Environmental Product Declaration

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

Hot-Dip 55% Al-Zn Coated Steel Coils (GL)

from

Yieh Phui Enterprise Co., Ltd.

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	S-P-12999
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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

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): *PCR 2019:14 Construction products (EN 15804: A2) (1.3.2) and UN CPC code 41231*
PCR review was conducted by: *< Claudia A. Peña, Director of Sustainability at ADDERE Research and Technology, cpena@addere.cl.>*
Life Cycle Assessment (LCA)
LCA accountability: *Industrial Technology Research Institute*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☐ EPD verification by individual verifier Third-party verifier: *Rui Wang, IVL Swedish Environmental Research Institute,* Approved by: The International EPD® System
OR
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☐ EPD verification by accredited certification body Third-party verification: *< name, organisation >* is an approved certification body accountable for the third-party verification The certification body is accredited by: *<name of accreditation body & accreditation number, where applicable>*
OR

Independent third-party verification of the declaration and data, according to ISO 14025:2006 via:

☐ EPD verification by EPD Process Certification*

Internal auditor: *<name, organisation>*

Third-party verification: *<name, organisation>* is an approved certification body accountable for third-party verification

Third-party verifier is accredited by: *<name of accreditation body & accreditation number, where applicable>*

*For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI.

Procedure for follow-up of data during EPD validity involves third party verifier:

☐ Yes ☒ No

[Procedure for follow-up the validity of the EPD is at minimum required once a year with the aim of confirming whether the information in the EPD remains valid or if the EPD needs to be updated during its validity period. The follow-up can be organized entirely by the EPD owner or together with the original verifier via an agreement between the two parties. In both approaches, the EPD owner is responsible for the procedure being carried out. If a change that requires an update is identified, the EPD shall be re-verified by a verifier]

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:

Yieh Phui Enterprise Co., Ltd.

Contact:

Chia Hui Chen (Engineer, Quality Assurance Division)
Tel: +886-7-6117181 ext. 7852
E-mail: 9714@yiehphui.com.tw

Description of the organisation:

Yieh Phui started construction in 1988 and phased in advanced production equipments. Cutting-edge production facilities from North America, Europe, and Japan enable Yieh Phui to provide a wide range of finished products to meet the needs of customers' one-stop shopping need. Currently, Yieh Phui owns four continuous hot-dip galvanizing lines, three continuous coil coating lines, four cold rolling mills and two pickling lines. The annual production capacity of galvanized and pre-painted steel products are 1,000,000 and 350,000 tonnes separately.

Product-related or management system-related certifications:

The manufacturing process management and quality is in accordance with the international standards ISO 9001, ISO 14001, ISO 45001 & TOSHMS, ISO 50001 and IECQ QC 080000 HSPM for all operations.

Name and location of production site(s):

Yieh Phui Enterprise Co., Ltd.
Headquarters and production site
No. 369, Yuliao Road, Qiaotou District, Kaohsiung City 825004, Taiwan.

Product information

Product name:

Hot-Dip 55% Al-Zn Coated Steel Coils (GL)

Product identification:

PhuizerLume® are the registered name of hot-dip 55% Al-Zn coated steel coils.

Product description:

- Hot-Dip 55% Al-Zn Coated Steel Coils (GL) are produced by coating the surface of cold-rolled steel coils with 55% Al-Zn coating. This process utilizes the principle of the potential difference between 55% Al-Zn and iron to provide corrosion resistance to the steel product. The 55% Al-Zn coating acts as sacrificial protection, corroding first to shield the underlying steel or iron. According to the potential difference principle, when two different metals come into contact, the metal with lower potential will corrode faster, while the one with higher potential will be protected.
- Due to the 55% Al-Zn coating with sacrificial anode protection mechanism, the product's lifespan is extended, offering excellent characteristics such as weather or corrosion resistance, adhesion, and formability. Additionally, it presents advantages like lower maintenance costs and reduced environmental pollution.

- Yieh Phui 55% Al-Zn coating steel coils are mainly used in various applications, with approximately 47.44% in construction/decoration, around 33.98% in general materials (for example, pre-painted).
- The general service life time of Yieh Phui hot-dip 55% Al-Zn coating steel coils (GL) is about 10 years or above depend on coating mass.

Manufacturing process:

- Pre-treatment and Annealing：
  Residual oil on the surface of the cold rolled or pickled strip from last process is cleaned off in the non-oxidizing direct flame furnace (NOF). The strip is then softened through recrystallization in the annealing furnace.
- Metallic coating：
  The thickness of the coating layer is precisely controlled by the air knife. Zinc powder or atomized fog are blown on to the metallic coating layer. The surface spangle can be controlled through adjust the coating bath composition and cooling rate before it solidifies to produce normal spangle.
- Skin-pass and Tension Levelling：
  To ensures the flatness of the strip and improves the surface uniformity.
- Surface Treatment：
  The surface of the coated strip is treated with passivation (Chromic acid) or anti-fingerprint chemicals to extend product's lifespan and to assist forming, stamping or drawing process.

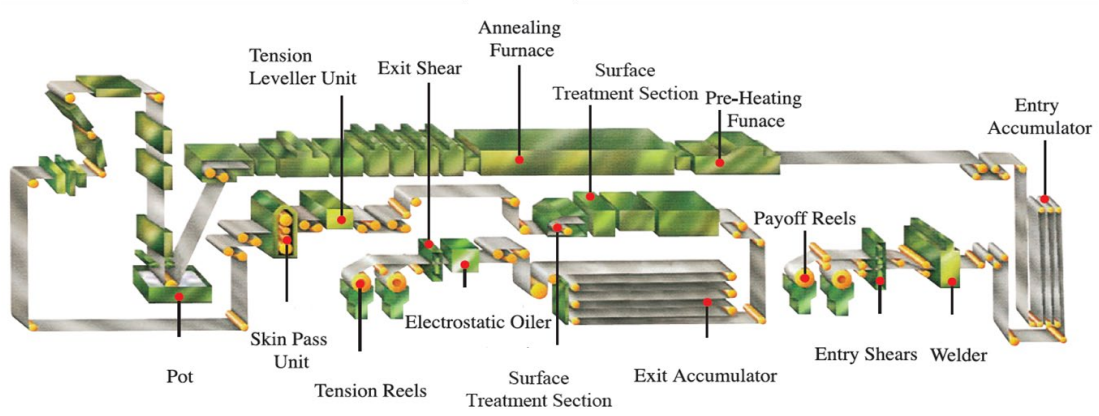

Figure 1. Manufacturing flow

Product characteristics:

- Excellent Weathering Resistance:
  The 55% Al-Zn coated layer performs the coverage and sacrificial protection mechanism to protect base steel. The passivation or anti-fingerprint chemical treatment is extend product's lifespan.
- Good Adhesion:
  The thickness of brittle zinc-iron alloy layer at the interface of the steel base metal and the zinc layer is minimized, thereby improving the adhesion of the zinc coating. The strip can be used for various usages.
- Superb Paintability:
  The normal spangle and skinpassed surface is smooth and homogeneous, providing superb paintability. The galvannealing process produces a spongy surface structure which is ideal for paint adhesion.

UN CPC code:

412 Products of iron or steel

41231 (Flat-rolled products of non-alloy steel, clad, plated, coated or otherwise further worked)

Geographical scope:

The product is manufactured in Taiwan.

LCA information

Declared unit:

The declared unit of calculations is one kilogram (1 kg) hot-dip 55% Al-Zn coated steel coils (GL).

Reference service life:

Not applicable.

Time representativeness:

The specific data referring to the year 2021 have been used for the calculation of the LCA which is consider a representative year.

Database(s) and LCA software used:

The LCA software is DoITPro (2023.0025 version).
The DoITPro database is categorized into four major types: materials, energy, transport, and public services (utilities). The database inventory spans from 1992 to 2023 and contains nearly 5,000 entries of local data, encompassing nearly 20 industry categories, such as electronics, petrochemicals, steel, paper manufacturing, textiles, and more.

Description of system boundaries:

- According to PCR 2019:14 (Version 1.3.2), cradle to gate with options, modules C1–C4, module D and with optional module A5 is selected for the LCA study. As the packaging contains more than 5% biogenic carbon, module A5 shall be included at least for balancing out the emission of this carbon.
- All life cycle impacts are included, see flowchart below. The following information describes the scenarios in different modules of the EPD. All major raw materials and all essential energy are included. Excluded items refer to those outlined in the cut-off rule below. This cut-off rule does not apply to hazardous materials and substances.

System diagram:

EPD Module	Life Cycle Stages	Definition
A1	Raw Material Supply	It includes extraction, production of the raw materials, processing of secondary material input (e.g. recycling processes) and transportation between these processes.
A2	Transport to manufacturer	Transport raw materials to the manufacturing unit.
A3	Manufacturing	Manufacturing of hot-dip 55% Al-Zn coated steel coils (GL) products at Yieh Phui Enterprise Co., Ltd. Manufacturing of waste had been considered. Ancillary materials, packaging materials and waste have been considered.
A5	Construction installation	As the packaging contains more than 5% biogenic carbon, the uptake of this biogenic carbon, as biogenic CO_2, in module A1 shall be balanced out by an equal amount of emission of biogenic CO_2 in module A5.
C1	De-construction demolition	It considers the energy consumed for the deconstruction of the steel structure.
C2	Transport	It includes the transportation of steel scrap to a recycling plant and transportation of remaining waste to landfill plants.
C3	Waste processing	It considers the waste processing of the deconstruction of the steel structure.
C4	Disposal	It evaluates waste disposal and management of disposal site.
D	Reuse-Recovery-Recycling-potential	It evaluates the net benefits and loads due to recycling, recover or reuse of materials.

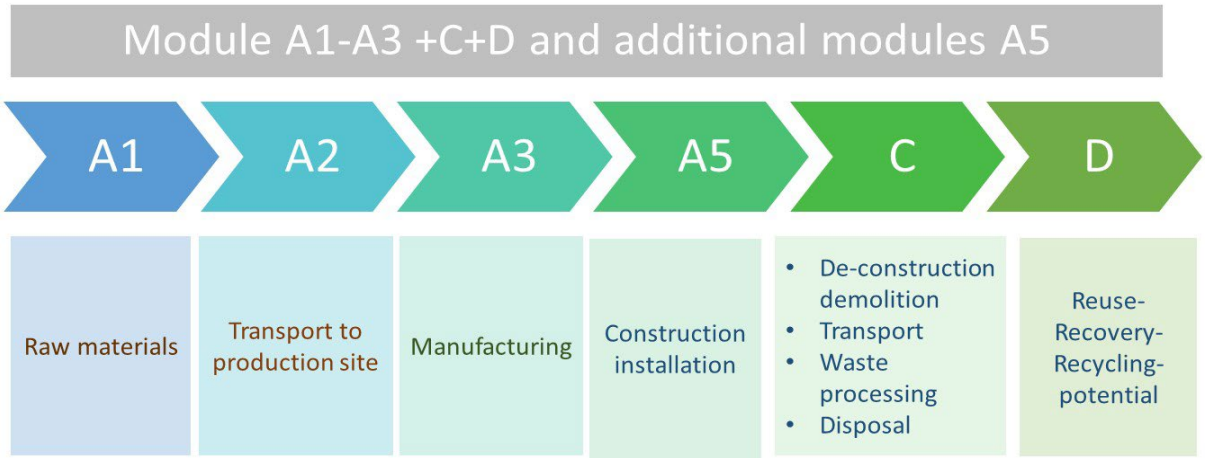

Figure 2. System boundary diagram

- Raw material supply (Module A1)
  The material needed to produce 'Hot-Dip 55% Al-Zn Coated Steel Coils (GL)' products is mostly zinc aluminium ingot and cold-rolled steel coils. In addition to the above main materials are included in the calculation of the A1 module, it also includes raw material extraction and processing, processing of secondary material input (e.g. recycling processes) and transportation between these processes. Other materials that are used in the process have not been considered because of quantity is less than 1% in total mass. However, according to the cut-off rule set out above, the environmental impact from the chromic acid which has significant environmental impact is reported in the EPD report.
- Transport (Module A2)

Transportation up to the factory gate and internal transport.

- Manufacturing (Module A3)
  - The processes that are included in the manufacturing phase are rolling and coating of steel sheet, of which energy consumption, auxiliary material consumption, waste and gaseous emissions have been modelling.
  - The outflow does not include the waste, which is not directly related to the production.
  - During the manufacturing process, there is created metal waste - 100% of metal wastes are recycled.
- Construction installation (Module A5)
  As the packaging contains more than 5% biogenic carbon, module A5 shall be included at least for balancing out the emission of this carbon.
  According to Annex 2 of PCR 2019:14 (Version 1.3.2), biocarbon in Module A5 was calculated based on the dry matter of any biomaterial reported in the LCI and setting its carbon content to 50%.
- De-construction demolition (Module C1)
  It includes all processes and activities used on-site for the deconstruction of the building frame. According to JRC technical reports of Model for Life Cycle Assessment (LCA) of buildings, the diesel consumption for different structural frames in demolished/deconstructed buildings was assumed to be 0.239 MJ/kg.
- Transport (Module C2)
  It includes the transport of the dismantled materials to disposal or until the end-of-waste state is reached. The transportation distances may be based on average transport distances for the materials.
- Waste processing (Module C3)
  It includes all the processes until the end-of-waste state is reached.
- Disposal (Module C4)
  It evaluates waste disposal and management of disposal site.
- Reuse-Recovery-Recycling-potential (Module D)
  It evaluates the net benefits and loads due to recycling, recover or reuse of materials.

More information:

Excluded life cycle stages:

Use phase and the end of life is not included following the PCR.

Cut-Off Rule:

Life cycle inventory data shall according to EN 15804 include a minimum of 95% of total inflows (mass and energy) per module. In reality, at least 98% of material inputs to each process stage were included. The following processes have been excluded:

- Other materials that are used in the process have not been considered because of a quantity less than 1% in mass.
- Manufacture of equipment used in the production, buildings or any other capital goods.
- Transportation of employee to the company.
- Transportation of employee commuting.

Allocation:

Activities data for allocation	Allocation principles	Reasons
Utility	Production time	The resource consumption may vary depending on the production time.
Waste	Product weight	Due to the waste items produced by each product

		are related to the weight of the product.

Assumptions and Limitations:

- Raw material supply (Module A1)
  As no supplier has provided emission information (data set) for the raw materials of this product, the emission information (data set) for raw materials is calculated solely by searching the database for similar items using the activity data name.

- Transport (Module A2)
  Considering the challenges of conducting accurate inventory, the categorization of transportation means is simplified to two modes: land transportation and sea transportation. Similarly, transportation mileage is estimated using suggested walking paths from online mapping tools like Google Maps, Searates (https://www.searates.com/services/distances-time/), and others due to its practicality in assessment.

- Manufacturing (Module A3)
  Yieh Phui Works produces and uses cooling water (Tap water), purified water, steam and compressed air. Therefore, the data on the utility production facilities were collected and calculated and reflected in the environmental impact results of the products.
- Construction installation (Module A5)
  According to Annex 2 of PCR 2019:14 (Version 1.3.2), biocarbon in Module A5 was calculated based on the dry matter of any biomaterial reported in the LCI and setting its carbon content to 50%.
- De-construction demolition (Module C1)
  According to JRC technical reports of Model for Life Cycle Assessment (LCA) of buildings, the diesel consumption for different structural frames in demolished/deconstructed buildings was assumed to be 0.239 MJ/kg.
- Transport (Module C2)
  According to JRC technical reports of Model for Life Cycle Assessment (LCA) of buildings, the average distance of 50 km to the waste treatment canter was assumed.
- Waste processing (Module C3)
  According to JRC technical reports of Model for Life Cycle Assessment (LCA) of buildings, a 90% recycling rate derived from weighted average recycling rates of structural steel sales was assumed.
- Disposal (Module C4)
  According to JRC technical reports of Model for Life Cycle Assessment (LCA) of buildings, a landfill percentage of 10% was assumed
- Reuse-Recovery-Recycling-potential (Module D)
  According to JRC technical reports of Model for Life Cycle Assessment (LCA) of buildings, the impacts avoided related to 90% of material sent for recycling was assumed.

The system boundary on hot-dip 55% Al-Zn coated steel coils (GL) adapted cradle to gate with options, modules C1–C4, module D and with optional module A5.
The following are the lifecycle phases that were considered:

	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	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	TW	TW	TW	ND	TW	ND	ND	ND	ND	ND	ND	ND	EU	EU	EU	EU	EU
Specific data used	> 99%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X: Module declared

ND: Not declared

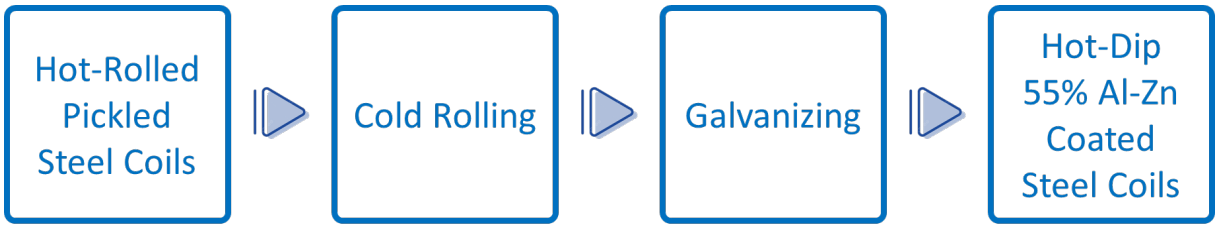

Figure 3. Galvanizing process

Content information

Product components	Weight, kg	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Cold-rolled steel coils	9.81E-01	0 %	0 %
Zinc aluminium ingot	3.50E-02	0 %	0 %
Others	2.36E-02	0 %	0 %
Packaging materials	**Weight, kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Paper	3.65E-04	0.04%	1.82E-04
Plastic	1.31E-04	0.01%	ND
Steel	3.80E-03	0.38%	ND
Wood	3.54E-04	0.04%	1.77E-04
Ink	2.93E-07	0.00%	ND
TOTAL	4.65E-03	0.47%	3.59E-04

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Chromic acid	231-801-5	7738-94-5	0.00003 %

Environmental Information

The LCA results are detailed in the tables on the following pages together with interpretation of global impacts produced per declared unit (one kilogram of hot-dip 55% Al-Zn coated steel coils). The estimated impact results are only relative statements that do not indicate impact category endpoints, exceedance of threshold values, safety margins or risks.

Electricity modelling：

Purchasing electricity from Taiwan Power Company (Taipower), which is responsible for power generation, transmission, and distribution.

- Yieh Phui purchases electricity from Taiwan Power Company's electrical grid as the source of electricity used in the manufacturing process. Taipower is responsible for power generation, transmission, and distribution. And its climate impact is 6.07E-01 kg CO_2 eq/kwh.(using the GWP-GHG indicator).

Methodology：

DoITPro software was used to perform the LCA.

The following impact models have been used:
- EF 3.0 Method
- IPCC 2021

Potential environmental impact – mandatory indicators according to EN 15804

Results per declared unit								
Indicator	**Unit**	**A1-A3**	**A5***	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.84E+00	ND	2.32E-02	6.75E-03	0.00E+00	2.89E-04	-2.08E+00
GWP-biogenic	kg CO_2 eq.	5.52E-05	1.32E-03	2.03E-09	4.83E-10	0.00E+00	2.48E-10	-4.67E-05
GWP-luluc	kg CO_2 eq.	5.03E-09	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-2.66E-13
GWP-total	kg CO_2 eq.	2.84E+00	ND	2.32E-02	6.75E-03	0.00E+00	2.89E-04	-2.08E+00
ODP	kg CFC 11 eq.	1.50E-09	ND	9.72E-11	7.44E-11	0.00E+00	2.75E-12	-3.80E-10
AP	mol H^+eq.	1.96E+00	ND	2.39E-04	6.81E-05	0.00E+00	2.77E-06	-5.88E-01
EP-freshwater	kg P eq.	1.46E-07	ND	2.32E-12	6.51E-13	0.00E+00	1.84E-12	-1.20E-07
EP-marine	kg N eq.	1.97E-01	ND	8.16E-05	2.33E-05	0.00E+00	9.30E-07	-5.95E-02
EP-terrestrial	mol N eq.	2.16E+00	ND	8.95E-04	2.55E-04	0.00E+00	1.02E-05	-6.49E-01
POCP	kg NMVOC eq.	8.04E-01	ND	2.38E-04	6.77E-05	0.00E+00	2.67E-06	-2.42E-01
ADP-minerals & metals*	kg Sb eq.	8.87E-06	ND	7.32E-11	2.07E-11	0.00E+00	4.83E-10	-7.95E-08
ADP-fossil*	MJ	3.33E+01	ND	5.12E-01	1.67E-01	0.00E+00	6.44E-03	-2.07E+01
WDP*	m^3	4.73E-01	ND	3.71E-04	9.48E-05	0.00E+00	5.15E-05	-3.47E-01
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.*

**As the packaging contains more than 5% biogenic carbon, module A5 shall be disclosed to balance the emission of this carbon.*

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.	2.84E+00	2.32E-02	6.75E-03	0.00E+00	2.89E-04	-2.08E+00
Particulate matter	Disease incidences	1.06E-05	2.06E-09	5.96E-10	0.00E+00	4.84E-11	-3.23E-06
Ionising radiation,human health	kBq U235 eq.	6.57E-08	1.94E-10	4.70E-11	0.00E+00	1.15E-11	-1.18E-08
Ecotoxicity, freshwater	CTUe	8.07E+00	9.76E-03	2.41E-03	0.00E+00	1.82E-03	-5.47E+00
Human toxicity, cancer	CTUh	6.20E-11	2.17E-13	6.29E-14	0.00E+00	1.19E-13	-2.42E-11
Human toxicity, non-cancer	CTUh	5.57E-08	3.65E-10	1.02E-10	0.00E+00	3.15E-11	-3.26E-08
Land Use	Pt	1.46E-02	8.79E-05	2.48E-05	0.00E+00	9.36E-06	-5.09E-03

[1] The GWP-GHG indicator is not identical to GWP-total because the characterisation factor (CF) for biogenic CO_2 is not set to zero.

Use of resources according to EN 15804

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1.05E+00	2.11E-04	2.85E-04	0.00E+00	2.85E-04	-2.04E-02
PERM	MJ	3.84E+00	1.72E-04	2.25E-04	0.00E+00	2.25E-04	-1.62E-01
PERT	MJ	4.89E+00	3.83E-04	5.10E-04	0.00E+00	5.10E-04	-1.82E-01
PENRE	MJ	3.67E+01	5.24E-01	7.01E-01	0.00E+00	7.01E-01	-2.12E+01
PENRM	MJ	5.78E-03	1.69E-05	2.17E-05	0.00E+00	2.17E-05	-8.39E-03
PENRT	MJ	3.67E+01	5.24E-01	7.01E-01	0.00E+00	7.01E-01	-2.13E+01
SM	kg	1.20E-01	4.86E-06	6.27E-06	0.00E+00	6.27E-06	-1.02E-01
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	3.02E-02	8.70E-06	1.92E-02	0.00E+00	1.92E-02	-8.07E-03
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						

Waste indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7.28E-02	7.53E-05	6.58E-01	0.00E+00	9.99E-05	-1.99E-03
Non-hazardous waste disposed	kg	1.38E-01	1.66E-04	2.73E-02	0.00E+00	2.17E-04	-4.63E-03
Radioactive waste disposed	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Output flow indicators

Results per declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	5.20E-02	1.32E-05	-7.61E-07	0.00E+00	1.83E-05	-1.35E-03
Material for recycling	kg	1.86E+00	9.99E-06	5.30E-06	9.00E-01	1.80E+00	7.23E-01
Materials for energy recovery	kg	8.73E-04	2.84E-07	1.58E-04	0.00E+00	3.73E-07	-6.24E-05
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

Information on biogenic carbon content

Results per declared unit		
Biogenic carbon content	**Unit**	**Quantity**
Biogenic carbon content in accompanying packaging	kg C	3.59E-04

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO_2.

References

- General Programme Instructions of the International EPD® System. Version 4.0.
- EN 15804: 2012+A2: Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products
- PCR 2019: 14 Construction products (EN 15804: A2) (1.3.2)
- ISO 14020: 2000 Environmental labels and declarations - General principles
- 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
- DoITPro 2023.0025 Industrial Technology Research Institute (ITRI) of Taiwan; DoITPro: Software-System and Database for Life Cycle Engineering. Copyright, ®. 1992-2023.
- Life Cycle Assessment Report- Hot-Dip 55% Al-Zn Coated Steel Coils (GL).
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