatory modules are C1, C2, C3 and C4. Module C1 means De-installation/Demolition/Disassembly. Module C2 is transportation. Module C3 is waste processing. Module C4 is disposal.

(3) D: The benefits and loads beyond the system boundary stage is declared. The mandatory module is D. It means Reuse/ recovery/ recycling potential.

Database(s) and LCA software used:

Ecoinvent v3.10 (allocation, cut-off by classification) database and SimaPro v9.6 software have been used for the LCA calculations. LCA methods used are EN 15804:2012+A2:201 compliant.

EN 15804:2012+A2:2019/AC:2021 Method

The environmental impact calculation used to perform EN 15804:2012+A2:2019/AC:2021 was performed according to methodology EF 3.1

Data quality and data collection:

1. Data collection of the study

1.1. Introduction of data collection

As a result of the application of the cut-off rule, the data of coil and ingot are collected.

Below life cycle stages are followed the PCR 2019:14 Construction products, version 1.3.4. The detailed data collection per life cycle stages is as follows.

1.2. Raw material supply(A1)

Coil and ingot are subject to raw material input data collection due to the cutoff.

1.3. Transportation(A2)

Coil, Ingot are targeted for data collection in the case of transport.

1.4. Manufacturing(A3)

Coil and ingot are targeted for data collection in the case of raw material.

Electricity, LNG, Steam, Top water are targeted for data collection in the case of utility.

Wastewater sludge, synthetic resins, waste refractories, waste glass fiber, waste machine oil, waste insulating oil, other waste oil, scrap, waste water, vapor are targeted for data collection in the case of waste.

1.5. Deconstruction demolition stage(C1)

C1 is the deconstruction-demolition stage. This stage refers to the energy consumption of RC buildings during their life cycle (2007, Bozdağ & M. Seçer).

According to the reference, the average energy consumption of the demolition process is 10 kWh/m2. The average mass of a reinforced concrete building is about 1000 kg/m2.

A conservative assumption was made that the energy consumed in the demolition of a steel building is equivalent to the energy consumed in the demolition of a concrete building. The energy source is diesel fuel used in the working machinery. Therefore, the energy consumption during demolition is 0.01 kWh/kg. 0.01 kWh/kg was calculated by dividing 10 kWh/m2 by 1000 kg/m2.

1.6. Transport stage(C2)

C2 is the transport stage. There is no data for this stage. So, the transport distance is assumed to be 100 km depending on the PEP PSR C-2 distance.
So, the distance from the demolition site to the treatment site by lorry is 100.00km. The mass is 1.00kg and the mass unit is applied.
The ton*km calculation amount is 1.00E-01 ton*km. It is calculated by multiplying the distance of 100.00km by the mass of 1.00kg (=0.01ton).
The database Transport, Freight, Lorry 16-32 metric tonnes is used.

1.7. EoL (End of Life) stage(C3-C4)

C3-C4 is the EoL (End of Life) stage. It is a steel product, so the recycling and reuse rates are applied according to the steel recycling rate. The recycling and reuse rate also applies to Module D.
Certification is used for Europe, so European recycling rate standards are applied.

In stage C3, the recycling rate of steel products is assumed to be 95%, based on the table 1 in Annex C of the European Commission's Product Environmental Footprint Guidance.
Firstly, the mass of the product is assumed to be 1 kg. Second, the 95% recycling rate is applied.
As a result, the amount of metal recycled is 0.95kg and the amount of metal buried is 0.05kg. This is calculated by subtracting 0.95 kg of recycled amount from 1 kg of product at stage C3.

In C4 it is the final disposal stage. Therefore, the 0.05 kg residual amount from stage C3 is applied. It is assumed that the remaining 5% of the steel is taken to a landfill for final disposal. The distance to the landfill is assumed to be 25 km and the mass is 1kg (=0.001 tonne). The result of the calculation of ton*km is therefore 0.025 ton*km. The linked dataset is Transport, freight, lorry 16-32 tonnes, which is the average freight load factor.

1.8. Reuse, recovery, recycling, potential stage(D)

Stage D is about the recycled and reused metals. So, the 95% recycling rate in stage C3 is applied, but the same amount is put back into the product, so the -0.95kg is applied and the dataset is the same as the dataset associated with the raw material coil in stage A1.

2. Data quality assessment

According to the requirements in PCR 2019:14 Construction products, version 1.3.4, application of generic and specific data shall follow the below table.

Modules	Module A1-A3		A4 and A5	B1-B7	C1-C4
	Production of commodities, raw materials	Product manufacture	Installation processes	Use processes	End-of-life processes
Process type	Upstream processes	Processes the manufacturer has influence over	Downstream processes		
Data type	Generic data	Manufacturer's average or specific data	Generic data		

Module A1-A3 is divided into 2 modules. One is the production of raw materials. In this module, generic data are publicly available. No specific data are used except for transport. Data on extraction and production of raw materials and production of primary and secondary packaging are not collected because there are so many suppliers that individual data collection is not possible. Therefore, the most similar database is linked. The other is product manufacture. In this module the specific data is collected and used.

Specific data includes actual manufacturing process for steel, waste generated during manufacturing and its treatment.

The data quality assessment is carried out on the specific data used according to EN 15804:2012+A2:2019. The data quality assessment shall cover the three areas, time-related coverage, geography coverage and technology coverage. The data quality assessment on these three areas is advanced on the basis of Annex E in the EN 15804:2012+A2:2019. In Annex E, the following schemes shall be applied for the data quality assessment of generic and specific data.

As a result, Geographical Representative, Technical Representative, Time Representative are as follows. First, the data quality of the geographical representative is "very good". This is because the specific data are used. Thus, the dataset is fully representative for the geography specified in the "location" specified in the metadata.

Second, the data quality of the technical representative is "very good". This is because there is only one plating plant. The technology used is therefore accurately described.

Finally, the data quality of the time representative is "very good". Because the range of specific data collected is "2023.01 ~ 2023.12"

and the used version of ecoinvent is 3.10, so the "data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years.

Data quality level and criteria from the Product Environmental Footprint Category Rules

Quality level	Geographical representative	Technical representative	Time representative
Very good	The processes included in the data set are fully representative for the geography stated in the "location" indicated in the metadata.	Technology aspects have been modelled exactly as described in the title and metadata, without any significant need for improvement	Data are not older than 0 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years)
Good	The processes included in the data set are well representative for the geography stated in the "location" indicated in the metadata.	Technology aspects are very similar to what described in the title and metadata, with need for limited improvements. For example: use of generic technologies' data instead of modelling all the single plants.	Data are not older than 3 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years)
Fair	The processes included in the data set are sufficiently representative for the geography stated in the "location" indicated in the metadata. E.g. the represented country differs but has a very similar electricity grid mix profile	Technology aspects are similar to what described in the title and metadata but merits improvements. Some of the relevant processes are not modelled with specific data but using proxies.	Data are not older than 6 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years)
Poor	The processes included in the data set are only partly representative for the geography stated in the "location" indicated in the metadata. E.g. the represented country differs and has a substantially different electricity grid mix profile	Technology aspects are different from what described in the title and metadata. Requires major improvements.	Data are not older than 10 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years, confirmed by the reviewer(s))
Very poor	The processes included in the data set are not representative for the geography stated in the "location" indicated in the metadata.	Technology aspects are completely different from what described in the title and metadata. Substantial improvement is necessary.	Data are older than 10 years as expressed in the ILCD field("data set valid until" and the difference between the "valid until" and the "reference year" is not higher than 8 years)

Allocation:

The products produced in the plating factory are ALZASTA, MACOSTA, ALSUSTA and ALCOSTA.
There are 1,2 CGL lines in the plating factory. In 1 CGL line only ALZASTA and ALCOSTA products are produced. In 2 CGL line, only MACOSTA, ALSUSTA and ALCOSTA products are produced.
Utility consumption and waste generation are measured as follows. LNG, tap water, steam, wastewater sludge, synthetic resins, waste refractories, waste glass fiber, waste machine oil, waste insulating oil, other waste oil, and waste water data are measured based on the entire factory unit. Electricity and LNG consumption are also measured based on the 1, 2 CGL line.

[Raw material input]
No allocation is applied as the raw material input data is managed by product.

[Utility & Waste]
Electricity managed by line is allocated by calculating the monthly production ratio of ALZASTA and ALCOSTA products (sum of production ratio of both products is reported as 100%) for 1 CGL line.
For 2 CGL lines, the calculation and allocation is based on the monthly production ratio of MACOSTA, ALSUSTA and ALCOSTA products (the sum of the production ratio of both products is reported as 100%). LNG consumption data is managed on a line-by-line and factory-wide basis. The allocation for 1 CGL line is calculated based on the monthly production ratio of ALZASTA and ALCOSTA products (the sum of the production ratio of both products is reported as 100%). The allocation for 2 CGL line is calculated based on the monthly production ratio of MACOSTA, ALSUSTA and ALCOSTA products (the sum of the production ratios of both products is reported as 100%).
In the case of LNG, the consumption data is managed by the unit of the whole of the factory. The allocation of the LNG is calculated based on the monthly production ratio of three products (the total sum of production ratio is 100%).
Steam, water(tap water), waste(wastewater sludge, synthetic resins, waste refractories, lung support, other waste wood, waste glass fiber, waste machine oil, waste insulating oil, other waste oil) and wastewater(wastewater), which are managed throughout the factory, are allocated by calculating the monthly production rate of the three products (the sum of the production rate of the three products is reported as 100%) since there are only three products produced in the plating factory: ALZASTA, ALCOSTA, ALSUSTA and MACOSTA.

Cut-off rules:

More than 95% of the total inflows (mass and energy) per modules are considered, in compliance with the used PCR. This PCR is designed to apply the extended cut-off rule of ISO 21930, and thus the cut-off was carried out by including substances with an environmental impact of up to 95%.

Category			Total	Cumulative mass contribution	cut-off
Raw material	Input	Coil	5.66E+07	98.49%	
Raw material	Input	Ingot	7.84E+05	99.86%	
Raw material	Input	Degreaser	3.58E+04	99.92%	cut-off
Raw material	Input	NX	2.68E+04	99.96%	cut-off
Raw material	Input	Rolling oil	1.46E+04	99.99%	cut-off
Raw material	Input	Anti-rust oil	2.51E+03	99.99%	cut-off
Raw material	Input	ACL-20	2.29E+03	100.00%	cut-off
Raw material	Input	AL Powder	7.22E+02	100.00%	cut-off
Raw material	Input	CX	9.06E+01	100.00%	cut-off

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Coil / steel cold Rolled coil	1.00E+00	98.49%	0.00E+00
Ingot / Al, Zn	1.39E-02	1.36%	0.00E+00
ETC	1.47E-03	0.14%	0.00E+00
TOTAL	1.02E+00	100%	0.00E+00

System diagram

The table below shows three mandatory life cycle stages. A description of the life cycle stages is described in the system boundary section at the right upper side.

Types of EPD with respect to life cycle stages covered and modules for the assessment

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

(X: Declared modules, ND: Not declared modules, M: Mandatory, O: Optional)

Category			Declaration	Cradle to gate with options	Geography	Specific data used	Variation – products	Variation – sites
Product stage	Raw material supply	A1	X	M	KR RoW GLO	80% *	-	0% (only one site)
	Transportation	A2	X					
	Manufacturing	A3	X					
Construction /Installation stage	Transportation	A4	ND	O				
	Construction/Installation /Assembly	A5	ND	O				
Use stage	Use	B1	ND	O				
	Maintenance(Incl. transportation)	B2	ND	O				
	Repair(Incl. transportation)	B3	ND	O				
	Replacement(Incl. transportation)	B4	ND	O				
	Refurbishment(Incl. transportation)	B5	ND	O				
	Operational energy use	B6	ND	O				
	Operational water use	B7	ND	O				
End of life stage	De-installation/ demolition/ disassembly	C1	X	M	GLO			
	Transportation	C2	X	M	GLO			
	Waste processing	C3	X	M	GLO			
	Disposal	C4	X	M	GLO			
Benefits and loads beyond the system boundary	Reuse/ recovery/ recycling potential	D	X	M	GLO			

*The data considered in A1-A3 are gathered from the actual manufacturing plants where product specific processes are carried out. However, considering the limitation on some of the background data such as the EPD, the percentage of specific data is assumed to be at least 80%.

Environmental Performance

The tables below show the results of the overall calculation for 1,000 kg of ALSUSTA galvanized steel sheet. The environmental impact is calculated over the parameters of the categories in the above tables, according to EN 15804:2012+A2:2019/AC:2021.

Potential environmental impact – mandatory indicators

Results for 1,000kg of Galvanized steel sheet							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO2 eq	2.63E+00	1.64E-03	3.03E-03	1.27E+01	7.56E-04	-1.78E+00
GWP-biogenic	kg CO2 eq	1.92E+03	1.01E+01	1.92E+01	3.20E+01	4.79E+00	-1.37E+03
GWP-luluc	kg CO2 eq	9.54E-01	5.00E-04	7.78E-03	2.12E-02	1.95E-03	-8.08E-01
GWP-total	kg CO2 eq	1.93E+03	1.01E+01	1.92E+01	4.47E+01	4.79E+00	-1.38E+03
ODP	kg CFC11 eq	1.52E-05	1.22E-07	2.84E-07	3.50E-07	7.10E-08	-7.71E-06
AP	mol H+ eq	1.06E+01	8.57E-02	4.39E-02	1.45E-01	1.10E-02	-6.08E+00
EP-freshwater	kg P eq	2.21E+00	1.18E-02	1.02E-02	6.46E-02	2.55E-03	-1.50E+00
EP- marine	kg N eq	8.40E-01	1.24E-04	1.52E-03	9.26E-03	3.79E-04	-5.58E-01
EP-terrestrial	mol N eq	1.98E+01	1.29E-01	1.10E-01	4.64E-01	2.75E-02	-1.31E+01
POCP	kg NMVOC eq	6.69E+00	4.73E-02	6.15E-02	1.49E-01	1.54E-02	-4.57E+00
ADP-minerals&metal	kg Sb eq	8.88E-03	1.20E+02	2.69E+02	3.09E+02	6.73E+01	-1.47E+04
ADP-fossil*	MJ	2.20E+04	2.11E-06	6.26E-05	4.18E-04	1.56E-05	-4.43E-03
WDP	m3	6.07E+02	5.52E-01	1.23E+00	1.84E+00	3.07E-01	-5.25E+02
Acronyms		GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWPluluc = 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 nonfossil 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)

Potential Environmental Impact Additional Mandatory and Voluntary Indicators

Results for 1,000kg of Galvanized steel sheet							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP - GHG*	kg CO2 eq	3.62.E+00	2.14.E-03	1.08.E-02	1.27.E+01	2.70.E-03	-2.59.E+00

(* Disclaimer: The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

Use of Resources

Results for 1,000kg of Galvanized steel sheet							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERM	MJ	1.16E+03	3.49E-01	3.59E+00	3.34E+01	8.96E-01	-1.00E+03
PERT	MJ	1.16E+03	3.49E-01	3.59E+00	3.34E+01	8.96E-01	-1.00E+03
PENRE	MJ	1.37E+04	2.20E+00	2.64E+01	9.48E+01	6.60E+00	-9.18E+03
PENRM	MJ	1.95E+01	5.23E-03	8.16E-02	9.47E-01	2.04E-02	-1.58E+01
PENRT	MJ	1.37E+04	2.21E+00	2.65E+01	9.57E+01	6.62E+00	-9.19E+03
SM	kg	1.80E+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	m3	6.07E+02	5.52E-01	1.23E+00	1.84E+00	3.07E-01	-5.25E+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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

Waste production

Results for 1,000kg of Galvanized steel sheet							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.78E-02	6.06E-04	1.86E-03	1.81E-03	4.65E-04	-6.10E-02
Non-hazardous waste disposed	kg	6.99E-01	2.35E-04	4.98E-03	5.47E+01	1.25E-03	-4.91E-01
Radioactive waste disposed	kg	2.39E+02	5.65E-02	1.29E+01	2.43E+01	3.23E+00	-2.11E+02

Output flows

Results for 1,000kg of Galvanized steel sheet							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Component for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	1.84E+01	0.00E+00	0.00E+00	0.00E+00	9.50E+02	0.00E+00
Materials for energy recycling	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
Radioactive waste disposed	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

The energy used in A3 is all electricity, and the impact calculation was conducted based on 1000kg of electricity.

Electricity GWP-GHG

Results for 1 tonne(1,000kg) of Galvanized steel sheet		
Indicator	**Unit**	**Electricity**
GWP - GHG*	kg CO_2 eq	8.60E+01

Additional environmental information

The base material of the Galvanized steel sheet 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 POSCOSTEELEON factory 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.

References

General Programme Instructions of the International EPD® System. Version 4.0.

International EPD PCR 2019:14
Construction products, version 1.3.4

EN 15804:2012+A2:2019
Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction product

ISO 14044:2006
Environmental management — Life cycle assessment — Requirements and guidelines

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Literature reference
Institution of Civil Engineers Briefing:
Reuse and recycling rates of UK steel demoliti8on arisings (Sansom and Avery) Energy consumption of RC buildings during their life cycle (2007, Bozdağ & M. Seçer)

Product Environmental Footprint Category, version 6.3