

Environmental Product Declaration



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

SVEA 2.85m

from

Worxsafe 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
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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 v1.3.4, C-PCR-003 v.2024-04-30, UN CPC code: 375*

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: *Karin Lindqvist & Martyna Mikusinska, Sweco AB*

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 AB*

E-mail: par@miljogiraff.se

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: Worxsafe AB, Nifsåsvägen 9, 831 52 Östersund, Sweden

Contact: info@woxsafe.com

Description of the organisation: Worxsafe is a Swedish company that develops, manufactures, and delivers products that make temporary workplaces safe, such as roadworks, construction and infrastructure projects all over the world. We are fundamentally an innovative company, where the needs and requirement from our customers are important for the development of new products. Our customers guide our product development and help us identify the requirements and standards our products must meet. Based on the specification, we develop concepts, prototypes, and pre-series. We conduct extensive testing before the product is finally produced in one of our own production units.

Worxsafe is certified according to ISO 9001:2015 Quality, ISO 14001:2015 Environment and ISO 45001:2018 Workers' health and safety.

Name and location of production site: Vislanda Mekaniska in Vislanda, Sweden.

Product information

Product name: SVEA 2.85m

SVEA 2.85m is a protective steel framed concrete barrier, mainly used as part of a continuous road restraint system and adapted for tough traffic environments. The SVEA 2.85m barrier offers an excellent middle ground solution, combining great flexibility, short installation lengths, and a compact working width. This makes it highly versatile for various road setups. Its flexibility ensures it can adapt seamlessly to different configurations, guaranteeing safety without sacrificing efficiency. With its shorter installation lengths, it's convenient to set up, saving time and resources. The small working width makes it perfect for tight spaces in urban environments.

UN CPC code: 375

Other codes for product classification: SVEA 2.85m comply with standards EN 1317-2 T2/T3/N1/N2, AASHTO MASH TL-3 and CE 1137.

Geographical scope: Global raw material supply, Swedish production and European sales.

LCA information

Declared unit: 1 piece of SVEA 2.85m

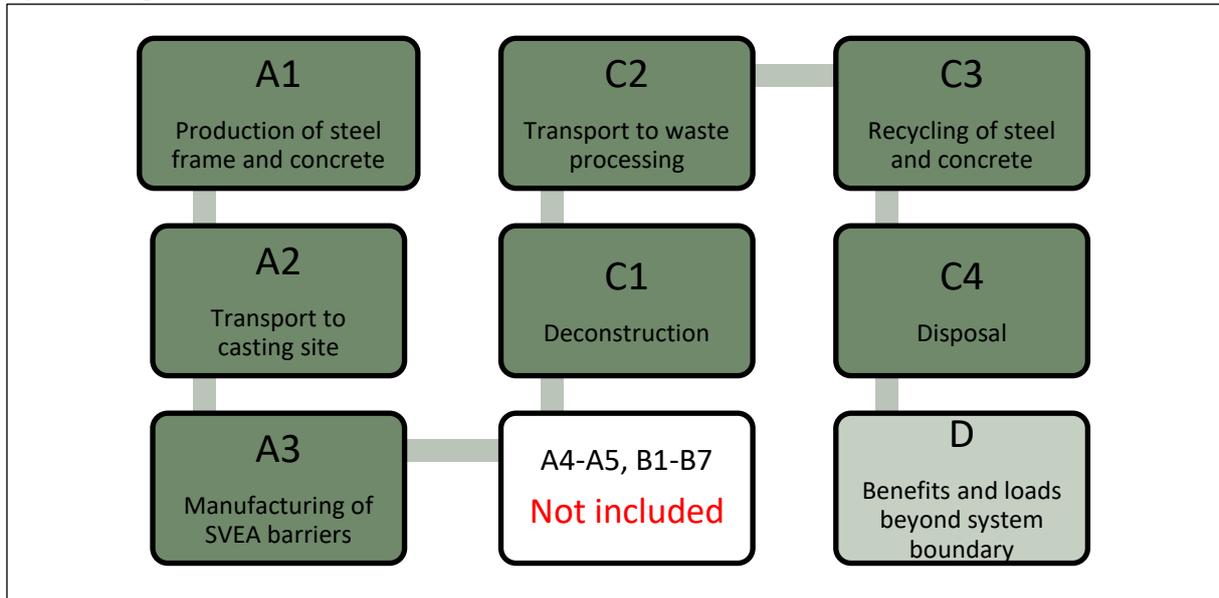
Reference service life: No reference service life has been defined. The assumed service life is, however, 30 years since the steel frame protects the edges of the barrier that otherwise are the most exposed parts.

Time representativeness: 2023

Database and LCA software used: Ecoinvent 3.9 and SimaPro 9.5.

Description of system boundaries: Cradle to gate with modules C1–C4 and module D (A1–A3+C+D). Module A4, A5 and use phases B1–B7 are not reported.

System diagram:



Description of production (A1-A3):

The steel frame components (100% scrap-based steel and rubber feet) are manufactured and assembled in China and then transported to Sweden by ship and truck. The concrete is produced in Sweden and transported to the casting site in Vislanda by truck. There the concrete is immediately poured in casting moulds. When the barrier is assembled, it is transported to a depot awaiting delivery to customer. The depots are located in Sweden, Norway, Finland, Germany and England.

Assumptions:

In the manufacturing of the steel frame 100% recycled steel is used. Since the distribution of pre- and post-consumer scrap is unknown a conservative assumption, based on average statistics, of 60% pre-consumer and 40% post-consumer material is chosen. In accordance with PCR 2019:14, economic allocation, based on the value of the steel scrap compared to the finished product, is used to determine the environmental burden of the pre-consumer scrap. The assumption used is that the economic value of scrap constitutes 10% of the value of the finished product. Therefore, the environmental burden of the pre-consumer scrap is 10% of the environmental impact from manufacturing of primary steel.

Physical allocation by mass was applied for A1 electricity use at the steel frame manufacturing site. The electricity used at the casting site (A3) is supplied from Eneas and has a climate impact of 23,3 g CO₂-eq./kWh. It constitutes of 59% nuclear power and 41% renewable sources. Based on information from Enea the distribution of the renewable sources is 20% biomass, 14% hydro power and 7% wind power.

In the end-of-life scenario it is assumed that 1% of the products go to recycling and 99% are reused. When the barriers no longer meet the requirements to be used on roads, they can still be used for many other purposes. The transport distances in C2 were set to 100 km to recycling and 50 km to reuse. No environmental impacts are expected to occur in module C1 and C4. For modelling of the D-module, benefits and loads outside the life cycle have been assessed for reuse of barrier resulting in avoided production of concrete foundation.

Environmental impacts from infrastructure and capital goods are included in the underlying generic datasets used in all life cycle stages. CO₂ absorption from carbonation has not been taken into account.

Cut-off criteria:

In case of insufficient data, the cut-off criteria shall be 1% of renewable and non-renewable primary energy usage and 1% of the total mass of that unit process. The total neglected input flows, e.g., per module A1-A3 and C1-C4, shall be a maximum of 5% of energy usage and mass.

Data quality:

Selected general data are judged to be representative of the actual processes regarding temporal, geographical, and technological aspects. The Ecoinvent database is considered to be of high quality.

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

	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	GLO	GLO	SE	-	-	-	-	-	-	-	-	-	EUR	EUR	EUR	EUR	EUR
Specific data used	54%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content information

Content declaration for one piece of SVEA 2.85m.

Product components	Weight, kg	Post-consumer material, weight-% of product	Biogenic material, weight-% and kg C/DU
Steel	160	0*	0
Zinc	5	0	0
Rubber	4	0	0
Concrete	1114	0	0
TOTAL	1283	0	0

*The steel contains post-consumer material but the share is unknown, see section assumptions.

The product does not contain any packaging materials or dangerous substances from the candidate list of SVHC for Authorisation, in quantities that exceed the limits for registration with the European Chemicals Agency.

Results of the environmental performance indicators

Mandatory impact category indicators according to EN 15804

The method used is EN 15804 +A2 Method (based on EF 3.1).

Disclaimer: Use of the results of modules A1-A3 without considering the results of module C is discouraged.

Results per declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-fossil	kg CO ₂ eq.	6,65E+02	0,00E+00	6,49E+00	1,97E-01	0,00E+00	-9,84E+01
GWP-biogenic	kg CO ₂ eq.	6,62E+00	0,00E+00	5,18E-03	5,24E-05	0,00E+00	-5,35E+00
GWP-luluc	kg CO ₂ eq.	1,25E+00	0,00E+00	3,17E-03	2,32E-05	0,00E+00	-1,08E-02
GWP-total	kg CO ₂ eq.	6,72E+02	0,00E+00	6,50E+00	1,97E-01	0,00E+00	-1,04E+02
ODP	kg CFC 11 eq.	1,15E-05	0,00E+00	1,47E-07	3,68E-09	0,00E+00	-3,86E-07
AP	mol H ⁺ eq.	6,73E+00	0,00E+00	1,61E-02	1,80E-03	0,00E+00	-2,41E-01
EP-freshwater	kg P eq.	1,92E-01	0,00E+00	4,79E-04	6,24E-06	0,00E+00	-1,17E-02
EP-marine	kg N eq.	1,60E+00	0,00E+00	4,38E-03	8,25E-04	0,00E+00	-7,19E-02
EP-terrestrial	mol N eq.	2,37E+01	0,00E+00	4,49E-02	8,95E-03	0,00E+00	-8,12E-01
POCP	kg NMVOC eq.	3,56E+00	0,00E+00	2,62E-02	2,70E-03	0,00E+00	-2,33E-01
ADP-minerals&metals*	kg Sb eq.	9,58E-03	0,00E+00	1,81E-05	7,11E-08	0,00E+00	-1,94E-04
ADP-fossil*	MJ	6,57E+03	0,00E+00	9,85E+01	2,90E+00	0,00E+00	-4,41E+02
WDP*	m ³	1,92E+00	0,00E+00	4,70E-01	5,88E-03	0,00E+00	-4,42E+00
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.*

Note: The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of the impact category abiotic depletion of minerals and metals may be highly uncertain in LCAs that include capital goods/infrastructure in generic datasets, in case infrastructure/capital goods contribute greatly to the total results. This is because the LCI data of infrastructure/capital goods used. To quantify this indicator in currently available generic datasets sometimes lack temporal, technological and geographical representativeness. Caution should be exercised when using the results of these indicators for decision-making purposes.

Additional mandatory and voluntary impact category indicators

Results per declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
GWP-GHG ¹	kg CO ₂ eq.	6,66E+02	0,00E+00	6,49E+00	1,97E-01	0,00E+00	-9,84E+01
PM	[Disease incidence]	7,77E-05	0,00E+00	6,42E-07	1,32E-07	0,00E+00	-2,28E-06
IRP	[kBq U235 eq.]	1,84E+01	0,00E+00	1,24E-01	1,36E-03	0,00E+00	-4,74E+00
Acronyms	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health						

Resource use indicators

Results per declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
PERE	MJ	1,07E+03	0,00E+00	1,44E+00	1,56E-02	0,00E+00	-7,77E+01
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	1,07E+03	0,00E+00	1,44E+00	1,57E-02	0,00E+00	-7,77E+01
PENRE	MJ	6,55E+03	0,00E+00	1,05E+02	3,08E+00	0,00E+00	-4,65E+02
PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	6,55E+03	0,00E+00	1,05E+02	3,08E+00	0,00E+00	-4,65E+02
SM	kg	1,60E+02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m ³	1,54E+01	0,00E+00	2,00E-02	2,39E-04	0,00E+00	-1,67E+00
Acronyms	PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non-renewable primary energy resources used as raw materials; PENRT = Total use of non-renewable primary energy re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water						

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

Waste indicators

Results per declared unit							
Indicator	Unit	A1-A3	C1	C2	C3	C4	D
Hazardous waste disposed	kg	8,67E-05	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Non-hazardous waste disposed	kg	2,76E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Radioactive waste disposed	kg	2,22E-04	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	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	1,27E+03
Material for recycling	kg	0,00E+00	0,00E+00	0,00E+00	1,28E+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
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

The SVEA barrier system also includes the products SVEA 1.425m and SVEA 5.7m. They have the same input materials and production process as SVEA 2.85m but slightly different material composition. See table below for GWP-GHG results for these products.

Total product weights and GWP-GHG results for modules A and C for one piece of SVEA 1.425m and SVEA 5.7m.

	Unit	SVEA 1.425m	SVEA 5.7m
Total product weight	[kg]	652	2541
GWP-GHG (A1-A3 + C1-C4)	[kg CO ₂ eq.]	4,23E+02	1,16E+03

References

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