Environmental Product Declaration

In accordance with ISO14025:2006 and EN15804:2012+A2:2019

Ceiling mounted radiant heating panel Casa Plan 600 P L3000 10mm

Owner of the declaration:
Lyngson SIA

Product name:
Ceiling mounted radiant heating panel Casa Plan 600 P L3000 10mm

Declared unit:
1 piece of Ceiling mounted radiant heating panel Casa Plan 600 P L3000 10mm

Product category /PCR:
NPCR Part A:2021 Construction products and services Version 2.0
PSR-0011-ed2.0-EN-2023-06-06

Program holder and publisher:
The Norwegian EPD foundation

Declaration number:
NEPD-8999-8524

Registration number:
NEPD-8999-8524

Issue date: 10.02.2025

Valid to: 10.02.2030

The Norwegian
EPD Foundation

General information

Product:
Ceiling mounted radiant heating panel Casa Plan 600 P L3000 10mm

Program operator:
The Norwegian EPD Foundation
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Declaration number:
NEPD-8999-8524

This declaration is based on Product Category Rules:
NPCR Part A:2021 Construction products and services Version 2.0
PSR-0011-ed2.0-EN-2023-06-06

Statement of liability:
The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

Declared unit:
1 piece of Ceiling mounted radiant heating panel Casa Plan 600 P L3000 10mm

Verification:
Independent verification of the declaration and data, according to ISO14025:2010

internal ☐ external ☒

Elisabet Amat
Independent verifier approved by EPD Norway

Owner of the declaration:
Lyngson SIA

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Manufacturer:
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Place of production:
"Akači", Grēnes, Olaines novads, Latvija

Management system:
ISO 9001, ISO 14001, ISO 50001

Organisation no:
LV40003822806

Issue date:
10.02.2025

Valid to:
10.02.2030

Year of study:
2023

Comparability:
EPD of construction products may not be able to compare if they do not comply with EN 15804 and are seen in a building context.

The EPD has been worked out by:
Bureau Veritas Latvia

Approved

Manager of EPD Norway

Product

Product description:

Casa Plan is a ceiling mounted radiant heating panel. Ceiling heating panels heat up the surfaces of the room with radiant heat. Surfaces that in turn heat up air and create a draft-free and comfortable room climate. The heat source on the ceiling also makes the interior designer's work much easier and more flexible – there is no obstructing heating installation needed on the walls or floor. Casa Plan is specially designed for installation in a suspended ceiling system. The dimensions of the panels have been adapted to replace the 600 mm wide suspended ceiling modules. With its slim size of only 40 mm, the panel meets any installation requirements. The ceiling heating panel always comes insulated from the factory with bent pipe ends for easy connection.

Product specification:

Materials	Value	%
Aluminium sheets	6,200	55,4%
Steel plates	0,600	5,4%
Mineral wool insulation	1,200	10,7%
Milk paper	0,400	3,6%
Copper pipe	2,400	21,5%
Adhesive	0,085	0,8%
Powder coating	0,300	2,7%
TOTAL	**11,185**	**100,0**

Packaging materials	Value	%
PE foam	0,040	2,8%
Plastic stretch film	0,150	10,4%
Cardboard sheets	0,750	52,1%
Wooden pallets	0,500	34,7%
TOTAL	**1,440**	**100,0**

Technical data:

- Length – 3000 mm, Height – 40 mm, Width – 600 mm
- 1mm thick Aluminium sheet
- 10mm Copper pipes, for press, push-fit or compressions joints
- Powder coated, pre-insulated with mineral wool (0.036 W/m·K)
- Weight of the product (w/o packaging) - 11,185 kg
- Max working pressure and temperature – 10 bar, 90°C

Market:

Sweden and Norway

Reference service life, product:

50 years according to PSR-0011-ed2.0-EN-2023-06-06

LCA: Calculation rules

Declared unit:

The declared unit associated with Casa Plan radiant heating panels of Lyngson has been defined as follows:

- 1 piece of Casa Plan 600 P L3000 10mm

Cut-off criteria:

All materials have been accounted for in the LCA according to the data provided by manufacturer. There is no missing data for processes in the system boundaries. All the materials and processes, which have been accounted for by the manufacturing company for the relevant manufacturing process are included in the LCI.

General cut-off criteria are given in standard EN 15804:2012+A2, clause 6.3.6. This cut-off rule does not apply for hazardous materials and substances and it is consistent with EN 15804+A2.

Transportation of personnel to and within the manufacturing plant, long-term emissions and infrastructure processes, e.g., manufacturing and maintenance of facilities and manufacturing equipment, have been excluded from this LCA study.

Allocation:

General allocation principles have been applied according to ISO 14044:2006 4.3.4 and in line with the provisions of EN 15804:2012+A2. Incoming energy, water and generation of waste are allocated equally among all products through mass allocation.

Data quality:

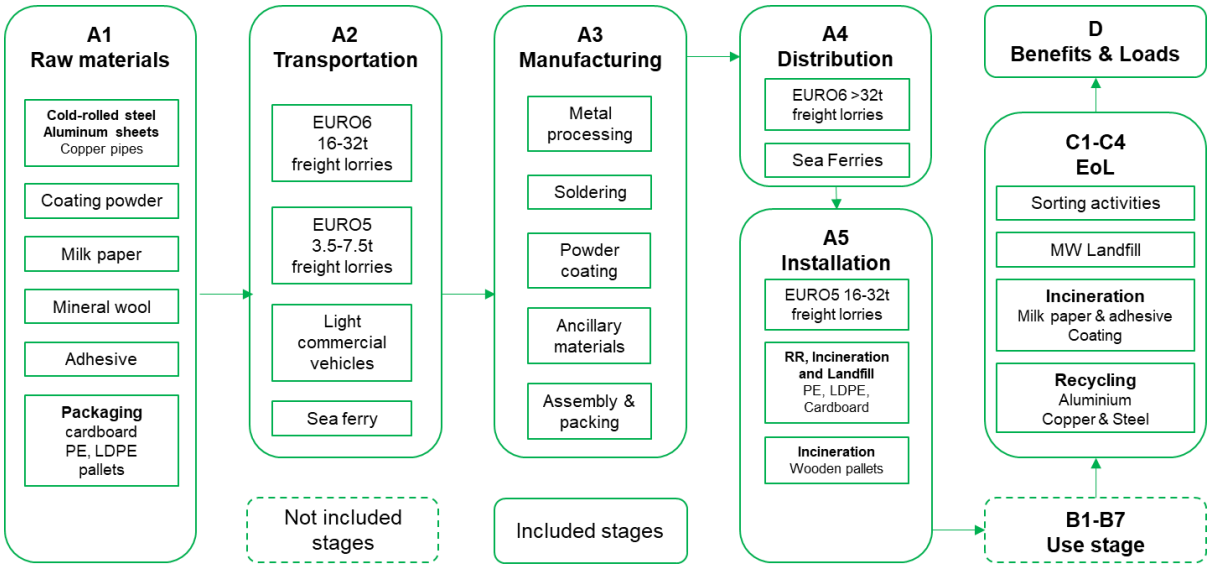
The production data are from 2023, the database data are from 2013 – 2021, i.e., no data is older than 10 years. Database used is mainly Ecoinvent v3.8, with an addition of Carbon Minds 2022.01. The LCA software used is SimaPro 9.6.

System boundaries (X=included, MND=module not declared, MNR=module not relevant)

Product stage			Assembly stage		Use stage							End of life stage				Benefits & loads beyond system boundary
Raw materials	Transport	Manufacturing	Transport	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	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

System boundary:

This LCA study has been performed as "Cradle-to-gate with options, modules C1-C4 and module D", also including Construction/installation stage with modules A4-A5. All major materials, use of energy and resources, as well as waste treatment are included for phases A1-A3, A4-A5, C1-C4 and D (see Flowchart below).



LCA: Scenarios and additional technical information

The following information describes the scenarios in the different modules of the EPD.

- **Raw material supply (A1)**

In module A1 extraction and processing of raw materials and generation of electricity and heat from primary energy resources, used to produce these raw materials, are included. Two major parts of all raw materials necessary for the production of Casa Plan radiant heating panel are 1mm thick Aluminum sheets (55%) and 10mm Copper pipes (21%). Insulation material, i.e., mineral wool, contributes another 11% in terms of weight, Steel – 5%. All other contents in total results in 7% of product's total weight.

Results of impact assessment for two raw materials with valid EPDs of Steel and Aluminum have been implemented in LCA model in order to be used as a specific dataset replacing the use of an average datasets included in database.

- **Transport of raw materials (A2)**

For module A2, the transportation of raw materials and packaging materials to the production plant, the following assumptions have been made (see Table below). According to manufacturer provided data, EURO6 emission standard has been applied as a standard value for all Freight lorries, with only exceptions of local supplier of Packaging materials.

Material	Type of vehicle	Weight, kg per DU	Distance, km	kg*km
Adhesive	Lorry 16-32t, EURO6	8,50E-02	272	2,31E+01
Aluminium sheets	Lorry 16-32t, EURO6	6,30E+00	564	3,55E+03
Aluminium sheets	Sea Ferry	6,30E+00	281	1,77E+03
Copper pipes	Lorry 16-32t, EURO6	2,55E+00	320	8,16E+02
Insulation	Lorry 16-32t, EURO6	1,25E+00	294	3,68E+02
Insulation	Sea Ferry	1,25E+00	85	1,06E+02
«Milk paper»	Lorry 16-32t, EURO6	4,00E-01	359	1,44E+02
«Milk paper»	Sea Ferry	4,00E-01	281	1,12E+02
Cardboard	Lorry 16-32t, EURO6	7,50E-01	300	2,25E+02
Pallets	Lorry 3.5-7.5t, EURO5	5,00E-01	3	1,50E+00
PE packaging	Light commercial vehicle	1,90E-01	3	5,70E-01
Powder coating	Lorry 16-32t, EURO6	3,06E-01	25	7,65E+00
Steel	Lorry 16-32t, EURO6	6,00E-01	192	1,15E+02
Steel	Sea Ferry	6,00E-01	281	1,69E+02

- **Manufacturing (A3)**

The manufacturing of the product (module A3) includes several stages of metal processing such as straightening (from coil), punching, cutting to the product specific dimensions, bending, soldering, powder coating and polymerization.

After metal works, product is assembled and packed using Plastic, Wooden pallets and Cardboard. Casa Plan ceiling mounted radiant heating panels are produced within the limits of

the same plant. Electricity is one of the main source of energy for manufacturing purposes. Natural gas is used for the purpose of Heat production in powder coating process. Internal transportation of materials and product is organized with Electric skid-steer loaders, therefore, no Diesel consumption has been declared by manufacturer.

In 2021 Lyngson SIA installed one of the largest solar panel parks in Latvia. Within the project, 1700+ solar panels with the total capacity of 560 kW have been installed on the roof of the manufacturing plant. According to manufacturer provided data, solar panels cover 25.1% share of the company's own consumption of electricity. Electricity generated from solar panel park is used for the production needs.

Manufacturing process for Casa Plan ceiling mounted radiant heating panel foresees the use of Coating powder and ancillary materials, i.e., cleaning agents, maintenance oil and degreasers. Safety Data Sheets (SDS) have been provided on all chemicals used in module A3.

Considering the fact that manufacturing process involves also soldering and consumption of associated consumables, i.e., solder paste, emissions to air specific to Soldering have also been considered in this study.

Transport from production place to assembly/user (A4)

Transport from production place to assembly/user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value (l/t)
Stockholm, Sweden					
Road, Lorry, >32t, EURO6	Default value from Ecoinvent 3.8	354	0,0226	l/tkm	7,99
Water, Sea ferry	Default value from Ecoinvent 3.8	281	0,0298	l/tkm	8,37
Oslo, Norway					
Road, Lorry, >32t, EURO6	Default value from Ecoinvent 3.8	840	0,0226	l/tkm	18,97
Water, Sea ferry	Default value from Ecoinvent 3.8	281	0,0298	l/tkm	8,37

Module A4 contains the scenarios defined by manufacturer and includes transportation from production site in Latvia, Olaine to customers, including additional 100km of Road transportation to account for deviations:

- 55.0% trade towards Sweden with 354 km distance for Road transport and 281 km for Sea transport
- 45.0% trade towards Norway with 840 km distance for Road transport and 281 km for Sea transport

Following table represents capacity utilisation rates that have been used in the model due to limitations of Ecoinvent database. Real capacity utilisation rates, provided by manufacturer, are at the level of 90%.

Assembly (A5)

	Unit	Value
Water consumption	m^3	0
Electricity consumption	kWh	0,043
Other energy carriers	MJ	0
Material loss	kg	0
Output materials from waste treatment	kg	0
Packaging materials for waste treatment	kg	1,44

It has been assumed that for installation of the product hammer drill is to be used for installation of mounting fittings as required by the guidelines. The residual mix of electricity used for this purpose is based on shares of market. Waste treatment activities and transport of each packaging material have been considered in this module. Taking into account specific market and only two destination countries for the final product, waste treatment scenarios have been aligned with scenarios of both represented destinations, i.e., Norway (45%) and Sweden (55%). Recycling rates, distribution shares between Incineration and final disposal are different in both represented countries, therefore, both scenarios have been adapted.

End of Life (C1, C3, C4)

	Unit	Value
Hazardous waste disposed	kg	0
Collected as mixed construction waste	kg	0
Reuse	kg	0
Recycling	kg	8,400
Energy recovery	kg	0,485
To landfill	kg	1,200

Note: 1.100kg, that represents Steel (10%), Aluminium (10%) and Copper (5%) waste share after separation for recycling purposes, has been considered for Incineration without Energy recovery.

- **Demolition (C1)**

It has been assumed that no particular activities in module C1 are causing a relevant environmental impact within the demolition or the disassembling of Casa Plan ceiling mounted radiant heating panel before its transportation to waste processing.

- **Waste processing (C3)**

As a waste processing activity in module C3, recycling, i.e., sorting of Waste bulk iron has been considered in respective shares for Steel, Aluminium and Copper in order for LCA model to consider impact from sorting activities. It has been assumed and confirmed by the manufacturer as well that all parts representing product content, i.e., Aluminium sheets, steel plates,

insulation material, copper pipes and covering milk paper are all suitable for disassembling activities to represent separate waste flows for respective waste treatment.

As per PEF Annex C v2.1 May 2020, recycling rates (R2) for Steel (90%), Aluminium (90%) and Copper (95%), therefore, these values have been considered in module C3. As for share remaining after separation, it has been assumed that incineration without energy recovery is taking place, therefore, shifting the remaining 5-10% share to module C4. Disposal rates (R3) for Norway and Sweden per Eurostat data are predominantly, i.e., 97-99%, leaning towards incineration, leaving only insignificant part of 1-3% for landfilling activities. Therefore, it has been considered **that incineration without energy recovery** is the only disposal method for metals.

Considering product contents of "milk paper", it has been assumed that "milk paper" along with the adhesive are incinerated at the EoL and energy is recovered from this process.

It has been assumed that Steel, Aluminium and Copper are considered for recycling, accounting for net benefit within module D.

- **Disposal (C4)**

Module C4 represents **Incineration activities for final disposal of Steel, Aluminum and Copper** mentioned in the description of Waste processing C3. Another part of module C4 is considering disposal of insulation material, i.e., mineral wool. Considering common waste treatment scenarios for insulation materials, it has been assumed that **mineral wool insulation is landfilled** at the EoL.

Transport to waste processing (C2)

Transport from production place to assembly/user (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy consumption	Unit	Value (l/t)
Road, Lorry 16-32t, EURO6	Default value from Ecoinvent 3.8	100	0,0431	l/tkm	4,31

For module C2 an average transportation with 100km distance has been assumed, as suggested by PSR-0011-ed2.0-EN-2023-06-06. EURO6 16-32t Freight lorry has been used for calculations in module C2.

Benefits and loads beyond the system boundaries (D)

Benefits and loads beyond the system boundaries (D)	Unit	Value
Substitution of electricity, in Norway	MJ	1,06
Substitution of thermal energy, district heating, in Norway	MJ	0
Substitution of primary steel with net scrap	kg	0,4

As described above, this study also considers module D, representing Reuse, Recovery and Recycling potential, where net benefit of avoided Aluminium (SM 18.2%), Steel (SM 25.7%) and Copper (SM – 19.7%) has been modelled considering Secondary material used in all raw materials. Additionally, energy recovered from incineration activities has been considered in this module as an avoided impact. Generated electricity has been modelled according to the share of each respective market, i.e., residual mixes of Norway and Sweden, and district/industrial Heat generated from Natural gas has been considered for both.

LCA: Results

Core environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - total	kg CO_2 eq	6,2E+01	8,6E-01	2,6E-01	0,0E+00	1,5E-01	3,3E-01	9,2E-03	-5,2E+01
GWP - fossil	kg CO_2 eq	6,2E+01	8,6E-01	2,6E-01	0,0E+00	1,5E-01	3,3E-01	8,9E-03	-5,1E+01
GWP - biogenic	kg CO_2 eq	3,2E-01	5,0E-05	1,9E-04	0,0E+00	8,8E-06	1,5E-04	1,1E-04	-1,8E-01
GWP - luluc	kg CO_2 eq	4,1E-01	1,0E-05	8,7E-05	0,0E+00	1,2E-06	7,6E-06	5,1E-07	-8,2E-01
ODP	kg CFC11 eq	5,0E-06	2,0E-07	7,7E-09	0,0E+00	3,6E-08	2,8E-09	1,6E-09	-3,5E-06
AP	molc H+ eq	2,0E+00	1,4E-02	3,4E-04	0,0E+00	3,0E-04	1,9E-04	2,9E-04	-1,1E+00
EP- freshwater	kg P eq	1,7E-02	4,7E-07	2,8E-07	0,0E+00	7,7E-08	2,4E-07	4,1E-08	-5,4E-03
EP -marine	kg N eq	1,2E-01	3,3E-03	1,5E-04	0,0E+00	5,0E-05	8,6E-05	1,3E-04	-7,3E-02
EP - terrestrial	molc N eq	1,6E+00	3,7E-02	1,6E-03	0,0E+00	5,5E-04	9,6E-04	1,5E-03	-9,5E-01
POCP	kg NMVOC eq	4,5E-01	9,6E-03	4,2E-04	0,0E+00	2,0E-04	2,5E-04	4,1E-04	-2,8E-01
ADP-M&M[2]	kg Sb-Eq	4,2E-02	2,6E-08	4,4E-09	0,0E+00	6,6E-09	3,0E-09	8,5E-10	-1,9E-02
ADP-fossil[2]	MJ	7,2E+02	1,2E+01	5,3E-01	0,0E+00	2,1E+00	1,5E-01	1,2E-01	-6,3E+02
WDP[2]	m^3	3,9E+01	-2,1E-03	7,6E-03	0,0E+00	-3,6E-04	5,2E-03	1,3E-03	-2,1E+01

GWP-total: *Global Warming Potential;* ***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; See "additional Norwegian requirements" for indicator given as PO4 eq.* ***EP-marine:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment;* ***EP-terrestrial:*** *Eutrophication potential, Accumulated Exceedance;* ***POCP****: Formation potential of tropospheric ozone;* ***ADP-M&M****: Abiotic depletion potential for non-fossil resources (minerals and metals);* ***ADP-fossil:*** *Abiotic depletion potential for fossil resources;* ***WDP:*** *Water deprivation potential, deprivation weighted water consumption*

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009

Additional environmental impact indicators

Indicator	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	Disease incidence	7,0E-06	5,7E-08	3,4E-09	0,0E+00	1,0E-08	1,5E-09	3,4E-09	-5,0E-06
IRP[1]	kBq U235 eq.	4,0E+00	5,2E-02	6,9E-03	0,0E+00	9,3E-03	1,9E-03	3,7E-04	-2,7E+00
ETP-fw[2]	CTUe	1,5E+04	4,7E+00	1,2E+00	0,0E+00	8,7E-01	9,6E-01	4,8E+00	-7,5E+03
HTP-c[2]	CTUh	3,9E-07	1,0E-10	2,4E-10	0,0E+00	1,1E-11	1,6E-10	2,3E-10	-2,5E-07
HTP-nc[2]	CTUh	2,4E-05	7,1E-09	1,3E-09	0,0E+00	1,3E-09	1,1E-09	4,4E-10	-1,2E-05
SQP[2]	Dimensionless	7,4E+02	3,2E-02	4,3E-02	0,0E+00	5,8E-03	1,2E-02	2,4E-01	-2,3E+02

PM: *Particulate matter emissions;* ***IRP:*** *Ionising radiation, human health;* ***ETP-fw:*** *Ecotoxicity (freshwater);* ***ETP-c:*** *Human toxicity, cancer effects;* ***HTP-nc:*** *Human toxicity, non-cancer effects;* ***SQP:*** *Land use related impacts / soil quality*

[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.

[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 experienced with the indicator

Resource use

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
RPEE	MJ	3,5E+02	1,3E-02	1,4E-01	0,0E+00	2,5E-03	6,4E-02	7,7E-04	-2,2E+02
RPEM	MJ	4,0E+01	4,4E-03	9,3E-03	0,0E+00	8,2E-04	2,6E-03	9,0E-04	-5,3E+00
PERT	MJ	3,9E+02	1,7E-02	1,5E-01	0,0E+00	3,3E-03	6,6E-02	1,7E-03	-2,3E+02
NRPE	MJ	7,2E+02	1,2E+01	5,3E-01	0,0E+00	2,1E+00	1,5E-01	1,2E-01	-6,3E+02
NRPM	MJ	3,7E-02	2,0E-05	9,3E-06	0,0E+00	9,0E-07	8,3E-06	1,3E-06	-1,9E-02
PENRT	MJ	7,2E+02	1,2E+01	5,3E-01	0,0E+00	2,1E+00	1,5E-01	1,2E-01	-6,3E+02
SM	kg	1,8E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	6,5E+00
RSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
NRSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
W	m^3	2,3E+00	3,4E-05	1,1E-03	0,0E+00	5,5E-06	5,0E-04	3,5E-04	-1,3E+00

RPEE *Renewable primary energy resources used as energy carrier;* ***RPEM*** *Renewable primary energy resources used as raw materials;* ***PERT*** *Total use of renewable primary energy resources;* ***NRPE*** *Nonrenewable primary energy resources used as energy carrier;* ***NRPM*** *Nonrenewable primary energy resources used as materials;* ***PENRT*** *Total use of non-renewable primary energy resources;* ***SM*** *Use of secondary materials;* ***RSF*** *Use of renewable secondary fuels;* ***NRSF*** *Use of non-renewable secondary fuels;* ***W*** *Use of net fresh water.*

End of life – Waste

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HW	kg	1,4E-01	2,2E-05	9,9E-07	0,0E+00	5,6E-06	2,1E-07	2,8E-07	1,2E-02
NHW	kg	3,1E+01	5,2E-04	1,5E-02	0,0E+00	8,8E-05	4,6E-03	1,2E+00	-1,4E+01
RW	kg	3,0E-03	8,6E-05	4,6E-06	0,0E+00	1,5E-05	1,1E-06	5,9E-07	-2,5E-03

HW *Hazardous waste disposed;* ***NHW*** *Non-hazardous waste disposed;* ***RW*** *Radioactive waste disposed.*

End of life – output flow

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
CR	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00
MR	kg	2,4E-01	0,0E+00	6,7E-01	0,0E+00	0,0E+00	8,4E+00	0,0E+00	0,0E+00
MER	kg	6,0E-03	0,0E+00	2,6E-01	0,0E+00	0,0E+00	4,9E-01	0,0E+00	0,0E+00
EEE	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	2,4E+00
ETE	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	4,9E+00

CR *Components for reuse;* ***MR*** *Materials for recycling;* ***MER*** *Materials for energy recovery;* ***EEE*** *Exported electric energy;* ***ETE*** *Exported thermal energy.*

Information describing the biogenic carbon content at the factory gate

Biogenic carbon content	Unit	Value
Biogenic carbon content in product	kg C	1,9E-01
Biogenic carbon content in the accompanying packaging	kg C	6,3E-01

Additional requirements

Location based electricity mix from the use of electricity in manufacturing

National mix from import, medium voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3). 25.1% of consumed electricity is provided by manufacturer's solar panel park on the roof of the factory. Therefore, emission factor acquired from Ecoinvent v3.8, representing Latvian electricity mix (0.532 $kgCO_2eq/kWh$), has been recalculated to represent emission factor that is specific to manufacturing plant and has solar power share included in it:

National electricity grid	Data source	GWP_{total} [kg CO2 - eq/kWh]
Weighted value, considering 25.1% share of solar panel system generation and Latvian mix	Ecoinvent v3.8	0,399

Additional environmental impact indicators required for construction products

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-IOBC	kg CO_2 eq.	6,2E+01	8,5E-01	2,6E-01	0,0E+00	1,5E-01	3,3E-01	8,7E-03	-5,0E+01

GWP-IOBC *Global warming potential calculated according to the principle of instantaneous oxidation.*

Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- ☒ The product contains no substances given by the REACH Candidate list.
- ☐ The product contains substances given by the REACH Candidate list that are less than 0,1 % by weight.
- ☐ The product contains dangerous substances, more then 0,1% by weight, given by the REACH Candidate List, see table.
- ☐ The product contains no substances given by the REACH Candidate list.
- ☐ The product is classified as hazardous waste, see table.

Indoor environment

The product meets the requirements for low emissions.

Carbon footprint

While a carbon footprint analysis has not been conducted for the product separately, the results section does include an evaluation of Global Warming Potential (GWP) with such an analysis. The GWP total results presented in this EPD document represents the carbon footprint of the product studied

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ISO 14044:2006	Environmental management - Life cycle assessment - Requirements and guidelines
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