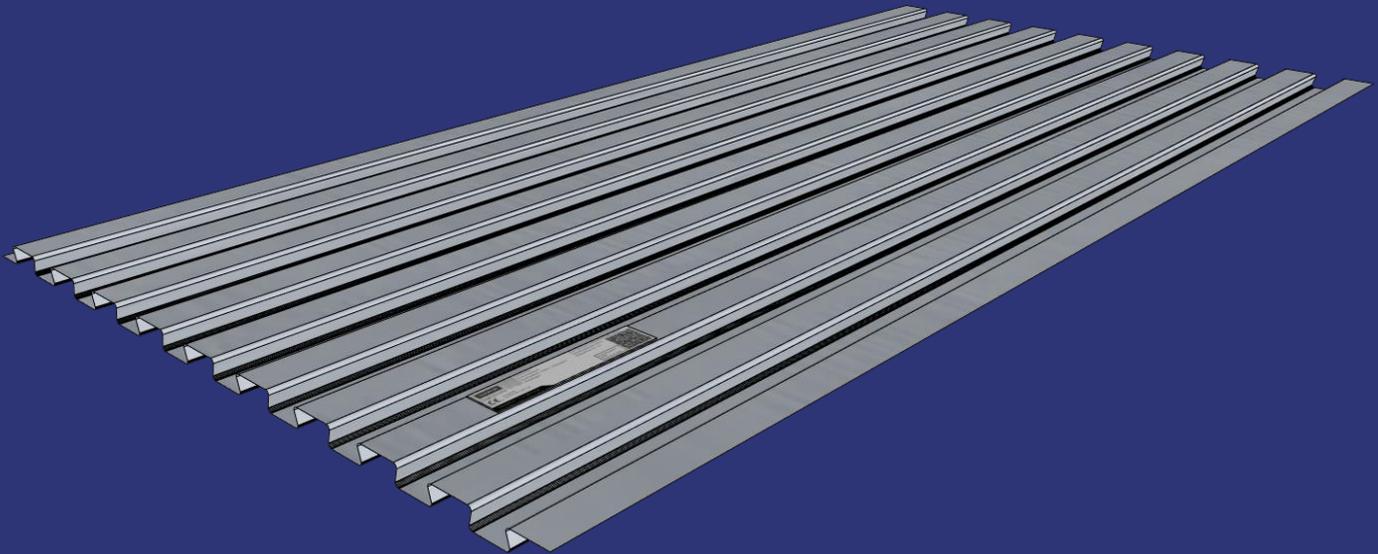


**Environmental
Product
Declaration**

According to EN15804+A2

This declaration is for:
DF16 dovetailed sheet, S320GD + Z100Provided by:
DuoforMRPI® registration:
1.1.01040.2026Program operator:
Stichting MRPI®
Publisher:
Stichting MRPI®
www.mrpi.nlDate of first issue:
16-12-2025
Date of this issue:
16-12-2025
Expiry date:
16-12-2030

COMPANY INFORMATION

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MRPI® REGISTRATION

1.1.01040.2026

DATE OF THIS ISSUE

16-12-2025

EXPIRY DATE

16-12-2030

SCOPE OF DECLARATION

This MRPI®-EPD certificate is verified by Gert-Jan Vroege, Eco Intelligence. The LCA study has been done by Thijs de Goede, Alba Concepts. The certificate is based on an LCA-dossier according to EN15804+A2. It is verified according to the 'Verification protocol for MRPI LCA project report & EPD 21th of May 2025, V. 5.2'. EPDs of construction products may not be comparable if they do not comply with EN15804+A2. Declaration of SVHC that are listed on the 'Candidate list of Substances of Very High Concern for authorisation' when content exceeds the limits for registration with ECHA.

PRODUCT

DF16 dovetailed sheet, S320GD + Z100

DECLARED UNIT / FUNCTIONAL UNIT

1 Area (m2)

DESCRIPTION OF PRODUCT

The DF16 dovetail sheet is a rolled and self-supporting steel reinforcement sheet. The DF16 dovetail sheets are intended for floor constructions in new builds and renovations. The rolled and self-supporting steel sheets are used as reinforcement and permanent formwork for thin (slender) lightweight floors. This is mainly done on wooden and steel supporting structures.

VISUAL PRODUCT

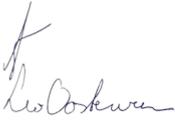


PROGRAM OPERATOR

Stichting MRPI®
 Kingsfordweg 151
 1043 GR
 Amsterdam

MORE INFORMATION

<https://duofor.eu>

<p>Ing. L. L. Oosterveen MSc. MBA Managing Director MRPI</p>	<p>DEMONSTRATION OF VERIFICATION</p>
	<p>CEN standard EN15804 serves as the core PCR [1]</p>
	<p>Independent verification of the declaration and data according to EN15804+A2</p> <p>Internal: _____ External: X</p>
	<p>Third party verifier: Gert-Jan Vroege, Eco Intelligence</p> 
	<p>[1] PCR = Product Category Rules</p>



DETAILED PRODUCT DESCRIPTION

The DF16 dovetail sheet is a rolled and self-supporting steel reinforcement sheet. All material inputs and processes have been normalized to a functional unit of one square meter in this EPD. Steel: S320GD; zinc: 100 g/m²; thickness: 0.5 mm. The minimum zinc coating of 100 g/m² provides basic corrosion protection for dry indoor environments, regardless of whether they are heated.

The DF16 dovetail sheets are intended for floor constructions in new builds and renovations. The rolled and self-supporting steel sheets are used as reinforcement and permanent formwork for thin (slender) lightweight floors. This is mainly done on wooden and steel supporting structures.

Production process: 1. Preparation of the Material The flat steel sheet is delivered in rolls. After inspection for quality and dimensions, the roll is placed into the production line using an electric forklift." 2. Rolling and Shaping The steel sheets are fed through a series of rollers that press the characteristic dovetail shape into the steel. This process creates the ribs and grooves that give the sheet its strength and form. When switching to a new roll, a welded joint is made. 3. Cutting to Size After rolling, the sheets are cut to the desired length. This is done using industrial cutting machines that operate precisely and efficiently. Weld seams are cut off and result in production waste. 4. Finishing The sheets are then finished, including a ribbed edge. This generates limited production waste. These are very fine metal particles that are cut from the edges to obtain a manageable final product. 6. Packaging The finished sheets are packaged in sets of 80. Various materials such as straps, wooden blocks, and cardboard are used to protect the sheets during transport. 7. Storage and Transport The packaged dovetail sheets are stored in the warehouse and then prepared for transport to the customer.

RSL: 75 years

Technical data	Value
RSL	75
Nominal profile height (mm)	16
Nominal sheet thickness (mm)	0,5
Nominal sheet width (mm)	630
Effective sheet width (mm)	610

Component (> 1%)	(kg / %)
Steel	97
Zinc	3

SCOPE AND TYPE

The product is produced in the Netherlands. Its end of life is considered to be taking place within the Netherlands. The LCA was modelled in Rethink and Simapro using Ecoinvent v.3.9.1. to produce data for a specific EPD.

PURPOSE AND TARGET GROUPS

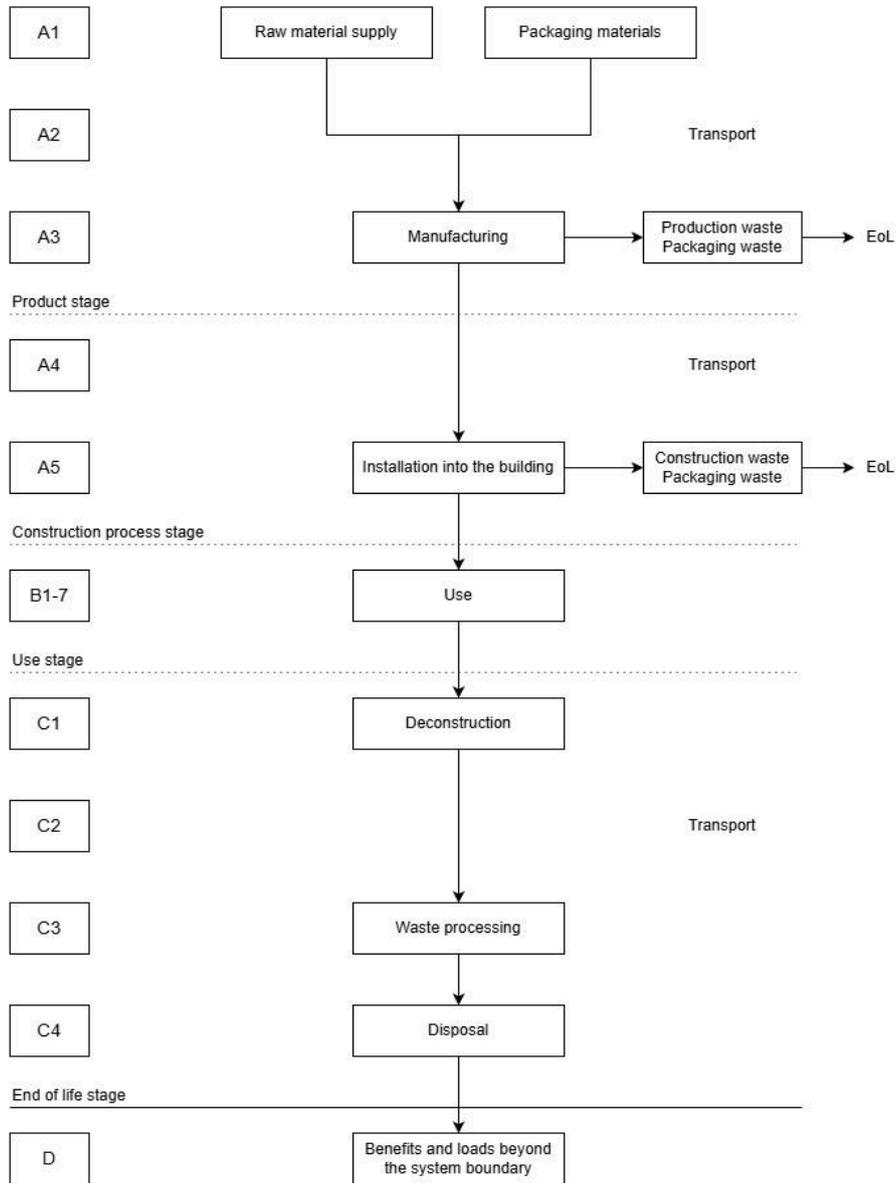
The purpose of this study is to define the environmental impact of the examined product by creating an Environmental Product Declaration (EPD) based on a Life Cycle Assessment (LCA). The potential environmental impacts are calculated in accordance with ISO 14040 and 14044, which define the LCA method. The EPD is created in accordance with ISO 14025, which defines principles and procedures of Type III environmental declarations, and EN 15804, which defines core rules for EPDs of construction products. The EPD serves not only the determination of environmental impact of the product, but it also shows the material and energy flows of the production and therefore identifies potential for optimization. Due to the publication of the LCA results by an EPD it is possible to communicate the environmental impacts of the product towards relevant stakeholder groups. Furthermore, the EPD enables the calculation of the environmental impacts on a building level. Therefore, the results of this study can support a fact-oriented dialogue based on a transparent environmental information of the examined products and can be used for business-to-business (B2B) and/or business-to-customer (B2C) communication. The target groups of this LCA study are users of EPD's in accordance with the EN15804:2012+A2:2019, ISO14040, ISO14044 and is for Business-to-Business (B2B) communication.



PRODUCT STAGE			CONSTRUCTION PROCESS STAGE		USE STAGE							END OF LIFE STAGE				BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES
Raw material supply	Transport	Manufacturing	Transport gate to site	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse - Recovery - Recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	ND	ND	ND	ND	X	X	X	X	X

X = Modules Assessed

ND = Not Declared



REPRESENTATIVENESS

This EPD is representative for DF16 dovetailed sheet, S320GD + Z100, a product by Duofor. The results of this EPD are representative for Netherlands.

ENVIRONMENTAL IMPACT per functional unit or declared unit (core indicators A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO2 eq.	1,27E+01	1,76E+00	2,84E-01	1,48E+01	1,36E-01	1,04E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	4,45E-02	0,00E+00	4,21E-04	-4,81E+00
GWP-fossil	kg CO2 eq.	1,27E+01	1,76E+00	5,10E-01	1,50E+01	1,35E-01	8,17E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	4,44E-02	0,00E+00	4,21E-04	-4,81E+00
GWP-biogenic	kg CO2 eq.	9,53E-03	4,09E-04	-2,28E-01	-2,18E-01	4,41E-05	2,19E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	1,45E-05	0,00E+00	2,51E-07	4,55E-03
GWP-luluc	kg CO2 eq.	8,96E-03	2,68E-03	9,04E-04	1,25E-02	4,83E-04	6,75E-04	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	1,55E-04	0,00E+00	2,31E-07	-2,12E-04
ODP	kg CFC11 eq.	2,71E-07	2,78E-08	3,42E-07	6,41E-07	2,41E-09	3,39E-08	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	1,01E-09	0,00E+00	3,53E-11	-1,96E-07
AP	mol H+ eq.	1,28E-01	4,04E-02	3,07E-03	1,71E-01	6,48E-04	8,68E-03	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	2,14E-04	0,00E+00	3,25E-06	-1,74E-02
EP-fresh water	kg P eq.	5,70E-04	9,80E-06	2,81E-05	6,08E-04	1,35E-06	3,06E-05	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	4,41E-07	0,00E+00	4,32E-09	2,53E-04
EP-marine	kg N eq.	1,39E-02	1,04E-02	6,27E-04	2,49E-02	2,46E-04	1,29E-03	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	8,10E-05	0,00E+00	1,23E-06	-3,38E-03
EP-terrestrial	mol N eq.	4,68E-01	1,15E-01	9,47E-03	5,92E-01	2,63E-03	3,01E-02	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	8,64E-04	0,00E+00	1,34E-05	-5,37E-02
POCP	kg NMVOC eq.	6,46E-02	3,16E-02	2,15E-03	9,83E-02	8,97E-04	5,09E-03	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	2,94E-04	0,00E+00	4,50E-06	-3,26E-02
ADP-minerals & metals	kg Sb eq.	2,49E-04	2,73E-06	-9,77E-05	1,54E-04	4,24E-07	1,29E-05	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	1,63E-07	0,00E+00	1,10E-09	-1,20E-02
ADP-fossil	MJ, net calorific value	1,36E+02	2,25E+01	7,71E+00	1,66E+02	1,94E+00	8,58E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	6,36E-01	0,00E+00	1,06E-02	-4,49E+01
WDP	m3 world eq. Deprived	4,08E+00	7,25E-02	8,53E-02	4,23E+00	1,06E-02	2,19E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	3,44E-03	0,00E+00	3,95E-04	-5,95E+00

- GWP-total = Global Warming Potential total
- GWP-fossil = Global Warming Potential fossil fuels
- GWP-biogenic = Global Warming Potential biogenictotal
- GWP-luluc = Global Warming Potential land use and land use change
- ODP = Depletion potential of the stratospheric ozone layer
- AP = Acidification Potential, Accumulated Exceedence
- 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 Exceedence
- POCP = Formation potential of tropospheric ozone photochemical oxidants
- ADP-minerals & metals = Abiotic Depletion Potential for non-fossil resources [1]
- ADP-fossil = Abiotic Depletion for fossil resources potential [1]
- WDP = Water (user) deprivation potential, deprivation-weighted water consumption [1]

Disclaimer [1]:

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.



ENVIRONMENTAL IMPACT per functional unit or declared unit (additional indicators A2)

Unit		A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PM	Disease incidence	1,69E-06	8,44E-08	3,38E-08	1,81E-06	1,34E-08	9,28E-08	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	4,37E-09	0,00E+00	7,04E-11	-4,23E-07
IRP	kBq U235 eq.	1,55E-01	5,92E-03	1,48E-02	1,75E-01	7,57E-04	9,00E-03	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	3,12E-04	0,00E+00	1,17E-05	1,49E-02
ETP-fw	CTUe	1,18E+02	1,28E+01	2,36E+00	1,33E+02	1,43E+00	7,42E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	4,72E-01	0,00E+00	1,31E-02	-7,17E+01
HTP-c	CTUh	7,02E-08	8,05E-10	1,59E-09	7,26E-08	7,17E-11	3,65E-09	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	2,34E-11	0,00E+00	2,40E-13	4,00E-08
HTP-nc	CTUh	1,46E-07	1,00E-08	9,83E-09	1,66E-07	1,56E-09	8,44E-09	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	5,14E-10	0,00E+00	8,95E-12	2,98E-07
SQP	-	3,38E+01	6,54E+00	2,37E+01	6,40E+01	1,53E+00	3,40E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	5,03E-01	0,00E+00	2,19E-02	-1,63E+01

- PM = Potential incidence of disease due to PM emissions
- IRP = Potential Human exposure efficiency relative to U235 [1]
- ETP-fw = Potential Comparative Toxic Unit for ecosystems [2]
- HTP-c = Potential Comparative Toxic Unit for humans, cancer [2]
- HTP-nc = Potential Comparative Toxic Unit for humans, non-cancer [2]
- SQP = Potential soil quality index [2]

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.

Disclaimer [2]:

- The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

OUTPUT FLOWS AND WASTE CATEGORIES per functional unit or declared unit (A1 en A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
HWD	kg	2,50E-03	1,21E-04	2,65E-05	2,65E-03	1,24E-05	1,35E-04	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	3,99E-06	0,00E+00	4,86E-08	-2,33E-03
NHWD	kg	2,51E+00	4,90E-01	1,32E-01	3,14E+00	1,28E-01	2,81E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	4,20E-02	0,00E+00	6,55E-02	8,07E-01
RWD	kg	9,71E-05	3,28E-06	1,18E-05	1,12E-04	4,44E-07	5,78E-06	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	2,51E-07	0,00E+00	1,37E-08	7,83E-06
CRU	kg	0,00E+00	0,00E+00	3,50E-03	3,50E-03	0,00E+00	1,46E-02	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	2,89E-01	0,00E+00	0,00E+00
MFR	kg	0,00E+00	0,00E+00	6,76E-02	6,76E-02	0,00E+00	3,35E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	5,57E+00	0,00E+00	0,00E+00
MER	kg	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00								
EEE	MJ	0,00E+00	0,00E+00	3,67E-02	3,67E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	2,81E-01
ETE	MJ	0,00E+00	0,00E+00	6,31E-02	6,31E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	4,83E-01

- HWD = Hazardous Waste Disposed
- NHWD = Non Hazardous Waste Disposed
- RWD = Radioactive Waste Disposed
- CRU = Components for reuse
- MFR = Materials for recycling
- MER = Materials for energy recovery
- EEE = Exported Electrical Energy
- ETE = Exported Thermal Energy

RESOURCE USE per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	5,72E+00	2,07E-01	2,63E+00	8,56E+00	2,74E-02	4,43E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	8,97E-03	0,00E+00	1,80E-04	-6,71E-01
PERM	MJ	0,00E+00	0,00E+00	2,16E+00	2,16E+00	0,00E+00	1,08E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERT	MJ	5,72E+00	2,07E-01	4,79E+00	1,07E+01	2,74E-02	5,51E-01	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	8,97E-03	0,00E+00	1,80E-04	-6,71E-01
PENRE	MJ	1,36E+02	2,25E+01	7,16E+00	1,66E+02	1,94E+00	8,56E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	6,38E-01	0,00E+00	1,07E-02	-4,54E+01
PENRM	MJ	0,00E+00	0,00E+00	5,40E-01	5,40E-01	0,00E+00	2,70E-02	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,36E+02	2,25E+01	7,70E+00	1,66E+02	1,94E+00	8,59E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	6,38E-01	0,00E+00	1,07E-02	-4,54E+01
SM	kg	1,16E+00	0,00E+00	1,41E-02	1,18E+00	0,00E+00	5,88E-02	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00								
NSRF	MJ	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00								
FW	m3	1,10E-01	2,91E-03	3,75E-03	1,16E-01	4,69E-04	6,05E-03	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	1,52E-04	0,00E+00	1,16E-05	-1,23E-01

- PERE = Use of renewable primary energy excluding renewable primary energy 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 resources excluding non-renewable 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 resources
- SM = Use of secondary materials
- RSF = Use of renewable secondary fuels
- NSRF = Use of non-renewable secondary fuels
- FW = Use of net fresh water

BIOGENIC CARBON CONTENT per functional unit or declared unit (A1 and A2)

	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
BBCpr	kg C	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00								
BCCpa	kg C	0,00E+00	0,00E+00	5,94E-02	5,94E-02	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

- BCCpr = Biogenic carbon content in product
- BCCpa = Biogenic carbon content in packaging



CALCULATION RULES

PURPOSE AND TARGET GROUPS

The purpose of this study is to define the environmental impact of the examined product by creating an Environmental Product Declaration (EPD) based on a Life Cycle Assessment (LCA). The potential environmental impacts are calculated in accordance with ISO 14040 and 14044, which define the LCA method. The EPD is created in accordance with ISO 14025, which defines principles and procedures of Type III environmental declarations, and EN 15804, which defines core rules for EPDs of construction products. The EPD serves not only the determination of environmental impact of the product, but it also shows the material and energy flows of the production and therefore identifies potential for optimization. Due to the publication of the LCA results by an EPD it is possible to communicate the environmental impacts of the product towards relevant stakeholder groups. Furthermore, the EPD enables the calculation of the environmental impacts on a building level. Therefore, the results of this study can support a fact-oriented dialogue based on a transparent environmental information of the examined products and can be used for business-to-business (B2B) and/or business-to-customer (B2C) communication. The target groups of this LCA study are users of EPD's in accordance with the EN15804:2012+A2:2019, ISO14040, ISO14044 and is for Business-to-Business (B2B) communication.

ALLOCATION USED ENVIRONMENTAL PROFILES / DATASETS

There is no allocation applied for the environmental profiles / datasets used in this LCA. For the sake of clarity, the generic processes which are not changed (e.g. EcoInvent waste treatment processes) are not shown in this overview.

DATA COLLECTION & REFERENCE PERIOD

2023

ESTIMATES AND ASSUMPTIONS

Energy consumption is assumed based on allocation

Data quality

Data flows have been modeled as realistically as possible. Data quality assessment is based on the principle that the primary data used for processes occurring at the production site is selected in the first instance. Where this is not available, other reference data is selected from appropriate sources.

SCENARIOS AND ADDITIONAL TECHNICAL INFORMATION

Waste scenarios

Waste processing for the product is accounted for based on generic data. After demolition and transport of the waste streams to the applicable waste processing routes, the waste is processed for final disposal or recycling and/or reuse. The calculated quantities and the applicable end-of-life scenario of the components (> 1%) are shown below.

COMPONENT >1% of total mass	Scenario	Region	Landfill [%]	Incineration [%]	Recycling [%]	Re-use [%]
Steel	NMD ID 70	NL	1	0	94	5
Zinc	NMD ID 75	NL	5	0	95	0

DECLARATION OF SVHC

No raw materials on the list of very hazardous substances (SVHC) are used during the production process or in the end product.

REFERENCES

- ISO 14040
ISO 14040:2006, Environmental management - Life cycle assessment - Principles and framework
- ISO 14044
ISO 14044:2006, Environmental management - Life cycle assessment - Requirements and guidelines
- ISO 14025
ISO 14025:2011, Environmental labels and declarations - Type III environmental declarations - Principles and procedures
- EN 15804+A2
EN 15804:2012+A2:2019, Sustainability of Buildings - Environmental Product Declarations - Core rules for the product category of construction products
- EN 15941
EN 15941:2024, Sustainability of construction works - Data quality for environmental assessment of products and construction work - Selection and use of data
- Ecoinvent
ecoinvent Version 3.9.1, December 2022
- R<THINK characterization method
ecoinvent 3.9.1: EN 15804+A1 indicators (CML-IA Baseline v3.09), EN 15804+A2 indicators (EF 3.1)