Environmental Product Declaration

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

Wire safety system for roof

EPD of multiple products, based on the average results of the product group

from

CW Lundberg Industri AB

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

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 EN15804+A2 v. 1.3.3
PCR review was conducted by: The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.
Life Cycle Assessment (LCA)
LCA accountability: Martyna Mikusinska, SWECO
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: Pär Lindman, Miljögiraff Approved by: The International EPD® System
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: CW Lundberg Industri AB
Contact: Ellinor Wickström
Description of the organisation:
CW Lundberg Industri AB develop, manufactures and sells innovative safety products for roofs and facades, as well as installation systems for solar panels.

Both wire systems, roof safety and installation systems for solar panels are produced in the facilities. This EPD only covers wire safety system for roof.

The product portfolio is adapted and tested for rough Nordic climate, with adaption for the climate and requirements in south and east of Europe. Products can be mounted on all kinds of roofs.

CW Lundberg consist of approx. 60 employees and has from day 1 in 1993 been a frontrunner in developing innovative and safe products for roof and facades. The production site is modern and effective and contain areas for development and testing of products. Sister companies are situated in Norway and Poland. CW Lundberg intend to be the go-to choice in Europe within roof safety systems, and lead by knowledge. CW Lundberg Industri AB is a is a part of the Lagercrantz Group (since 2021).

Product-related or management system-related certifications: ISO 14001:2015, ISO 9001:2015.
Name and location of production site(s): Mora, Sweden

Product information

Product name: Wire safety systems for roof
Product identification: Wire safety systems for roof made of stainless steel and painted steel.
Product description: Wire safety system with running anchor. The products are manufactured and designed to be easy to install and meet safety requirements. Materials for mounting of the wire system are not included in this EPD but have been declared in EPD EPD-IES-0013650.

The products are mainly made of stainless steel. In addition, there is a smaller portion of components made of galvanized steel coated with ZnMg, brass and plastic.

The product has different configuration based on site-specific needs, such as roof type, substrate, weather and climate conditions. Expected lifetime depend on environmental corrosivity. For most installations at least 40 years.

The differences in material composition for different types of wire safety systems are small. The products included in this EPD are similar in terms of material composition and are manufactured at the same production facility. This EPD therefore report the average result for the products based on yearly production volumes.

The impact per kg installation/products is the same since the materials are the same for different installations, even though the impact per product varies significantly.

The EPD covers:

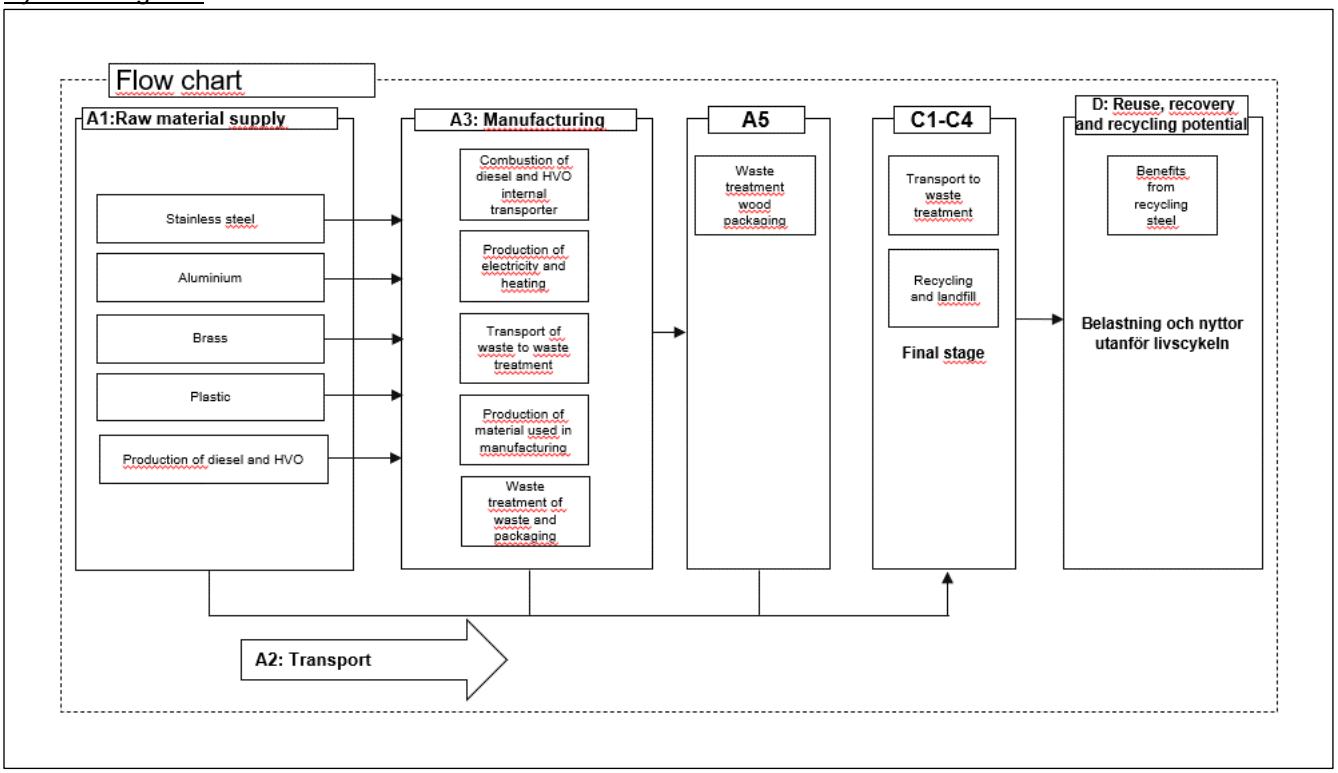
- CWL safety system WBM, wire by meter
- CWL safety system WEL, wire extensible lenghts
- CWL pro system
- CWL light system

UN CPC code: 412
Geographical scope: Sales and use in Europe.

LCA information

Declared unit: 1 kg
Reference service life: Not relevant as use phase is not declared.
Time representativeness: Representative data from 2023
Database(s) and LCA software used: Ecoinvent 3.9, SimaPro 9.5
Description of system boundaries: Cradle to gate with modules C1–C4 and module D (A1–A3, A5 + C + D)

System diagram:



More information: More information about product range is to be found at www.cwlundberg.com

A1 Raw material supply: Module A1 include extraction and processing of raw material used in production and to packaging. Production of diesel and HVO used for internal transport are also included in module A1.

A2 Transport: Module A2 include effects from transport of raw materials to production and include both production and combustion of diesel and HVO during transport.

A3 Manufacturing: Module A3 include manufacturing of wire safety systems for roof. Representative data from 2023. The module includes materials used for production but is not a part of the final product. The module also includes direct emissions from combustion of fuels used for internal transport. Emissions from electricity used in the facilities is included. The variations in material composition are very small, which means that the products are largely made of the same materials.

CW Lundberg buy steel and components that are pressed, shaped, painted and assembled in the facilities in Mora. The process involves both manual steps and machinery. Electricity consumption, water consumption, internal transport, and waste management at the facility have been allocated through mass allocation based on the total amount of products produced at the facility. By-products from production has been allocated based on economic allocation.

In addition, emissions from the waste management of the waste generated during production are also included. Potential benefits from module A3 are not included in module D in accordance with chapter 6.3.5.2 of EN 15804:2012+A2:2019.

A5 Assembly: Streamlined product installation requires minimal energy, representing less than 1% of the lifecycle impact. Therefore the energy is excluded and module A5 focuses solely on the disposal of packaging materials.

C1 De-construction and demolition: C1 is not included in the EPD due to the minimal energy consumption and environmental impact f the disassembly process (less than 1%)

C2 Transport to the waste processing facilities: The waste is assumed to be transported 50 km with a EURO5 truck (16-32 tons) to waste processing facilities. Emissions from production of fuel and direct emissions from fuel combustion included.

C3 Waste processing for reuse, recovery and/or recycling: 96% of the metal is assumed to be recycled (SGU, 2013). The environmental impact of C3 is assessed using generic datasets for sorting, pressing, and landfilling, as pretreatment before recycling.

C4 Waste disposal: 4% of the steel in the wire is assumed to be sent to landfill (SGU, 2013).

D Reuse, recovery and recycling potential: Module D includes the benefit associated with steel recycling. The benefit is in the form of avoiding the need for new steel production as a raw material for the portion of the steel in the products that is recycled. For part of the steel used, there is already a quantity of recycled steel available. The benefit is calculated only for the part of virgin steel that is recycled.

Allocation: Material to production has been subdivided between the main product groups roof safety and installation systems for solar panels, and wire which is declared in a separate EPD.

Cut-off criteria: The general rules for excluding inputs and outputs in LCA are in accordance with the rules in EN 15804:2012+A2:2019 6.3.6. To ensure that all significant environmental impacts are included in the study, the following cut-off criteria have been used:

- Mass: If the flow is less than 1% of the total input and output of material, it has been excluded, provided that the material does not have a significant environmental impact.
- Energy: If the energy flow is less than 1% of the total input and output of energy, it has been excluded, provided that the energy does not have a significant environmental impact.

The sum of the excluded flows has not exceeded 5% for mass or 1% for energy.

Data quality requirements have been applied in accordance with EN 15804+A2 and PCR 2019:14.

The LCA is performed by SWECO AB, contact person Martyna Mikusinska
martyna.mikusinska@sweco.se

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results): Declared modules marked X, not declared modules marked ND.

	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	SE	SE	SE	-	-	-	-	-	-	-	-	-	EU				EU
Specific data used	>90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	+/-12%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	NA			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Product components	Weight, g	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Aluminium (Hydal)	8,7	30%	0
Stainless steel	979	95%	0
Stainless steel	7,9	0%	0
Climbing wheel parts	4	0%	0
TOTAL	1000		

Packaging materials	Weight, g	Weight-% (versus the product)	Weight biogenic carbon, kg C/kg
Plastic packaging (LDPE)	1,63		0
Plastic strip (PET 100%)	0,54		0
Cardboard	15,4		0,007
Pallet/ Pallet collars	110,2		0,049
Metal hook	8,03		0
Wire (galvanized steel)	0,89		0
TOTAL	0,137		

The products do not contain any dangerous substances from the candidate list of SVHC for authorization.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP - total	kg CO_2 eq.	2,52E+00	6,96E-02	0,00E+00	9,37E-03	2,45E-02	2,43E-04	-1,10E-01
GWP-fossil	kg CO_2 eq.	2,45E+00	3,67E-04	0,00E+00	9,35E-03	2,49E-02	2,43E-04	-1,10E-01
GWP-biogenic	kg CO_2 eq.	3,66E-02	6,93E-02	0,00E+00	8,46E-06	-4,33E-04	1,39E-07	3,63E-04
GWP- luluc	kg CO_2 eq.	3,68E-02	1,25E-07	0,00E+00	4,54E-06	3,65E-05	1,47E-07	-2,85E-05
ODP	kg CFC 11 eq.	3,75E-08	1,81E-11	0,00E+00	2,04E-10	3,96E-10	7,04E-12	-2,65E-09
AP	mol H^+ eq.	1,18E-02	1,23E-05	0,00E+00	3,05E-05	2,79E-04	1,83E-06	-4,15E-04
EP-freshwater	kg P eq.	1,04E-03	2,39E-07	0,00E+00	6,54E-07	1,47E-05	2,02E-08	-4,42E-05
EP-marine	kg N eq.	3,00E-03	6,13E-06	0,00E+00	1,05E-05	6,51E-05	7,03E-07	-1,01E-04
EP-terrestrial	mol N eq.	2,65E-02	6,63E-05	0,00E+00	1,11E-04	7,26E-04	7,54E-06	-1,07E-03
POCP	kg NMVOC eq.	1,01E-02	1,75E-05	0,00E+00	4,56E-05	2,17E-04	2,62E-06	-5,92E-04
ADP-minerals&metals*	kg Sb eq.	3,22E-05	8,80E-10	0,00E+00	3,00E-08	1,53E-06	3,38E-10	-6,13E-08
ADP-fossil*	MJ	3,47E+01	3,68E-03	0,00E+00	1,33E-01	3,37E-01	6,06E-03	-1,17E+00
WDP*	m^3	-4,74E-01	1,02E-04	0,00E+00	5,40E-04	4,09E-03	2,68E-04	-5,73E-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**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO_2 eq.	2,49E+00	3,68E-04	0,00E+00	9,36E-03	2,49E-02	2,43E-04	-1,10E-01

Resource use indicators

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	6,52E+00	1,71E-04	0,00E+00	2,06E-03	5,24E-02	5,18E-05	-2,38E-02
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	6,52E+00	1,71E-04	0,00E+00	2,06E-03	5,24E-02	5,18E-05	-2,38E-02
PENRE	MJ	3,64E+01	3,98E-03	0,00E+00	1,41E-01	3,58E-01	6,44E-03	-1,23E+00
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,64E+01	3,98E-03	0,00E+00	1,41E-01	3,58E-01	6,44E-03	-1,23E+00
SM	kg	9,30E-01	0,00E+00	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	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	5,40E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+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							

Waste indicators

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	1,39E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	1,18E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	1,61E-04	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

[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.

Output flow indicators

Results per functional or declared unit								
Indicator	**Unit**	**A1-A3**	**A5**	**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	0,00E+00
Material for recycling	kg	1,82E-01	0,00E+00	0,00E+00	0,00E+00	9,60E-01	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	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	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	0,00E+00

Additional environmental information

CW Lundberg sustainability work is performed and certified according to ISO 14001:2015. More information about CW Lundbergs environmental work and instructions for mounting, proper maintenance and care for the products to prolong lifetime is to be found at https://www.cwlundberg.com/en-gb.

The advantages of CW Lundbergs products are that they have low weight to minimize use of raw material and are easy to mount. The products are assessed, registered and approved at SundaHus, BASTA, Byggvarubedömningen and TZUS.

The product material can be recycled at end-of life.

Additional social and economic information

CW Lundberg takes pride in being an important local actor. We care for our employes wellbeing and strive for diversity and inclusion in our team, because we know that diversity is needed for innovation excellence.

We seek suppliers located close to our facilities in Mora, which reduce cost and environmental impact of transports. All suppliers are assessed according to our supplier assessment model. Important factors are environmental performance, economic stability and accuracy in deliveries.

Differences versus previous versions

Minor editorial changes.

References

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The International EPD System, EPD International 2021. General program instructions for the international EPD System, 4.0 2021

LCA-report CW Lundberg Industri AB, Solcellsinfästning, taksäkerhetsprodukter och löpande förankring med vajer – SWECO 2024-05

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