ENVIRONMENTAL PRODUCT DECLARATION

Railing

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

Products included in the EPD:

Railings (List of included products in section: Product description)

An EPD may be updated or depublished if conditions change. To find the latest version of the EPD and to confirm its validity, see www.environdec.com

EPD of multiple products based on a representative product

EPD Owner
Weland AB

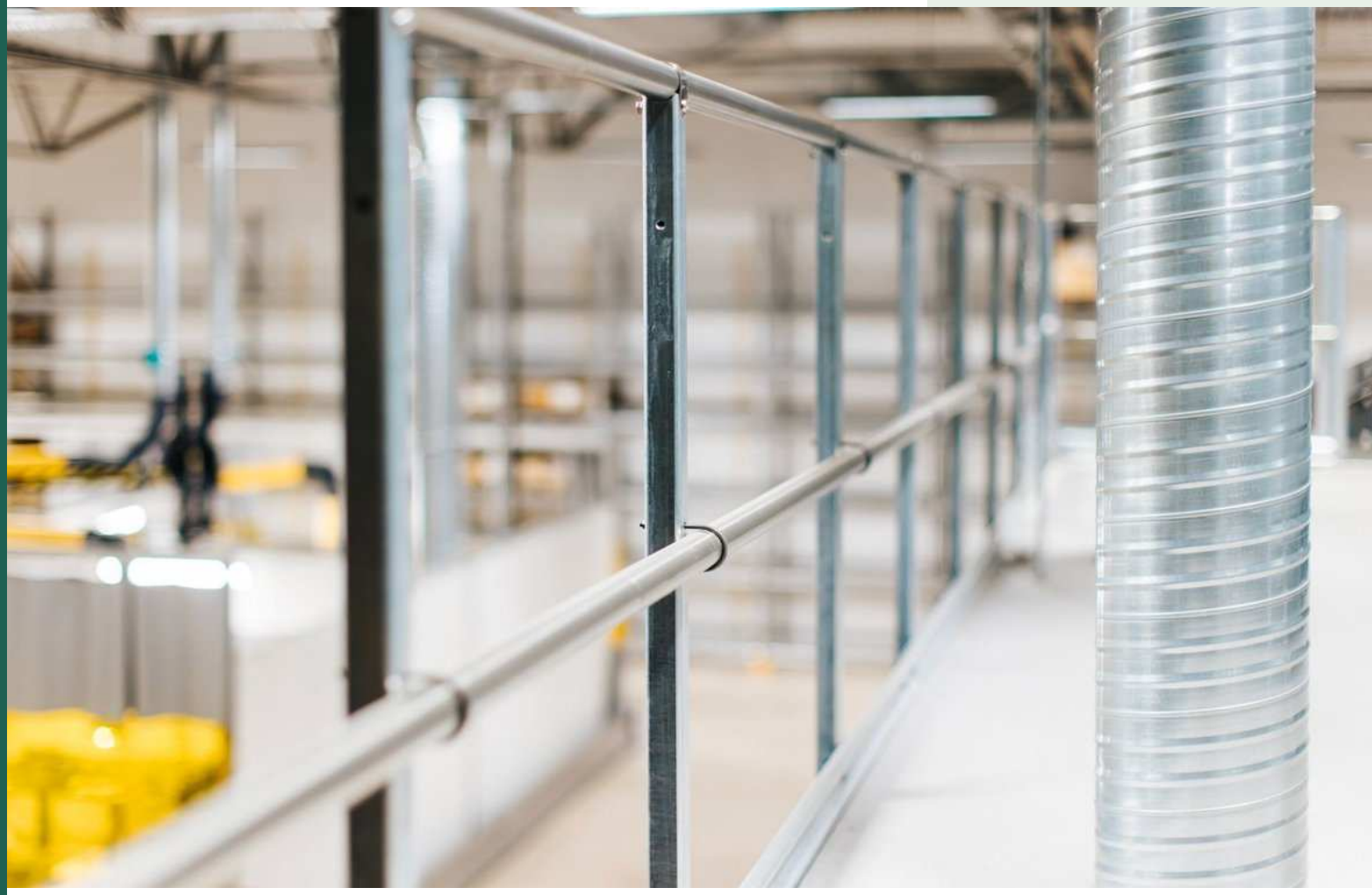
Programme
International EPD System
www.environdec.com

Programme operator
EPD International AB

Registration number
EPD-IES-0034173:001

Version date
2026-09-29

Validity date
2031-09-29



EPD INTERNATIONAL EPD SYSTEM

ECO PLATFORM EPD VERIFIED

WELAND

GENERAL INFORMATION

Programme information

Programme	International EPD System
Address	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website	www.environdec.com
E-mail	support@environdec.com

Product category rules

CEN standard EN 15804 serves as the Core Product Category Rules (PCR)	
Product Category Rules (PCR)	2019:14 Construction products (EN 15804+A2) (version 2.0.1) 2.0.1
PCR review was conducted by	The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Rob Rouwette (chair), Noa Meron (co-chair). The review panel may be contacted via the Secretariat www.environdec.com/support.

Verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via	☑ EPD verification through an individual EPD verification ☐ EPD verification through EPD Process Certification* ☐ EPD verification through a fully pre-verified tool
Third-party verifier	David Palm (Dalemarken AB)
Approved by	International EPD System
Procedure for follow-up of data during EPD validity involves third party verifier	☐ Yes ☑ No
*EPD Process Certification involves an accredited certification body certifying and periodically auditing the EPD process and conducting external and independent verification of EPDs that are regularly published. More information can be found in the General Programme Instructions on www.environdec.com.	

Ownership and limitations on use of EPD

Limitations

EPDs within the same product category but published in different EPD programmes, may not be comparable. For two EPDs to be comparable, they shall be based on the same PCR (including the same first-digit 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 identical scope in terms of included life-cycle stages (unless the excluded life-cycle stage is demonstrated to be insignificant); apply identical impact assessment methods (including the same version of characterisation factors); and be valid at the time of comparison.

Ownership

The EPD Owner has the sole ownership, liability, and responsibility for the EPD.

INFORMATION ABOUT EPD OWNER

EPD Owner	Weland AB
Contact person name	Mattias Andersson
Contact person e-mail	mattias.andersson@weland.se
Organisation address	Malmgatan 34 33330 Smålandsstenar Sweden
LCA Practitioner	felix.jansson@sweco.se, felix.jansson@sweco.se and karin.lindqvist@sweco.se, karin.lindqvist@sweco.se and Helena Tarstad, Helena.Tarstad@industrireklam.se and Annie Johansson, annie.johansson@sweco.se

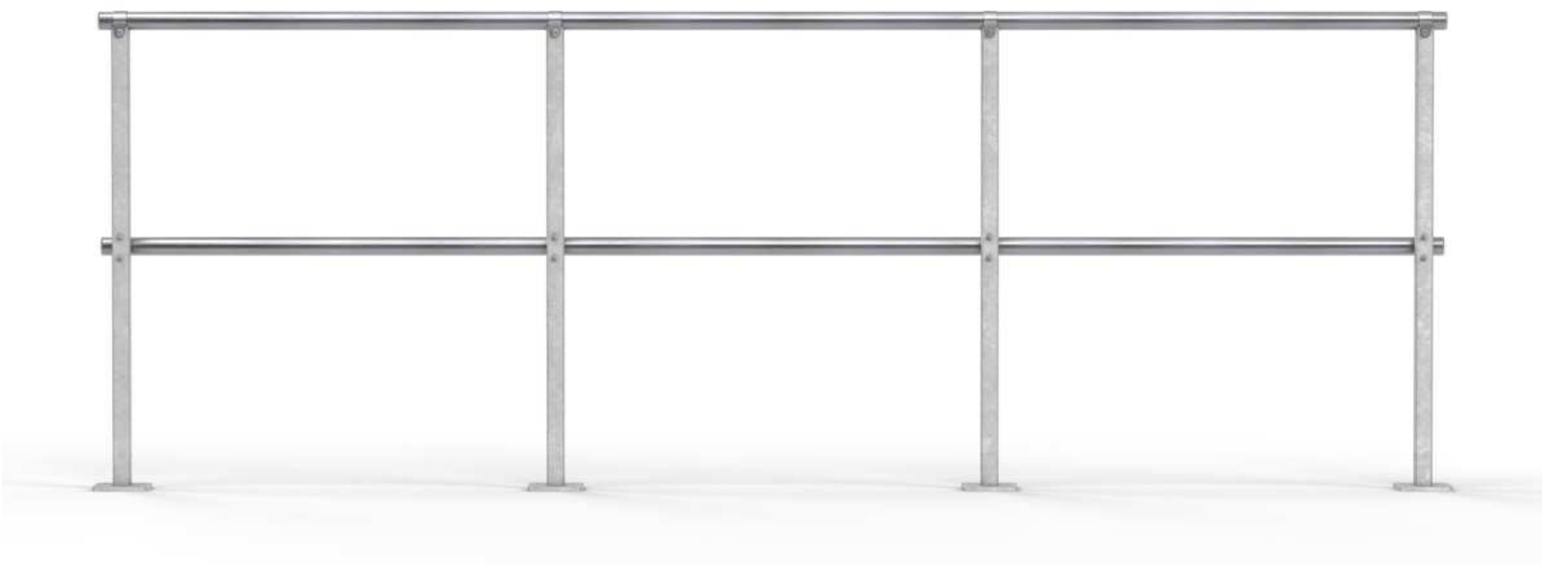
Description of the organisation of the EPD Owner

Weland AB is a Swedish manufacturing company specialising in grating, staircases, railings, walkways, contract manufacturing and sheet metal processing. The company was founded in 1947 and has its headquarters and main production facilities in Smålandsstenar, Sweden.

PRODUCT INFORMATION

Product name	Railings (List of included products in section: Product description)
Product identification	Weland railings are supplied in standardised sections and project-specific configurations. Each order is identified by the order number and associated product specifications
Product description	Weland steel railings are prefabricated railing systems designed for indoor and outdoor use in industrial, commercial and public environments. The products consist of posts with mounting plates, handrails, intermediate rails or round-bar infill, clamps and the necessary connection details. Dimensions, mounting method and railing configuration can be adapted to project-specific requirements. More information about the products can be found on www.weland.se. The following products are included in the EPD: • Hot-dip galvanized railing with standard handlebar • Hot-dip galvanized railing with round handlebar
Technical purpose of product	The product is intended to provide fall protection and safe support along stairs, platforms, walkways, ramps and other areas with a risk of falling.
Manufacturing or service provision description	Mounting plates are cut and welded to the railing posts, which are cut and punched at Weland AB's production site in Smålandsstenar. Handrails and intermediate rails made from pretreated ZM310 tubes are cut and, where required, bent. Handrail clamps are cut and embossed. The railing posts are sent to Zinken Weland in Ulricehamn for hot-dip galvanizing and then returned to Smålandsstenar, where all components are packed for delivery to the customer.
Material properties	Volumetric mass density: 7850 kg/m^3
Manufacturing site	Weland AB – Malmgatan 34 33330 Smålandsstenar Sweden
Manufacturing site 2	Zinken Weland i Ulricehamn AB - Industrivägen 3 523 90 Ulricehamn Sweden
UN CPC code	42190. Other structures (except prefabricated buildings) and parts of structures, of iron, steel or aluminium; plates, rods, angles, shapes, sections, profiles, tubes and the like, prepared for use in structures, of iron, steel or aluminium; props and similar eq
Geographical scope(s)	Sweden
Geographical scope description	The geographical scope is Sweden, which represents the main market for the products and is consistent with the distribution and end-of-life scenarios used in the LCA.

PRODUCT IMAGES



CONTENT DECLARATION

Content declaration of multiple products	Content declaration representes the declared representative product.
Hazardous and toxic substances	The product does not contain any substances from the SVHC candidate list in concentrations exceeding 0.1% of its weight.

PRODUCT CONTENT

Content name	Mass, kg	Post-consumer recycled material, mass-% of product	Biogenic material, mass-% of product	Biogenic material[1], kg C/declared unit
Steel	1	8.9		
Total	**1**	**8.9**	**0**	**0**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2			

PACKAGING MATERIALS

Material name	Mass, kg	Mass-% (versus the product)	Biogenic material[1], kg C/declared unit
Wooden pallet	0.435	43.5	0.181
Cardboard box	0.0175	1.75	0.007
Total	**0.4525**	**45.25**	**0.188**
Note 1	1 kg biogenic carbon is equivalent to 44/12 kg of CO_2		

LCA INFORMATION

EPD based on declared or functional unit	Declared unit
Declared unit and reference flow	Railing Mass: 1 kg
Conversion factor to mass	1
Are infrastructure or capital goods included in any upstream, core or downstream processes?	☐ Yes ☑ No
Data sources used for this EPD	ecoinvent database (general) ecoinvent 3.11 database
LCA Software	SimaPro 10.2
Version of the EN 15804 reference package	EF Reference Package 3.1
Characterisation methods	EN 15804:2012+A2:2019/AC:2021 based on EF 3.1
Technology description including background system	The products considered are steel products used as railings. The steel product is hot-dip galvanized for outdoor and indoor use
Scrap (recycled material) inputs contribution level	More than 10% of the GWP-GHG results in modules A1-A3 come from scrap inputs

SCRAP (RECYCLED MATERIAL) INPUTS DATA	
Material scrap name	**Material scrap value**
Handrail steel	898, kg CO_2 eq./tonne
The share of the total scrap input that was assumed to come with an environmental burden	100 %

Data quality assessment

Description of data quality assessment and reference years	The share of primary data in module A1 has been calculated based on the declared shares of primary data in the upstream EPD:s used as input. In module A2, no data has been classified as primary data, while in module A3, only data related to energy use has been classified as primary. The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPD:s. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories. Reference year 2025. A large amount of the input data is based on EPD:s. These are considered to be of good quality and representative, as they comply to a large extent with the same methodological rules as those applied in the EPD:s based on this EPD. All mandatory impact categories have been assessed from a data quality perspective regarding geographical, technical and temporal representativeness. Depending on the impact category, the largest contribution to the overall impact comes either from hot-dip galvanization or from the input material used in the greatest quantity. The overall assessment ranges from good to very good. Variation for modules A-C for railings with round handlebar are shown in the list below: GWP-total: 35% GWP-fossil: 36% GWP-biogenic: 4% GWP-luluc: 0% ODP: 43% AP: 67% EP-freshwater: 21% EP-marine: 74% EP-terrestrial: 40% POCP: 66% ADPm1: 11% ADPf1: 29% WDP1: 6% GWP-GHG: 36% PM: 14% IRP: 11% ETP-fw: 13% HTP-c: 11% HTP-nc: 1% SQP: 58% Acronyms for eact impact catogory can be seen under section: Environmental Performance The variation is large for products with wood steps, the GWP-fossil is lower due to the use of wood instead of steel for a large part of the product. The GWP-biogenic is higher due to the same reason, the use of wood have a higher biogenic impact.

	The indicators for eutrophication is higher for the variations with powder coating instead of hot dip galvanizing due to the use of more and different chemicals. On the other hand, the use of hot dip galvanizing drives the impact for other indicators due to the use of zinc (extraction and refining). There are differences between the representative product and the products with hot dip galvanizing as well, this is due to the use of different input materials (impact from EPD:s) with different shares of post-consumer material.

DATA QUALITY ASSESSMENT

Process name	Source type	Source	Reference year	Data category	Share of primary data, of GWP-GHG results for A1-A3
Holder	EPD	EPD Owner	2025	Representative secondary data	0%
Handrail	EPD	EPD Owner	2024	Primary data and representative secondary data	10%
Electricity consumption	Collected data	EPD Owner	2025	Primary data	2%
Total share of primary data, of GWP-GHG results for A1-A3					**12%**
Note	The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.				

ELECTRICITY USED IN THE MANUFACTURING PROCESS IN A3 (A5 FOR SERVICES)

Type of electricity mix	Residual electricity mix on the market	
Energy sources	Hydro	21%
	Wind	11%
	Solar	0%
	Biomass	13%
	Geothermal	0%
	Waste	0%
	Nuclear	47%
	Natural gas	2%
	Coal	0%
	Oil	1%
	Peat	0%

	Other	5%
Climate impact (GWP-GHG):	0.08 kg CO_2 eq./kWh	

Method used to calculate residual electricity mix	The residual mix is a virtual mix on the swedish market. It represents the energy mix of untracked consumption, i.e., electricity consumption that is not explicitly tracked through mechanisms such as Guarantees of Origin (GO). The shares have been calculated based on statistics from AIB (2025) following the methodology of grexel (2020).

SYSTEM BOUNDARY

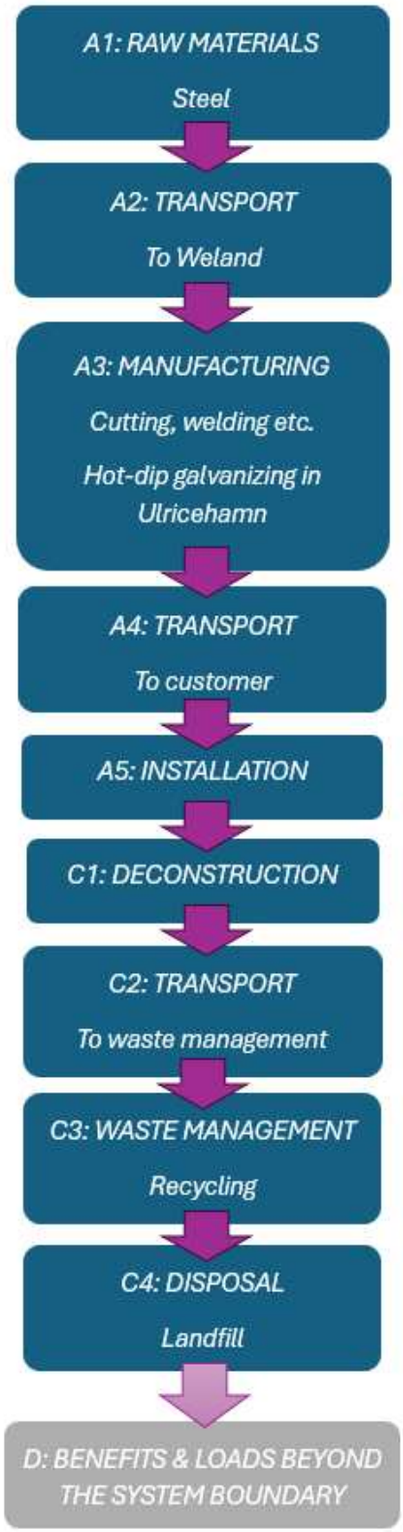
Description of the System boundary	b) Cradle to gate with options, modules C1-C4, module D and with optional modules (A1-A3 + C + D and additional modules).
Excluded modules	No, there is no excluded module, or there are no excluded modules

	Product stage			Construction process stage		Use stage							End of life stage				Beyond product life cycle
	Raw material supply	Transport	Manufacturing	Transport to site	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	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	Europe	Europe	Sweden	Sweden	Sweden	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Sweden	Sweden	Sweden	Sweden	Sweden
Share of specific data	12%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	37%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Disclaimer	The share of specific/primary data and both variations (products and sites) refer to GWP-GHG results only.																

Description of the process flow diagram(s)

A system diagram displaying the included life cycle modules is presented below. End-of-waste for incoming steel is reached when steel scrap is accepted as a recovered material input in A1. End-ofwaste for outgoing steel is reached after processing, sorting and recycling in C3, when the material is qualified again as recovered steel.

Process flow diagram(s) related images



DEFAULT SCENARIO

Name of the default scenario	92 % recycling
Description of the default scenario	The default scenario assumes 92 % recycling and 8 % landfill based on data from The Geological Survery of Sweden. The scenario assumes that an average of 92 % of steel from construction sites are sent for recycling.

Module A4: Transport to the building site

Explanatory name of the default scenario in module A4	Average distance.
Description of the default scenario in module A4	The scenario for distribution of the products to customers is based on sales statistics. The average distance for the products is 366 km.

Module A4 information	Value	Unit
Distance	366	km
Capacity utilization (including empty returns)	37	%
Bulk density of transported products	125	kg/m^3
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1	N/A
Diesel, long distance	EURO 6	N/A

Module A5: Installation in the building

Explanatory name of the default scenario in module A5	Negligible impact
Description of the default scenario in module A5	The activities connected to the installation of the products are assumed to be negligible as it mainly consists of manual labour and power tools. The amount of energy needed for this activity is estimated to fall under the cut-off for the study. No environmental impact is therefore assumed for the installation of the products apart from management of the product packaging waste.

Module C: End-of-life

Explanatory name of the default scenario in module C	92 % recycling
Description of the default scenario in module C	The default scenario assumes 92 % recycling and 8 % landfill based on data from The Geological Survery of Sweden. The scenario assumes that an average of 92 % of steel from construction sites are sent for recycling. Modelling based on default scenario values in PCR.

Module C information	Value	Unit
Loading and unloading at sorting facility	0,0085	kWh
Fragging of steel	0,0085	kWh
Mechanical sorting	0,002	kWh
Steel to be recycled	0,92	kg
Compacting of inert construction waste	0,00013	kWh
Steel to landfill (disposal)	0,08	kg
Transport	80	km
Capacity utilization (including empty returns)	37	%
Bulk density of transported products	125	kg/m^3
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1	N/A
Diesel, long distance	EURO 5	N/A

Module D: Beyond product life cycle

Explanatory name of the default scenario in module D	92 % recycling
Description of the default scenario in module D	The avoided material through recycling is seen as a benefit, while the energy to treat the recycled material until it is functionally equivalent to the assumed substituted material is considered a burden. As no materials are assumed to go to incineration, there is no energy recovery. For the calculations of module D, post-consumer scrap content from the input materials are excluded.

Module D information	Value	Unit
Pig iron	0,84	kg
Iron scrap, sorted and pressed	0,92	kg

ADDITIONAL SCENARIO 1

Name of the additional scenario	100 % recycling
Description of the additional scenario	100 % recycling scenario for C-modules.

Module A4: Transport to the building site

Description of the additional scenario in module A4	The scenario for distribution of the products to customers is based on sales statistics. The average distance for the products is 366 km.

Module A4 information	Value	Unit
Distance	366	km
Capacity utilization (including empty returns)	37	%
Bulk density of transported products	125	kg/m^3
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1	N/A
Diesel, long distance	EURO 6	N/A

Module A5: Installation in the building

Description of the additional scenario in module A5	The activities connected to the installation of the products are assumed to be negligible as it mainly consists of manual labour and power tools. The amount of energy needed for this activity is estimated to fall under the cut-off for the study. No environmental impact is therefore assumed for the installation of the products apart from management of the product packaging waste.

Module C: End-of-life

Description of the additional scenario in module C	100 % recycling assumed.

Module C information	Value	Unit
Loading and unloading at sorting facility	0,009	kWh
Fragging of steel	0,009	kWh
Mechanical sorting	0,002	kWh
Steel to be recycled	1	kg
Transport	80	km
Capacity utilization (including empty returns)	37	%
Bulk density of transported products	125	kg/m^3
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1	N/A
Diesel, long distance	EURO 5	N/A

Module D: Beyond product life cycle

Description of the additional scenario in module D	The avoided material through recycling is seen as a benefit, while the energy to treat the recycled material until it is functionally equivalent to the assumed substituted material is considered a burden. As no materials are assumed to go to incineration, there is no energy recovery. For the calculations of module D, post-consumer scrap content from the input materials are excluded.

Module D information	Value	Unit
Pig iron	0,91	kg
Iron scrap, sorted and pressed	1	kg

ADDITIONAL SCENARIO 2

Name of the additional scenario	100 % landfill
Description of the additional scenario	100 % landfill for C-modules

Module A4: Transport to the building site

Description of the additional scenario in module A4	The scenario for distribution of the products to customers is based on sales statistics. The average distance for the products is 366 km.

Module A4 information	Value	Unit
Distance	366	km
Capacity utilization (including empty returns)	37	%
Bulk density of transported products	125	kg/m^3
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1	N/A
Diesel, long distance	EURO 6	N/A

Module A5: Installation in the building

Description of the additional scenario in module A5	The activities connected to the installation of the products are assumed to be negligible as it mainly consists of manual labour and power tools. The amount of energy needed for this activity is estimated to fall under the cut-off for the study. No environmental impact is therefore assumed for the installation of the products apart from management of the product packaging waste.

Module C: End-of-life

Description of the additional scenario in module C	100 % landfill scenario.

Module C information	Value	Unit
Compacting of inert construction waste	0,002	kWh
Steel to landfill (disposal)	1	kg
Transport	80	km
Capacity utilization (including empty returns)	37	%
Bulk density of transported products	125	kg/m^3
Volume capacity utilization factor (factor: =1 or <1 or ≥1 for compressed or nested packaged products)	1	N/A
Diesel, long distance	EURO 5	N/A

Module D: Beyond product life cycle

Description of the additional scenario in module D	In the 100 % landfill scenario, no avoided burdens are assumed.

ENVIRONMENTAL PERFORMANCE

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.

Mandatory environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - total	GWP-total	kg CO_2 eq.	2.14E+0	5.49E-2	6.79E-1	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	8.54E-4	2.62E-4	-1.37E+0
Climate change - fossil	GWP-fossil	kg CO_2 eq.	2.70E+0	5.48E-2	1.47E-2	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	8.44E-4	2.62E-4	-1.39E+0
Climate change - biogenic	GWP-biogenic	kg CO_2 eq.	-5.57E-1	1.23E-5	6.64E-1	ND	ND	ND	ND	ND	ND	ND	6.66E-8	2.36E-6	2.72E-6	8.72E-8	2.09E-2
Climate change - land use and land-use change	GWP-luluc	kg CO_2 eq.	3.27E-3	8.67E-7	1.14E-6	ND	ND	ND	ND	ND	ND	ND	1.54E-8	6.61E-7	7.27E-6	1.28E-8	-2.21E-4
Ozone depletion	ODP	kg CFC-11 eq.	1.54E-8	1.25E-9	1.78E-10	ND	ND	ND	ND	ND	ND	ND	5.70E-12	1.53E-10	1.28E-11	3.80E-12	-5.25E-9
Acidification	AP	mol H^+ eq.	8.09E-3	6.81E-5	9.38E-5	ND	ND	ND	ND	ND	ND	ND	3.46E-6	3.66E-5	7.60E-6	2.37E-6	-4.71E-3
Eutrophication aquatic freshwater	EP-freshwater	kg P eq.	2.94E-4	2.82E-7	3.02E-6	ND	ND	ND	ND	ND	ND	ND	3.13E-9	7.49E-7	1.82E-8	6.50E-9	-5.58E-4
Eutrophication aquatic marine	EP-marine	kg N eq.	2.28E-3	1.54E-5	4.71E-5	ND	ND	ND	ND	ND	ND	ND	1.63E-6	1.28E-5	3.57E-6	1.09E-6	-1.05E-3
Eutrophication terrestrial	EP-terrestrial	mol N eq.	2.40E-2	1.67E-4	4.60E-4	ND	ND	ND	ND	ND	ND	ND	1.79E-5	1.40E-4	3.90E-5	1.19E-5	-1.18E-2
Photochemical ozone formation	POCP	kg NMVOC eq.	7.05E-3	1.34E-4	1.26E-4	ND	ND	ND	ND	ND	ND	ND	5.34E-6	5.21E-5	1.16E-5	3.60E-6	-4.12E-3
Depletion of abiotic resources - minerals and metals	ADP-minerals&metals[1]	kg Sb eq.	1.28E-4	1.43E-9	2.51E-9	ND	ND	ND	ND	ND	ND	ND	1.31E-11	1.06E-9	5.31E-11	8.79E-12	-1.93E-7
Depletion of abiotic resources - fossil fuels	ADP-fossil[1]	MJ, net calorific value	4.00E+1	7.29E-1	1.66E-1	ND	ND	ND	ND	ND	ND	ND	4.90E-3	1.69E-1	1.93E-2	3.36E-3	-1.45E+1
Water use	WDP[1]	m^3 world eq. deprived	6.95E-1	2.39E-4	2.83E-3	ND	ND	ND	ND	ND	ND	ND	3.66E-6	2.25E-4	1.21E-4	2.86E-6	-8.69E-2
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																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	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 environmental performance indicators

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG[1]	kg CO_2 eq.	2.70E+0	5.48E-2	1.47E-2	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	8.51E-4	2.62E-4	-1.39E+0
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The 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.																

Additional voluntary environmental performance indicators according to EN 15804

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter emissions	PM	Disease incidence	1.11E-7	3.29E-9	1.25E-9	ND	ND	ND	ND	ND	ND	ND	9.97E-11	8.28E-10	2.17E-10	6.73E-11	-1.03E-7
Ionizing radiation - human health	IRP[1]	kBq U235 eq.	4.68E-1	1.84E-4	5.16E-5	ND	ND	ND	ND	ND	ND	ND	9.51E-7	3.07E-5	6.55E-4	7.69E-7	-1.25E-2
Eco-toxicity - freshwater	ETP-fw[2]	CTUe	3.72E+1	2.63E-2	8.20E-2	ND	ND	ND	ND	ND	ND	ND	1.40E-4	1.71E-2	3.81E-4	1.23E-4	-3.51E+0
Human toxicity - cancer effects	HTP-c[2]	CTUh	2.55E-9	3.39E-12	1.32E-11	ND	ND	ND	ND	ND	ND	ND	2.00E-14	9.19E-13	5.53E-14	1.74E-14	-2.06E-9
Human toxicity - non-cancer effects	HTP-nc[2]	CTUh	3.81E-8	3.66E-10	9.45E-10	ND	ND	ND	ND	ND	ND	ND	3.68E-13	8.29E-11	1.28E-12	3.31E-13	-2.47E-9
Land-use related impacts/soil quality	SQP[2]	Dimensionless	5.52E+1	9.27E-4	4.77E-3	ND	ND	ND	ND	ND	ND	ND	8.32E-6	1.78E-3	1.97E-3	3.30E-3	-1.41E+0
Acronyms	PM = Potential incidence of disease due to particulate matter emissions; IRP = Potential human exposure efficiency relative to U235; ETP-fw = Potential comparative toxic unit for ecosystems; HTP-c = Potential comparative toxic unit for humans; HTP-nc = Potential comparative toxic unit for humans; SQP = Potential soil quality index.																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.																
Disclaimer 2	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.																

Resource use indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ, net calorific value	1.18E+1	1.82E-3	7.24E+0	ND	ND	ND	ND	ND	ND	ND	1.07E-5	3.43E-4	5.68E-3	1.44E-5	-1.65E-1
PERM	MJ, net calorific value	7.27E+0	0.00E+0	-7.24E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ, net calorific value	1.90E+1	1.82E-3	8.16E-4	ND	ND	ND	ND	ND	ND	ND	1.07E-5	3.43E-4	5.68E-3	1.44E-5	-1.66E-1
PENRE	MJ, net calorific value	4.06E+1	7.75E-1	1.78E-1	ND	ND	ND	ND	ND	ND	ND	5.21E-3	1.80E-1	2.00E-2	3.57E-3	-1.54E+1
PENRM	MJ, net calorific value	1.76E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PENRT	MJ, net calorific value	4.06E+1	7.75E-1	1.78E-1	ND	ND	ND	ND	ND	ND	ND	5.21E-3	1.80E-1	2.00E-2	3.57E-3	-1.54E+1
SM	kg	3.32E-1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ, net calorific value	1.56E-5	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ, net calorific value	1.37E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	m^3	3.35E-2	1.19E-5	1.22E-4	ND	ND	ND	ND	ND	ND	ND	9.95E-8	4.79E-6	2.39E-6	8.50E-8	-4.94E-3
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.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Waste indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	3.92E-3	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NHWD	kg	3.06E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RWD	kg	6.56E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms	HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

Output flow indicators according to EN 15804

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
CRU	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	kg	2.94E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	9.20E-1	0.00E+0	0.00E+0
MER	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EEE	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EET	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms	CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy.															
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).															

GWP-GHG results of the “best-case product”

Best-case product	Railings with round bar railing
Description of the scenario/method	Round bar railing with higher post-consumer scrap content in input materials.

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Climate change - GWP-GHG	GWP-GHG[1]	kg CO_2 eq.	1.86E+0	5.48E-2	7.17E-3	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	8.51E-4	2.62E-4	-5.56E-1
Acronyms	GWP-GHG = Global warming potential greenhouse gas.																
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																
Disclaimer 1	The GWP-GHG indicator is termed GWP-IOBC/GHG in the ILCD+EPD+ data format. The 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.																

Results for additional scenarios for modules A4-C4

Additional scenario	100 % recycling
Description of the scenario/method	100 % recycling, the results for modules C3, C4 and D changes when the alternative scenario is used.

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Core environmental impact indicators (MANDATORY)	Global warming potential - total (GWP-total)	kg CO2 eq.	2.14E+0	5.49E-2	6.79E-1	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	3.88E-3	0.00E+0	-1.49E+0
Core environmental impact indicators (MANDATORY)	Global warming potential - fossil fuels (GWP-fossil)	kg CO2 eq.	2.70E+0	5.48E-2	1.47E-2	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	3.88E-3	0.00E+0	-1.51E+0
Core environmental impact indicators (MANDATORY)	Global warming potential - biogenic (GWP-biogenic)	kg CO2 eq.	-5.57E-1	1.23E-5	6.64E-1	ND	ND	ND	ND	ND	ND	ND	6.66E-8	2.36E-6	6.90E-7	0.00E+0	2.27E-2
Core environmental impact indicators (MANDATORY)	Global warming potential - land use and land use change (GWP-luluc)	kg CO2 eq.	3.27E-3	8.67E-7	1.14E-6	ND	ND	ND	ND	ND	ND	ND	1.54E-8	6.61E-7	1.60E-7	0.00E+0	-2.40E-4
Core environmental impact indicators (MANDATORY)	Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	1.54E-8	1.25E-9	1.78E-10	ND	ND	ND	ND	ND	ND	ND	5.70E-12	1.53E-10	5.91E-11	0.00E+0	-5.71E-9
Core environmental impact indicators (MANDATORY)	Acidification potential, accumulated exceedance (AP)	mol H+ eq.	8.09E-3	6.81E-5	9.38E-5	ND	ND	ND	ND	ND	ND	ND	3.46E-6	3.66E-5	3.59E-5	0.00E+0	-5.12E-3
Core environmental impact indicators (MANDATORY)	Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	2.94E-4	2.82E-7	3.02E-6	ND	ND	ND	ND	ND	ND	ND	3.13E-9	7.49E-7	3.24E-8	0.00E+0	-6.06E-4

Core environmental impact indicators (MANDATORY)	Eutrophication potential - marine (EP-marine)	kg N eq.	2.28E-3	1.54E-5	4.71E-5	ND	ND	ND	ND	ND	ND	ND	1.63E-6	1.28E-5	1.69E-5	0.00E+0	-1.14E-3
Core environmental impact indicators (MANDATORY)	Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	2.40E-2	1.67E-4	4.60E-4	ND	ND	ND	ND	ND	ND	ND	1.79E-5	1.40E-4	1.85E-4	0.00E+0	-1.28E-2
Core environmental impact indicators (MANDATORY)	Photochemical ozone creation potential (POCP)	kg NMVOC eq.	7.05E-3	1.34E-4	1.26E-4	ND	ND	ND	ND	ND	ND	ND	5.34E-6	5.21E-5	5.53E-5	0.00E+0	-4.48E-3
Core environmental impact indicators (MANDATORY)	Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	1.28E-4	1.43E-9	2.51E-9	ND	ND	ND	ND	ND	ND	ND	1.31E-11	1.06E-9	1.36E-10	0.00E+0	-2.10E-7
Core environmental impact indicators (MANDATORY)	Abiotic depletion potential - fossil resources (ADPF)	MJ, net calorific value	4.00E+1	7.29E-1	1.66E-1	ND	ND	ND	ND	ND	ND	ND	4.90E-3	1.69E-1	4.89E-4	0.00E+0	-1.36E+1
Core environmental impact indicators (MANDATORY)	Water (user) deprivation potential (WDP)	m3 world eq. deprived	6.95E-1	2.39E-4	2.83E-3	ND	ND	ND	ND	ND	ND	ND	3.66E-6	2.25E-4	3.79E-5	0.00E+0	-9.44E-2
Additional mandatory environmental impact indicators (MANDATORY)	Global warming potential (GWP-GHG)	kg CO2 eq.	2.70E+0	5.48E-2	1.47E-2	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	3.88E-3	0.00E+0	-1.51E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Particulate matter emissions (PM)	Disease incidence	1.11E-7	3.29E-9	1.25E-9	ND	ND	ND	ND	ND	ND	ND	9.97E-11	8.28E-10	1.03E-9	0.00E+0	-1.12E-7
Additional voluntary environmental impact indicators (OPTIONAL)	Ionizing radiation, human health (IRP)	kBq U235 eq.	4.68E-1	1.84E-4	5.16E-5	ND	ND	ND	ND	ND	ND	ND	9.51E-7	3.07E-5	9.85E-6	0.00E+0	-1.36E-2
Additional voluntary environmental impact indicators (OPTIONAL)	Eco-toxicity - freshwater (ETP-fw)	CTUe	3.72E+1	2.63E-2	8.20E-2	ND	ND	ND	ND	ND	ND	ND	1.40E-4	1.71E-2	1.46E-3	0.00E+0	-3.81E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Human toxicity, cancer effect (HTP-c)	CTUh	2.55E-9	3.39E-12	1.32E-11	ND	ND	ND	ND	ND	ND	ND	2.00E-14	9.19E-13	2.07E-13	0.00E+0	-2.24E-9
Additional voluntary environmental impact indicators (OPTIONAL)	Human toxicity, non-cancer effects (HTP-nc)	CTUh	3.81E-8	3.66E-10	9.45E-10	ND	ND	ND	ND	ND	ND	ND	3.68E-13	8.29E-11	3.82E-12	0.00E+0	-2.68E-9
Additional voluntary environmental impact indicators (OPTIONAL)	Land use related impacts/Soil quality (SQP)	dimensionless	5.52E+1	9.27E-4	4.77E-3	ND	ND	ND	ND	ND	ND	ND	8.32E-6	1.78E-3	8.63E-5	0.00E+0	-1.53E+0
Indicators describing resource use (MANDATORY)	Use of renewable primary energy as energy carrier (PERE)	MJ, net calorific value	1.18E+1	1.82E-3	7.24E+0	ND	ND	ND	ND	ND	ND	ND	1.07E-5	3.43E-4	1.11E-4	0.00E+0	-1.80E-1
Indicators describing resource use (MANDATORY)	Use of renewable primary energy resources used as raw materials (PERM)	MJ, net calorific value	7.27E+0	0.00E+0	-7.24E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Total use of renewable primary energy (PERT)	MJ, net calorific value	1.90E+1	1.82E-3	8.16E-4	ND	ND	ND	ND	ND	ND	ND	1.07E-5	3.43E-4	1.11E-4	0.00E+0	-1.80E-1
Indicators describing resource use (MANDATORY)	Use of non renewable primary energy as energy carrier (PENRE)	MJ, net calorific value	4.06E+1	7.75E-1	1.78E-1	ND	ND	ND	ND	ND	ND	ND	5.21E-3	1.80E-1	5.11E-4	0.00E+0	-1.42E+1
Indicators describing resource use (MANDATORY)	Use of non renewable primary energy resources used as raw materials (PENRM)	MJ, net calorific value	1.76E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Total use of non renewable primary energy resource (PENRT)	MJ, net calorific value	4.06E+1	7.75E-1	1.78E-1	ND	ND	ND	ND	ND	ND	ND	5.21E-3	1.80E-1	5.11E-4	0.00E+0	-1.42E+1
Indicators describing resource use (MANDATORY)	Use of secondary material (SM)	kg	3.32E-1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Use of renewable secondary fuels (RSF)	MJ, net calorific value	1.56E-5	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Indicators describing resource use (MANDATORY)	Use of non-renewable secondary fuels (NRSF)	MJ, net calorific value	1.37E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Net use of fresh water (FW)	m3	3.35E-2	1.19E-5	1.22E-4	ND	ND	ND	ND	ND	ND	ND	9.95E-8	4.79E-6	1.03E-6	0.00E+0	-5.37E-3
Environmental information describing waste categories (MANDATORY)	Hazardous waste disposed (HWD)	kg	3.92E-3	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing waste categories (MANDATORY)	Non-hazardous waste disposed (NHWD)	kg	3.06E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing waste categories (MANDATORY)	Radioactive waste disposed (RWD)	kg	6.56E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Components for re-use (CRU)	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Materials for recycling (MFR)	kg	2.94E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	1.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Materials for energy recovery (MER)	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Exported electrical energy (EEE)	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Exported thermal energy (EET)	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms																	
Disclaimers																	
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																

Results for additional scenarios for modules A4-C4

Additional scenario	100 % landfill
Description of the scenario/method	100 % landfill, the results for modules C3, C4 and D changes when the alternative scenario is used.

Impact category	Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Core environmental impact indicators (MANDATORY)	Global warming potential - total (GWP-total)	kg CO2 eq.	2.14E+0	5.49E-2	6.79E-1	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	0.00E+0	3.28E-3	0.00E+0
Core environmental impact indicators (MANDATORY)	Global warming potential - fossil fuels (GWP-fossil)	kg CO2 eq.	2.70E+0	5.48E-2	1.47E-2	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	0.00E+0	3.27E-3	0.00E+0
Core environmental impact indicators (MANDATORY)	Global warming potential - biogenic (GWP-biogenic)	kg CO2 eq.	-5.57E-1	1.23E-5	6.64E-1	ND	ND	ND	ND	ND	ND	ND	6.66E-8	2.36E-6	0.00E+0	1.09E-6	0.00E+0
Core environmental impact indicators (MANDATORY)	Global warming potential - land use and land use change (GWP-luluc)	kg CO2 eq.	3.27E-3	8.67E-7	1.14E-6	ND	ND	ND	ND	ND	ND	ND	1.54E-8	6.61E-7	0.00E+0	1.60E-7	0.00E+0

Core environmental impact indicators (MANDATORY)	Depletion potential of the stratospheric ozone layer (ODP)	kg CFC-11 eq.	1.54E-8	1.25E-9	1.78E-10	ND	ND	ND	ND	ND	ND	ND	5.70E-12	1.53E-10	0.00E+0	4.75E-11	0.00E+0
Core environmental impact indicators (MANDATORY)	Acidification potential, accumulated exceedance (AP)	mol H+ eq.	8.09E-3	6.81E-5	9.38E-5	ND	ND	ND	ND	ND	ND	ND	3.46E-6	3.66E-5	0.00E+0	2.96E-5	0.00E+0
Core environmental impact indicators (MANDATORY)	Eutrophication potential - freshwater (EP-freshwater)	kg P eq.	2.94E-4	2.82E-7	3.02E-6	ND	ND	ND	ND	ND	ND	ND	3.13E-9	7.49E-7	0.00E+0	8.12E-8	0.00E+0
Core environmental impact indicators (MANDATORY)	Eutrophication potential - marine (EP-marine)	kg N eq.	2.28E-3	1.54E-5	4.71E-5	ND	ND	ND	ND	ND	ND	ND	1.63E-6	1.28E-5	0.00E+0	1.36E-5	0.00E+0
Core environmental impact indicators (MANDATORY)	Eutrophication potential - terrestrial (EP-terrestrial)	mol N eq.	2.40E-2	1.67E-4	4.60E-4	ND	ND	ND	ND	ND	ND	ND	1.79E-5	1.40E-4	0.00E+0	1.49E-4	0.00E+0
Core environmental impact indicators (MANDATORY)	Photochemical ozone creation potential (POCP)	kg NMVOC eq.	7.05E-3	1.34E-4	1.26E-4	ND	ND	ND	ND	ND	ND	ND	5.34E-6	5.21E-5	0.00E+0	4.50E-5	0.00E+0
Core environmental impact indicators (MANDATORY)	Abiotic depletion potential - non-fossil resources (ADPE)	kg Sb eq.	1.28E-4	1.43E-9	2.51E-9	ND	ND	ND	ND	ND	ND	ND	1.31E-11	1.06E-9	0.00E+0	1.10E-10	0.00E+0
Core environmental impact indicators (MANDATORY)	Abiotic depletion potential - fossil resources (ADPF)	MJ, net calorific value	4.00E+1	7.29E-1	1.66E-1	ND	ND	ND	ND	ND	ND	ND	4.90E-3	1.69E-1	0.00E+0	1.59E-3	0.00E+0
Core environmental impact indicators (MANDATORY)	Water (user) deprivation potential (WDP)	m3 world eq. deprived	6.95E-1	2.39E-4	2.83E-3	ND	ND	ND	ND	ND	ND	ND	3.66E-6	2.25E-4	0.00E+0	3.58E-5	0.00E+0
Additional mandatory environmental impact indicators (MANDATORY)	Global warming potential (GWP-GHG)	kg CO2 eq.	2.70E+0	5.48E-2	1.47E-2	ND	ND	ND	ND	ND	ND	ND	3.75E-4	1.30E-2	0.00E+0	3.28E-3	0.00E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Particulate matter emissions (PM)	Disease incidence	1.11E-7	3.29E-9	1.25E-9	ND	ND	ND	ND	ND	ND	ND	9.97E-11	8.28E-10	0.00E+0	8.41E-10	0.00E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Ionizing radiation, human health (IRP)	kBq U235 eq.	4.68E-1	1.84E-4	5.16E-5	ND	ND	ND	ND	ND	ND	ND	9.51E-7	3.07E-5	0.00E+0	9.61E-6	0.00E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Eco-toxicity - freshwater (ETP-fw)	CTUe	3.72E+1	2.63E-2	8.20E-2	ND	ND	ND	ND	ND	ND	ND	1.40E-4	1.71E-2	0.00E+0	1.54E-3	0.00E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Human toxicity, cancer effect (HTP-c)	CTUh	2.55E-9	3.39E-12	1.32E-11	ND	ND	ND	ND	ND	ND	ND	2.00E-14	9.19E-13	0.00E+0	2.17E-13	0.00E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Human toxicity, non-cancer effects (HTP-nc)	CTUh	3.81E-8	3.66E-10	9.45E-10	ND	ND	ND	ND	ND	ND	ND	3.68E-13	8.29E-11	0.00E+0	4.14E-12	0.00E+0
Additional voluntary environmental impact indicators (OPTIONAL)	Land use related impacts/Soil quality (SQP)	dimensionless	5.52E+1	9.27E-4	4.77E-3	ND	ND	ND	ND	ND	ND	ND	8.32E-6	1.78E-3	0.00E+0	4.12E-2	0.00E+0
Indicators describing resource use (MANDATORY)	Use of renewable primary energy as energy carrier (PERE)	MJ, net calorific value	1.18E+1	1.82E-3	7.24E+0	ND	ND	ND	ND	ND	ND	ND	1.07E-5	3.43E-4	0.00E+0	1.80E-4	0.00E+0
Indicators describing resource use (MANDATORY)	Use of renewable primary energy resources used as raw materials (PERM)	MJ, net calorific value	7.27E+0	0.00E+0	-7.24E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Total use of renewable primary energy (PERT)	MJ, net calorific value	1.90E+1	1.82E-3	8.16E-4	ND	ND	ND	ND	ND	ND	ND	1.07E-5	3.43E-4	0.00E+0	1.80E-4	0.00E+0
Indicators describing resource use (MANDATORY)	Use of non renewable primary energy as energy carrier (PENRE)	MJ, net calorific value	4.06E+1	7.75E-1	1.78E-1	ND	ND	ND	ND	ND	ND	ND	5.21E-3	1.80E-1	0.00E+0	1.67E-3	0.00E+0
Indicators describing resource use (MANDATORY)	Use of non renewable primary energy resources used as raw materials (PENRM)	MJ, net calorific value	1.76E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0

Indicators describing resource use (MANDATORY)	Total use of non renewable primary energy resource (PENRT)	MJ, net calorific value	4.06E+1	7.75E-1	1.78E-1	ND	ND	ND	ND	ND	ND	ND	5.21E-3	1.80E-1	0.00E+0	1.67E-3	0.00E+0
Indicators describing resource use (MANDATORY)	Use of secondary material (SM)	kg	3.32E-1	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Use of renewable secondary fuels (RSF)	MJ, net calorific value	1.56E-5	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Use of non-renewable secondary fuels (NRSF)	MJ, net calorific value	1.37E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Indicators describing resource use (MANDATORY)	Net use of fresh water (FW)	m3	3.35E-2	1.19E-5	1.22E-4	ND	ND	ND	ND	ND	ND	ND	9.95E-8	4.79E-6	0.00E+0	1.06E-6	0.00E+0
Environmental information describing waste categories (MANDATORY)	Hazardous waste disposed (HWD)	kg	3.92E-3	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing waste categories (MANDATORY)	Non-hazardous waste disposed (NHWD)	kg	3.06E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing waste categories (MANDATORY)	Radioactive waste disposed (RWD)	kg	6.56E-4	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Components for re-use (CRU)	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Materials for recycling (MFR)	kg	2.94E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Materials for energy recovery (MER)	kg	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Exported electrical energy (EEE)	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Environmental information describing output flows (MANDATORY)	Exported thermal energy (EET)	MJ, net calorific value	0.00E+0	0.00E+0	0.00E+0	ND	ND	ND	ND	ND	ND	ND	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
Acronyms																	
Disclaimers																	
General disclaimer	The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3/A1-A5 for services).																

INFORMATION RELATED TO EPDS OF MULTIPLE PRODUCTS

Justification for why this is representative	The standard railing is representative of the product group based on Weland AB's production experience. Standard railings account for approximately 70% of the annual production volume. The products covered by the EPD use the same principal materials and manufacturing processes, while variations mainly relate to the railing configuration and the use of round bars.

ABBREVIATIONS

EPD – Environmental Product Declaration

LCA – Life Cycle Assessment

PCR – Product Category Rules

GPI – General Programme Instructions

DU – Declared Unit

GWP – Global Warming Potential

GWP-GHG – Global Warming Potential, excluding biogenic carbon uptake and emissions

LCI – Life Cycle Inventory

LCIA – Life Cycle Impact Assessment

REFERENCES

General Programme Instructions for the International EPD System, version 5.0.1.

PCR 2019:14 Construction products, version 2.0.1.

EN 15804:2012+A2:2019/AC:2021, Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

ISO 14025:2006, Environmental labels and declarations – Type III environmental declarations – Principles and procedures.

ISO 14044:2006, Environmental management – Life cycle assessment – Requirements and guidelines.

LCA report - Hot dip galvanized steel products from weland AB. Jansson, Johansson, Lindqvist. 2026-09-17.

EN 15941:2024 Sustainability of construction works — Data quality for environmental assessment of products and construction work — Selection and use of data.

VERSION HISTORY

Version 001, 2026-09-28

- Original version of the EPD

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