Environmental Product Declaration

for

MPC and MPR sendzimir galvanized steel support channels

valid until

2030-05-22

Dieses Dokument der MÜPRO dient nur zur Information und unterliegt nicht dem Änderungsdienst.
Der gesamte Inhalt darf für werbliche oder andere Zwecke nur nach Genehmigung durch die MÜPRO verwendet werden.
Alle Rechte und Änderungen vorbehalten.

Environmental Product Declaration

of multiple products based on a representative product: MPC 38/40

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

MPC and MPR sendzimir galvanized steel support channels

from
MÜPRO Services GmbH

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0018721
Publication date:	2025-05-22
Valid until:	2030-05-22

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

All products included are listed in the Annex on pages 17 and 18.

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 version 1.3.4
PCR review was conducted by: The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. Chair of the PCR review: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via info@environdec.com.
Life Cycle Assessment (LCA)
LCA consultant: DEKRA Assurance Services GmbH, Handwerkstraße 15, 70565 Stuttgart, Germany
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: greentability Ltd.; Dr.-Ing. Nikolay Minkov 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:
MÜPRO Services GmbH

Contact:
- Sabine Pohl
- Mail: sabine.pohl@muepro.de
- Address: Borsigstraße 14, DE-65205 Wiesbaden, Deutschland

Description of the organisation:
MÜPRO Services GmbH is an innovative company specializing in fixing technology, vibration control and fire protection technology with over 60 years of experience. Headquartered in Wiesbaden, Germany, and with a global network, MÜPRO Services GmbH offers high-quality products and services tailored to the needs of the construction and industrial sectors. The company is known for its customer-oriented approach, providing not only product delivery but also technical consulting, project management, and customized product solutions. With a strong commitment to quality and a global presence, MÜPRO Services GmbH ensures that its solutions are implemented efficiently and reliably worldwide. MÜPRO Services GmbH has built a reputation for innovation, reliability, and delivering advanced technical solutions across diverse industries.
For more information see https://www.muepro.de/.

Product-related or management system-related certifications:
MÜPRO Services GmbH is ISO 9001 certified, and the production site at UBB Umformtechnik GmbH also operates a quality management system compliant with ISO 9001.

Name and location of production site:
UBB Umformtechnik GmbH: Im Grund 1, DE-91593 Burgbernheim, Germany

Product information

Product name:
MPC and MPR sendzimir galvanized steel support channels

Product identification:
The environmental impacts are determined for a representative product. I.e., the EPD includes multiple products of the same product group which are available in different dimensions. The selected representative product is the MPC-Support Channel 38/40, as it was the highest-selling item manufactured between November 2023 and October 2024.

The product group includes support channels distributed under two brand names, indicating their distinct profile geometries. The MPC-Support channels have a C profile and the MPR-Support channels are a toothed support channel. Another difference between the MPC and MPR support channels is the steel type. The MPC and MPR support channels are made of sendzimir galvanized steel sheet according to the standards EN 10346:2015 and EN 10143:2006. The MPC-Support channels, such as the representative product MPC-Support channel 38/40, are produced using steel graded DX51D+Z275. The MPR-Support channels are made from steel graded S250GD+Z275. Both steel grades refer to non-alloyed, cold-rolled steel with a zinc coating of 275 g/m² for corrosion resistance. The steel sheets undergo continuous hot-dip galvanizing to obtain the zinc coating. Due to their similarity, both types of steel were considered identical in terms of material content. The production processes are also consistent across all products within the product group. As a result, the

environmental impact per declared unit is equally representative for both MPC and MPR support channels.

The product group includes support channels with different dimensions (profile widths from 27 to 41 mm, profile heights from 18 to 124 mm and material thicknesses from 1.0 to 3.0 mm). The support channels are available in lengths between 1000 and 6640 mm. A detailed product list with multiplication factors for the results based on their weight is displayed in the Annex.

The support channels are certified by DNV GL for compliance with the following standards:

- RAL-GZ 655 – Pipe Supports – Quality Assurance (Edition April 2008)
- DNV-CG-0339 – Environmental Test Specification for Electrical, Electronic, and Programmable Equipment and Systems
- EN 1363-1:2012 – Fire Resistance Tests, Part 1: General Requirements

Additionally, the support channels are fire protection tested in accordance with DIN 4102-2 (1977-09).

Product description:

The MPC and MPR support channels can be used as a supporting structure for pipes and ventilation ducts in dry indoor environments. It is designed to offer a wide range of mounting options for pre-wall installations and shelves when used in conjunction with system components. The product fulfils the following functions:

- Mounting of pipe strings and pipe routes
- Mounting adjustable laterally and vertically
- Scale marks on the rail side and slot side facilitate mounting as well as measuring and cutting the rail profiles to size on site
- Compatible with connecting components to build statically well-dimensioned constructions

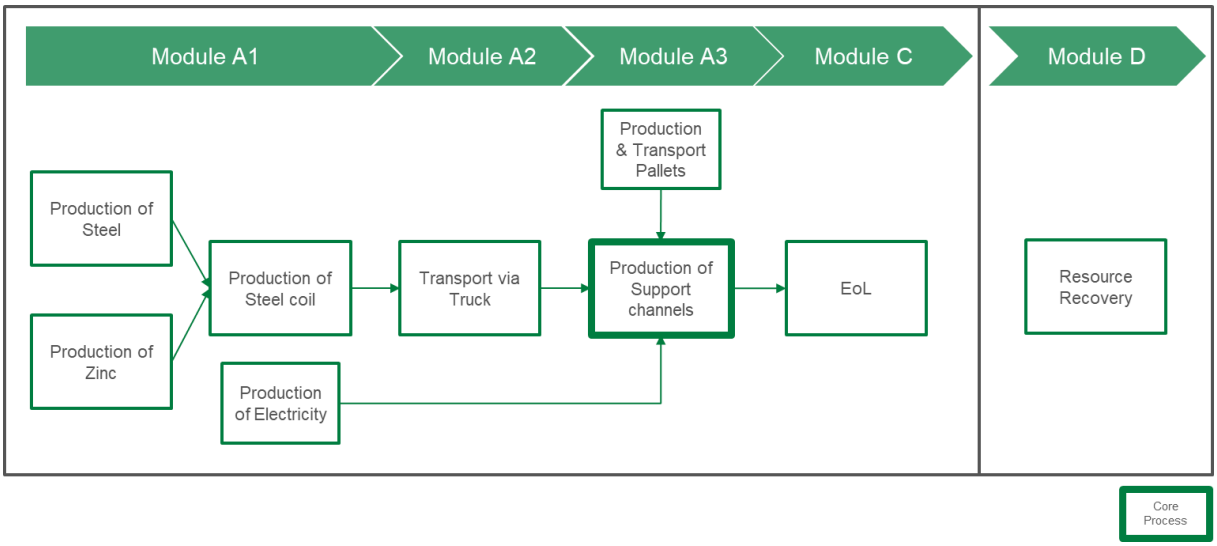
Manufacturing Process:

The manufacturing of the steel sheet into support channels takes place at a production facility in Germany (Burgbernheim). The manufacturing process includes the following steps:

- Loading the material (steel sheet in coil), unwinding the steel coil and aligning the steel sheet
- Punching holes into the steel sheet
- Bending the steel sheet into a rail using rollers specific to the rail dimensions
- Cutting the rail to the required length using hydraulic shears
- Packaging

During the manufacturing process, steel waste is generated both during the punching operation and at start-up. This steel waste has reached its end of life (EoL) and is considered a co-product, which is then sold.

The finished products are bundled into stacks, commissioned, and transported to various intermediate warehouses in Germany.



UN CPC code:
412 – Products of iron or steel
Geographical scope:
The geographical scope is Europe.

Variability for GWP-GHG:
The variability for GWP-GHG results of the support channel is 0%.

LCA information

Functional unit / declared unit:
The declared unit is 1 kg of MPC-Support channel 38/40 including packaging and the transport to company warehouses.

Reference service life:
> 50 years

Time representativeness:
The reference year of the study is November 2023 to October 2024.

Database(s) and LCA software used:
The database used is ecoinvent v3.11 (Wernet et al., 2016) with the EN15804 reference package based on Environmental Footprint (EF) 3.1. The LCA software used is Umberto 11.

Description of system boundaries:
This is an EPD of multiple products based on a representative product. The system boundary of the LCA follows the modular structure of EN 15804 + A2. The study covers a cradle to gate approach with modules C1-C4 and module D (A1-A3 + C + D).The construction process stage (A4-A5) and use stage (B1-B7) are not included. The environmental impact of the use phase is considered negligible because it is a passive product that is not removed over a long period (> 50 years).

Module A1 includes the extraction and processing of raw materials (steel and alloying elements; steel, zinc) and the manufacturing of the pre-product (steel sheet galvanized) that serves as input for the manufacturing process taking place at the production facility in Burgbernheim.

Module A2 includes the transportation of the pre-product, i.e., steel sheet, to Burgbernheim. The steel sheet is delivered by multiple suppliers via truck. The distances for the different suppliers were provided by MÜPRO Services GmbH.

Module A3 includes all the process steps, material, and energy inputs (steel sheet, electricity) to produce the support channel from the steel sheet. During production waste occurs in form of steel scrap which is considered a co-product. Since biogenic carbon is balanced out in A1-A3 the pallets are considered material for energy output flows.

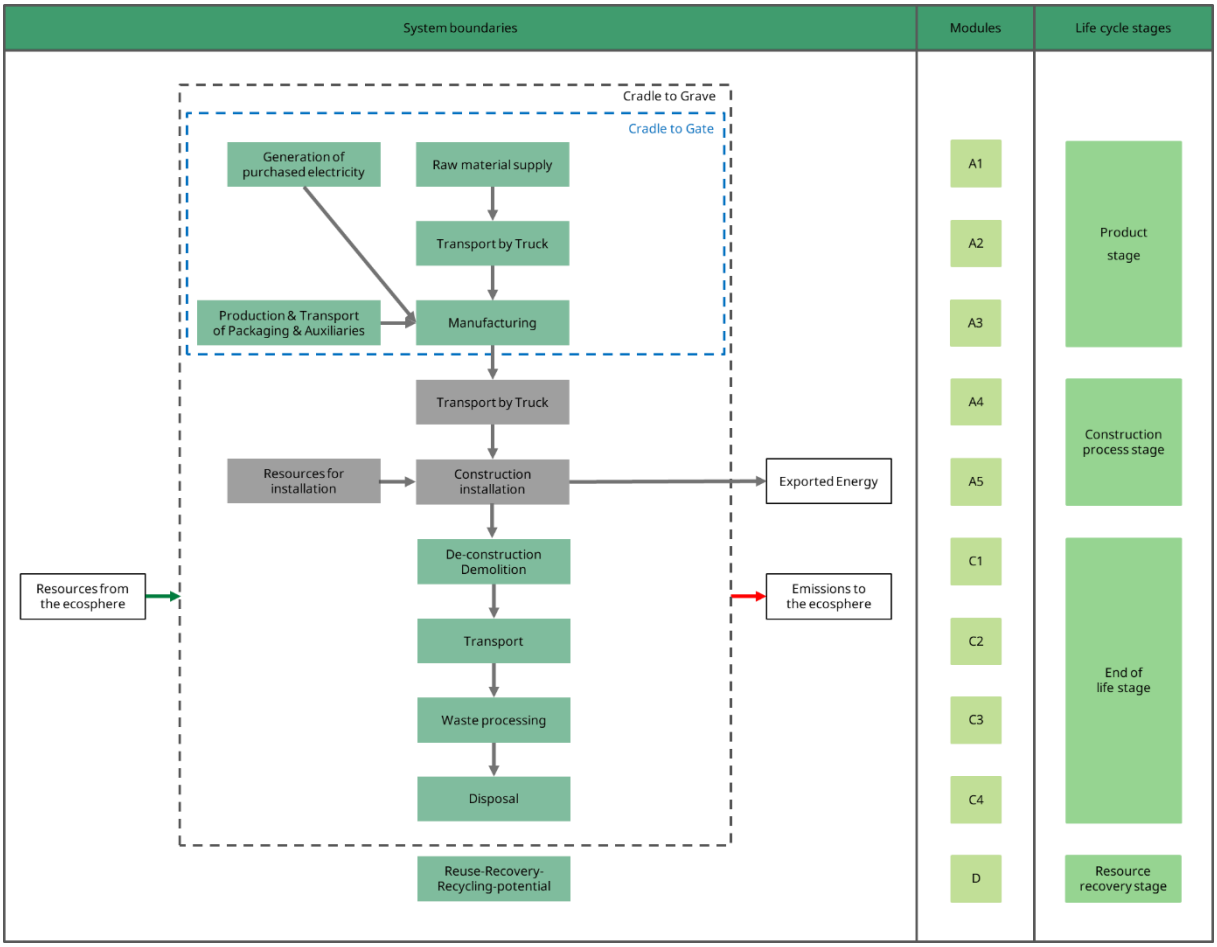
Module C1 includes the dismantling of the product. It is assumed, that 100% of the product can be recovered during dismantling. No impacts are considered for module C1 as it is assumed that dismantling is done manually.

Module C2 covers the transport to the waste processing facility. The distance is estimated to be 77 km (based on an ecoinvent dataset) and the transport is assumed to be done via truck.

Module C3 contains the product flows that are leaving the system to either Module C4 or Module D. Waste processing in the form of sorting and pressing the scrap is included. The material for recycling amounts to 95% as further described for module D.

Module C4 This module accounts for the disposal of 5% of the steel product. The end-of-life scenario is modeled as inert landfill disposal.

Module D includes the benefits/loads outside the system boundary that are related to the recovery of steel and has been calculated according to the net scrap approach as described in EN15804. 0.22 kg of scrap was used during the production of 1 kg steel and 0.95 kg of steel is recovered and sent to recycling. This results in a netflow of 0.73 kg which is considered for module D.



Cut-off:
The cut-off criteria follow EN15804:2012+A2:2019 and the applicable PCR. The product system covers a minimum of 95 % of total inflows (mass and energy) and environmental impacts per module.

Infrastructure/ capital goods are not included in the core processes. They are considered in generic datasets from the LCI-database used for upstream and downstream processes. The results of the environmental performance indicators were issued with a disclaimer.

Since modules A4 and A5 were not considered, the CO_2 contained in the Euro pallets is accounted for in A1-A3. As a result, the GWP biogenic value is considered zero for the packaging. Also, for the packaging, the pallet was included, while the small metal straps securing the steel support channels to the pallet where excluded, due to the very small amount per declared unit.

Estimations and assumptions:
The steel sheet is made of unalloyed steel with the quality DX51D+Z275MA. The scrap amount is derived from the secondary material value provided in the dataset. The scrap enters the system boundary burden-free.

A recovery rate of 95% is assumed. I.e., 95% of the steel is considered for recovery in module D, 5% of the steel goes to landfill (prEN17662). The assumed transport distance to the recycling facility is 77 km. Transport is assumed to be done by truck (prEN17662).

Credits for the avoided primary production of steel are considered, as well as burdens for product recycling. Module D has been calculated using the net flow of secondary material and a recycling efficiency according to EN15804. The recycling rate was set to 95% following the default rate for building steel set in Annex C of the Environmental Footprint (EF) (European Commission, 2022) and the default rate for light structural steel of EN 17662. In a previous system, steel was produced using 21.2% scrap steel, meaning that 78.9% of the input was primary steel.

Electricity mix:
The support channels / profiles are produced in Burgbernheim, Germany. Two different sources of electricity are used:
1. Specific electricity mix as generated by self-production through Photovoltaic (PV) modules,
2. Residual electricity mix sourced from the power grid in Germany without guarantees of origin.

The electricity consumption needed to produce 1 kg of MPC-Support channel 38/40 was calculated by the maximum power consumption of the machines and the respective production time. This is therefore a very conservative estimation.

The self-production has been modelled using the ecoinvent dataset “electricity, low voltage (DE, electricity production, photovoltaic, 3kWp slanted-roof installation, multi-Si, panel, mounted)”. The energy mix sourced from the power grid in Germany has been modelled using the ecoinvent dataset “electricity, medium voltage (DE, electricity, medium voltage, residual mix)”.

The emission factor for the GWP-GHG indicator is 821.5 g CO_2 eq /kWh for the residual mix and 97.1 g CO_2 eq /kWh for the self-production. 80% of the electricity is sourced from the residual mix and 20% is self-produced. This results in a weighted average of 676.6 CO_2 eq/kWh for the total GWP-GHG indicator.

Allocation:
The manufacturing of the steel profile generates steel scrap as a co-product which has a commercial application in recycling. In accordance with the requirements of EN 15804 and PCR Part A, material losses which reach their EoL state in A3 are treated as co-products, and the environmental impacts of the manufacturing process (excluding packaging) are allocated to the main product and the co-product based on an economic allocation.

Data quality:
Data for the core process which takes place at Burgbernheim, Germany was collected by MÜPRO Services GmbH for the year from November 2023 to October 2024 and represents the current technology. Data for the background processes is taken from LCI-database ecoinvent version 3.11 EN 15804 where the most appropriate datasets regarding their temporal, geographical and technical scope were chosen. The overall quality can be considered as very good for foreground data and good for relevant background data.

Compliance with standards
The LCA and EPD have been developed to comply with:

- ISO 14040:2006 and ISO14044:2006+A1:2018 which describe the principles, framework, requirements and provides guidelines for life cycle assessment (LCA) (ISO 14040, 2006) (ISO 14044, 2006).
- ISO 14025:2006 Environmental labels and declarations – Type III environmental declarations -- Principles and procedures, which establishes the principles and specifies the procedures for developing Type III environmental declaration programmes and Type III environmental declarations (ISO 14025, 2006).
- ISO 14020:2000 Environmental labels and declarations — General principles, which describes the guiding principles for the development and use of environmental labels and declarations (ISO 14020, 2000).
- EN 15804+A2:2019: Sustainability of construction works – Environmental product declarations - Core rules for the product category of construction products- hereafter referred to as EN15804+A2 (BS EN 15804+A2, 2020).
- Product Category Rules (PCR) 2019:14, v1.3.4 – Construction products – hereafter referred to as PCR 2019:14 (PCR 2019:14, 2022).
- General Programme Instructions (GPI) for the International EPD System V5.0.1 – containing instructions regarding methodology and the content that must be included in EPDs registered under the International EPD System (Environdec, 2024).

LCA Practitioner:
DEKRA Assurance Services GmbH
Handwerkstr. 15
70565 Stuttgart, Germany
https://www.dekra.de/de/produktnachhaltigkeit/

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

	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	EU	EU	EU	-	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used	<10%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	N/A			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Content declaration

Product components	Weight, kg	Post-consumer material recycled, weight-%	Biogenic material, weight-% of product	Biogenic material, kg C/product or declared unit
Steel	0.98	21.2*	0	0
Zinc coating	0.02	0	0	0
Sum	1	20.8	0	0

*The value is based on the secondary material share from the dataset, as the exact post-consumer share is not specified.

Packaging materials	Weight, kg	Weight-% (versus the product)	Biogenic material, kg C/product or declared unit
EUR-flat pallet	0.012	1.21	0.005
Sum	0.012	1.21	0.005

None of the substances used during production are classified as persistent, bioaccumulative and toxic (PBT) or substances of very high concern (SVHC) according to Regulation No. 1907/2006 Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH).

Results of the environmental performance indicators

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 impact category indicators according to EN 15804*

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	2.73E+00	0.00E+00	1.16E-02	2.14E-02	3.13E-04	-1.19E+00
GWP-biogenic	kg CO_2 eq.	1.76E-03	0.00E+00	2.30E-06	4.52E-05	9.70E-08	1.86E-04
GWP-luluc	kg CO_2 eq.	1.78E-03	0.00E+00	4.03E-06	2.64E-05	1.79E-07	7.16E-05
GWP-total	kg CO_2 eq.	2.73E+00	0.00E+00	1.16E-02	2.14E-02	3.13E-04	-1.19E-00
ODP	kg CFC 11 eq.	2.79E-08	0.00E+00	2.54E-10	2.84E-10	8.71E-12	-2.84E-09
AP	mol H^+ eq.	3.21E-02	0.00E+00	5.33E-05	2.55E-04	2.19E-06	-3.86E-03
EP-freshwater	kg P eq.	1.28E-03	0.00E+00	8.19E-07	1.42E-05	2.74E-08	-5.15E-04
EP-marine	kg N eq.	3.16E-03	0.00E+00	2.09E-05	5.66E-05	8.41E-07	-9.70E-04
EP-terrestrial	mol N eq.	1.24E-01	0.00E+00	2.28E-04	6.39E-04	9.19E-06	-1.06E-02
POCP	kg NMVOC eq.	9.69E-03	0.00E+00	8.00E-05	1.89E-04	3.32E-06	-3.77E-03
ADP-minerals&metals**	kg Sb eq.	8.91E-05	0.00E+00	3.88E-08	1.51E-06	4.66E-10	-7.56E-08
ADP-fossil**	MJ	3.26E+01	0.00E+00	1.67E-01	2.88E-01	7.66E-03	-1.08E+01
WDP	m^3	1.44E+00	0.00E+00	9.24E-04	5.62E-03	3.37E-04	-1.51E-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 generated by module A1-A3 should not be used in isolation. It is strongly advised that the outcomes produced by modules A1-A3 are considered alongside the results derived from module C to ensure comprehensiveness and accurate analysis.*

*** 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**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO2 eq.	2.73E+00	0.00E+00	1.16E-02	2.14E-02	3.13E-04	-1.19E+00

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PM	Disease incidences	4.07E-07	0.00E+00	1.14E-09	3.49E-09	5.04E-11	-7.88E-08
IRP	kBq U235-Eq	1.90E-01	0.00E+00	2.07E-04	2.48E-03	4.59E-06	6.02E-02
ETP-fw	CTUe	3.24E+01	0.00E+00	2.20E-02	1.65E-01	5.54E-04	-2.77E+00
HTP-c	CTUh	3.76E-09	0.00E+00	2.97E-12	1.89E-11	5.67E-14	-2.99E-10
HTP-nc	CTUh	2.80E-08	0.00E+00	1.17E-10	1.30E-09	1.28E-12	7.96E-10
SQP	points	9.51E+00	0.00E+00	1.25E-01	5.53E-01	1.51E-02	-2.11E+00

Resource use indicators

Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2.14E+00	0.00E+00	2.78E-03	5.28E-02	7.16E-05	3.22E-01
PERM	MJ	1.73E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	2.31E+00	0.00E+00	2.78E-03	5.28E-02	7.16E-05	3.13E-01
PENRE	MJ	3.26E+01	0.00E+00	1.67E-01	2.88E-01	7.66E-03	-1.08E+01
PENRM	MJ.	2.30E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	3.26E+01	0.00E+00	1.67E-01	2.88E-01	7.66E-03	-1.08E+01
SM	kg	2.20E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	5.95E-03	0.00E+00	9.45E-07	1.64E-05	3.98E-08	2.44E-05
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m^3	3.21E-02	0.00E+00	2.14E-05	1.29E-04	7.92E-06	-1.79E-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						

[1] The GWP-GHG indicator is identical to GWP-total except that the characterisation factor (CF) for biogenic CO2 is set to zero. This means that the uptake and emissions of biogenic CO2 are "balanced out" already in modules A1-A3, instead of in modules A1-A5 (for packaging) or modules A-C (for product). The results over the entire product life cycle, from module A to C, are thus identical for GWP-GHG and GWP-total unless some of the uptake of biogenic CO2 is released as another greenhouse gas (e.g., CH4).

Waste indicators

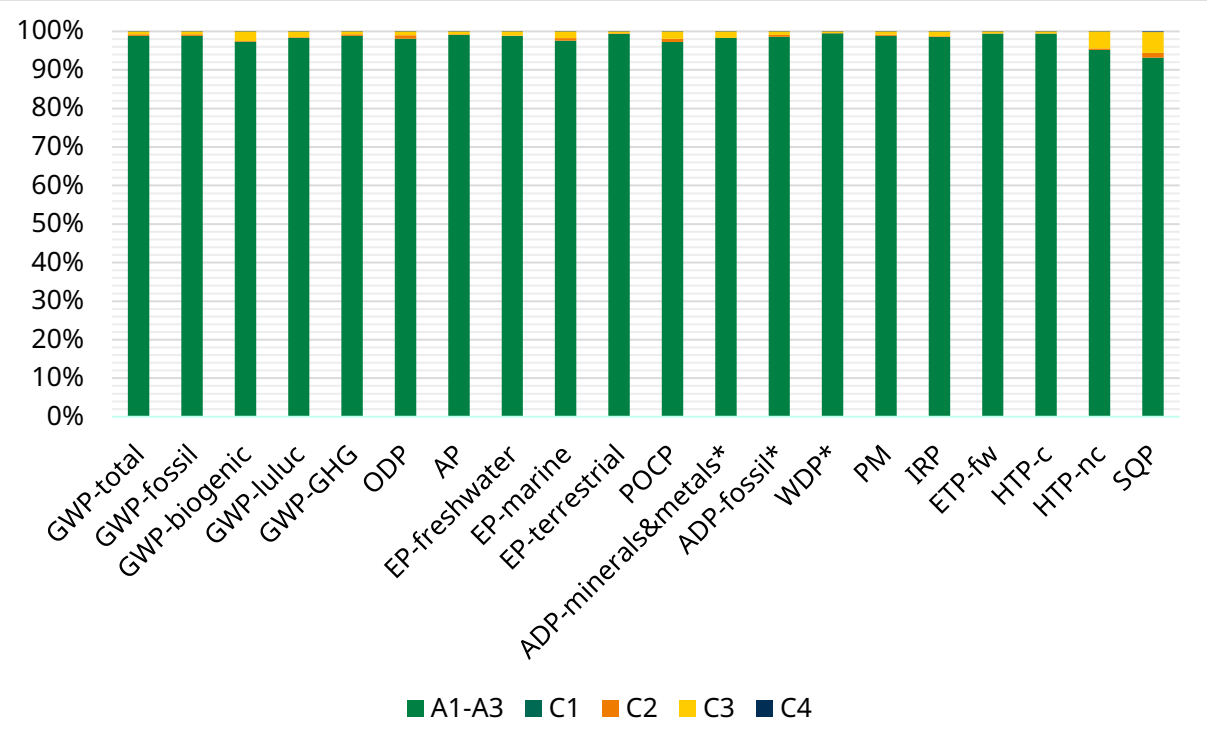
Results per functional or declared unit							
Indicator	**Unit**	**A1-A3**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	5.06E-01	0.00E+00	2.41E-04	1.90E-03	8.72E-06	2.20E-02
Non-hazardous waste disposed	kg	6.63E+00	0.00E+00	5.18E-03	7.49E-02	2.02E-04	-3.01E+00
Radioactive waste disposed	kg	4.85E-05	0.00E+00	5.10E-08	6.34E-07	1.12E-09	1.56E-05

Output flow indicators

Results per functional or 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	0.00E+00
Material for recycling	kg	0.00E+00	0.00E+00	0.00E+00	9.50E-01	0.00E+00	0.00E+00
Materials for energy recovery	kg	1.21E-02	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

Interpretation of LCA Results

The following figure shows the contribution of the individual modules to the main environmental impact categories for 1 kg of MPC-Support channel 38/40. Module D is excluded in the interpretation of share because it's outside the system boundary.



The dominating contributors to all environmental impacts are modules A1-A3. This is due to the use of steel as principal raw material which causes the main impact in all impact categories considered.

A sensitivity analysis was performed to account for uncertainties in the scrap input data used within the dataset. According to Kildahl et al. (2023), basic oxygen furnace (BOF) steel production typically involves a scrap input of approximately 20–25%. The default value applied in this EPD—21%—can therefore be considered conservative. Nevertheless, to evaluate the potential impact of variations in scrap content, the analysis was extended to include scenarios with both lower (18%) and higher (25%) scrap shares.

The results show that with the default scrap content of 21%, the GWP-GHG is 2.73 kg CO_2/kg of product. When the scrap content is reduced to 18%, the GWP-GHG increases to 2.79 kg CO_2/kg, while a higher scrap content of 25% results in a lower GWP-GHG of 2.66 kg CO_2/kg. The scrap content changes -14.29% and +19.05% for the respective scenarios, while the result in GWP-GHG changes only to +2.06% and -2.45%, so the sensitivity of this parameter can be considered low.

References

GPI (2024) General Programme Instructions for the International EPD® System. Version 5.0

PCR (2019) Product Category Rules Construction Products PCR 2019:14. Version 1.3.4

prEN 17662 Product category rules complementary to EN 15804 + A2 for Steel. Iron and Aluminium structural products for use in construction works

Wernet. G.. Bauer. C.. Steubing. B.. Reinhard. J.. Moreno-Ruiz. E.. and Weidema. B.. 2016. The ecoinvent database version 3 (part I): overview and methodology. The International Journal of Life Cycle Assessment. [online] 21(9). pp.1218–1230.

European Commission. Joint Research Centre. Damiani. M.. Ferrara. N.. Ardente. F.. Understanding Product Environmental Footprint and Organisation Environmental Footprint methods. Publications Office of the European Union. 2022. https://data.europa.eu/doi/10.2760/11564

Regulation No. 1907/2006 Registration. Evaluation. Authorisation and Restriction of Chemicals (REACH).

MÜPRO Services GmbH https://www.muepro.com/

The International EPD® System https://www.environdec.com

Ecoinvent 3.11 https://ecoinvent.org

Kildahl, H., Wang, L., Tong, L., & Ding, Y. (2023). Cost effective decarbonisation of blast furnace – basic oxygen furnace steel production through thermochemical sector coupling. Journal of Cleaner Production, 417, 139673. https://doi.org/10.1016/j.jclepro.2023.139673

Norms

ISO 14025 DIN EN ISO 14025:2011: Environmental labels and declarations – Type III environmental declarations – Principles and procedures

ISO 14040 DIN EN ISO 14040:2006: Environmental management – Life cycle assessment – Principles and framework

ISO 14044 DIN EN ISO 14044:2006: Environmental management – Life cycle assessment – Requirements and guidelines

EN 15804 + A2 EN15804:2012+A2:2019+AC:2021: Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products

ISO 9001:2015 DIN EN ISO 9001:2015: Quality management systems – Requirements

ANNEX

In the table, below all products covered by this EPD are listed with their specific dimensions. To obtain the environmental performance of a specific product with a defined length. each impact category (e.g. GWP) must be multiplied by the product's weight-based scaling factor listed below. This approach is valid because all products share identical material composition, and the declared unit is in kilograms, allowing for a linear correlation of impacts.

Name	Length (mm)	Weight per unit length (kg/m)	Multiplication factor
MPC-Support channel 27/18/1.0	2.000	0.501	1.002
MPC-Support channel 27/18/1.25	1.000	0.600	0.600
MPC-Support channel 27/18/1.25	2.000	0.600	1.200
MPC-Support channel 27/18/1.25	3.000	0.610	1.830
MPC-Support channel 27/18/1.25	6.000	0.600	3.600
MPC-Support channel 28/30/1.75	2.000	1.150	2.300
MPC-Support channel 28/30/1.75	3.040	1.150	3.496
MPC-Support channel 28/30/1.75	4.000	1.150	4.600
MPC-Support channel 28/30/1.75	6.000	1.150	6.900
MPC-Support channel 38/24/1.75	2.000	1.214	2.428
MPC-Support channel 38/24/1.75	3.040	1.197	3.640
MPC-Support channel 38/24/1.75	6.000	1.333	8.000
MPC-Support channel 38/40/2.0	2.000	1.820	3.640
MPC-Support channel 38/40/2.0	3.040	1.820	5.533
MPC-Support channel 38/40/2.0	4.000	1.820	7.280
MPC-Support channel 38/40/2.0	6.000	1.820	10.920
MPC-Support channel 39/52/2.5	6.000	2.800	16.800
MPC-Support channel 40/60/3.0	2.000	3.500	7.000
MPC-Support channel 40/60/3.0	3.040	3.500	10.640
MPC-Support channel 40/60/3.0	4.000	3.500	14.000
MPC-Support channel 40/60/3.0	6.000	3.500	21.000
MPC-Support channel 40/80/3.0	6.000	4.360	26.160
MPC-Support channel 38/48/1.75 H	6.000	2.428	14.568
MPC-Support channel 38/80/2.0 H	2.000	3.580	7.160
MPC-Support channel 38/80/2.0 H	4.000	3.580	14.320
MPC-Support channel 38/80/2.0 H	6.640	3.580	23.771
MPC-Support channel 40/120/3.0 H	6.640	7.123	47.300

MPR-Support channel 41/21/1.5	3.000	1.260	3.780
MPR-Support channel 41/21/1.5	6.000	1.260	7.560
MPR-Support channel 41/21/2.0	2.000	1.450	2.900
MPR-Support channel 41/21/2.0	3.040	1.451	4.410
MPR-Support channel 41/21/2.0	6.000	1.450	8.700
MPR-Support channel 41/41/2.0	2.000	2.080	4.160
MPR-Support channel 41/41/2.0	3.040	2.079	6.320
MPR-Support channel 41/41/2.0	6.000	2.080	12.480
MPR-Support channel 41/41/2.5	2.000	2.530	5.060
MPR-Support channel 41/41/2.5	3.040	2.530	7.690
MPR-Support channel 41/41/2.5	6.000	2.530	15.180
MPR-Support channel 41/62/2.5	2.000	3.380	6.760
MPR-Support channel 41/62/2.5	3.040	3.382	10.280
MPR-Support channel 41/62/2.5	6.000	3.380	20.280
MPR-Support channel 41/42/2.0 H	6.640	2.901	19.260
MPR-Support channel 41/82/2.0 H	6.640	4.160	27.620
MPR-Support channel 41/82/2.5 H	6.000	5.060	30.360
MPR-Support channel 41/124/2.5 H	6.640	6.761	44.890

EPD®

www.environdec.com