epd-norge
Global program operatør

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

amina S – AST100/20

amina

The Norwegian EPD Foundation

Owner of the declaration:
Amina Distribution AS

Product:
amina S – AST100/20

Declared unit:
1 pcs

This declaration is based on Product Category Rules:
CEN Standard EN 15804:2012+A2:2019, EN 50693:2019 and PCR EPD Italy 007 serves as core PCR
PCR EPD Italy 017 - Electronic and electrical products and systems - Charging stations

Program operator:
The Norwegian EPD Foundation

Declaration number:

NEPD-5975-5242-EN

Registration number:

NEPD-5975-5242-EN

Issue date: 01.02.2024

Valid to: 01.02.2029

EPD software:
LCAno EPD generator ID: 151816

General information

Product

amina S – AST100/20

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
web: post@epd-norge.no

Declaration number:

NEPD-5975-5242-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019, EN 50693:2019 and PCR EPD Italy 007 serves as core PCR
PCR EPD Italy 017 - Electronic and electrical products and systems - Charging stations

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 information, life cycle assessment data and evidences.

Declared unit:

1 pcs amina S – AST100/20

Declared unit with option:

A1,A2,A3,A4,A5,B6,C1,C2,C3,C4,D

Functional unit:

1 pcs of EVSE, installed and used during a service life of 20 years, including waste treatment at end of life.

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools

Verification of EPD tool:

Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPDNorway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:

Elisabet Amat, GREENIZE projects

(no signature required)

Owner of the declaration:

Amina Distribution AS
Contact person: Fredrik Lima
Phone: +47 45441014
e-mail: fredrik@aminacharging.com

Manufacturer:

Amina Distribution AS
Grenseveien 21
4313 Sandnes, Norway

Place of production:

Production site Topro Elektronikk (Norway
Rambekkvegen 7
2816 Gjøvik, Norway

Management system:

Organisation no:

928228096

Issue date: 01.02.2024

Valid to: 01.02.2029

Year of study:

2023

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.

Developer of EPD: Fredrik Lima

Reviewer of company-specific input data and EPD: Limin Yang

Approved:

Håkon Hauan
Managing Director of EPD-Norway

Product

Product description:

amina S is intended for charging electrically powered vehicles. It is classified as a mode-3 EVSE that can be used by ordinary persons. The product must be securely mounted on a sturdy surface. It may only be operated within the approved operating parameters and under specified environmental conditions.

Product specification

amina S is the small, fast, and smart charger that gives you complete control over charging speed and energy consumption. With its lightweight and flexible fixed cable, you can charge up to 22kW.

Materials	kg	%
Electronic - Capacitor	0,00	0,09
Electronic - Charging Cable	1,48	56,67
Electronic - Connector	0,23	8,75
Electronic - Diode	0,00	0,02
Electronic - Inductor	0,01	0,26
Electronic - Integrated circuit	0,00	0,05
Electronic - LED chip	0,00	0,00
Electronic - Printed wiring board	0,08	3,15
Electronic - Resistor	0,00	0,10
Electronic - Solder material	0,00	0,12
Electronic - Transistor	0,00	0,03
Electronic - Unspecified	0,00	0,04
Electronic component	0,08	2,88
Ethylene propylene diene monomer (EPDM)	0,00	0,08
Metal - Steel	0,02	0,94
Metal/plastic - Stainless steel and EVA	0,00	0,09
Plastic - Plexiglass (PMMA)	0,00	0,15
Plastic - Polycarbonate (PC)	0,00	0,08
Plastic compound - PC and ABS	0,69	26,44
Product label - supercalendered	0,00	0,01
Tape - Polyester	0,00	0,05
Total	2,61	

Packaging	kg	%
Packaging - Cardboard	0,45	87,74
Packaging - Paper	0,06	12,26
Total incl. packaging	3,12	

Technical data:

Dimensions
264mm x 112mm x 89mm

Weight
1,0 kg w/o cable
2,4 kg w/ 6m 3-phase 20A cable
3,4 kg w/ 6m 3-phase 32A cable

Operating temperature
-30°C to +40°C

Electrical rating
Class I equipment
Overvoltage category III (4 kV)
Idc = 6 mA, Im = 500 A, Inc = 3kA
3x 230/400V 50Hz AC
20A (AST 1xx/20)
32A (AST 1xx/32)
Number of poles = 4

Charging cable
Fixed cable included (replaceable)
Type 2 plug (EN 62196)
AST 100/20: 6m 3-phase 20A
AST 100/32: 6m 3-phase 32A

Charging power 20A variant
3-phase output: 3,7 – 13,8 kW

1-phase output: 1,4 – 4,6 kW

Charging power 32A variant
3-phase output: 3,7 – 22,0 kW
1-phase output: 1,4 – 7,4 kW

Integrated energy-meter
1 or 3-phase
±3 % accuracy

Communications interface
Bluetooth LE and Zigbee
Frequency band: 2400 – 2483,5 MHz
Maximum output power: 10mW

Installation environment
Indoor and outdoor use (IP54)
Private and public locations (IK08)
Wall or pole mounted
Min 90cm installation height

Installation
Permanently connected
Three-phase w/ neutral (TN/TT)
Single-phase (TN/TT/IT)
4 – 16mm cable diameter

Power supply terminals
Single core or stranded wires
1,5 – 6mm2 w/ ferrules
1,5 – 10mm2 w/o ferrules
Strip wires 12 – 14mm

Integrated RCD
RDC-DD (6mA DC)

Regulations and standards
RED 2014/53/EU
EN IEC 62311:2020
EN IEC 61851-1:2019
EN 62196-1:2014
EN 62196-2:2012+A11:2013+A12:2014
IEC 62955:2018*
EN IEC 61851-21-2:2021
EN 301 489-1 v2.2.3
EN 301 489-17 v3.2.4
EN 300 328 v2.2.2
RoHS 2011/65/EU
EN IEC 63000:2018

*Clause 8.1.2: mechanically coupled switches in single phase installations, electronically coupled in three phase installations. See aminacharging.com/compliance for more information.

Market:

Nordics

Reference service life, product

20 years.

Reference service life, building or construction works

Not applicable.

LCA: Calculation rules

Declared unit:

1 pcs amina S – AST100/20

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

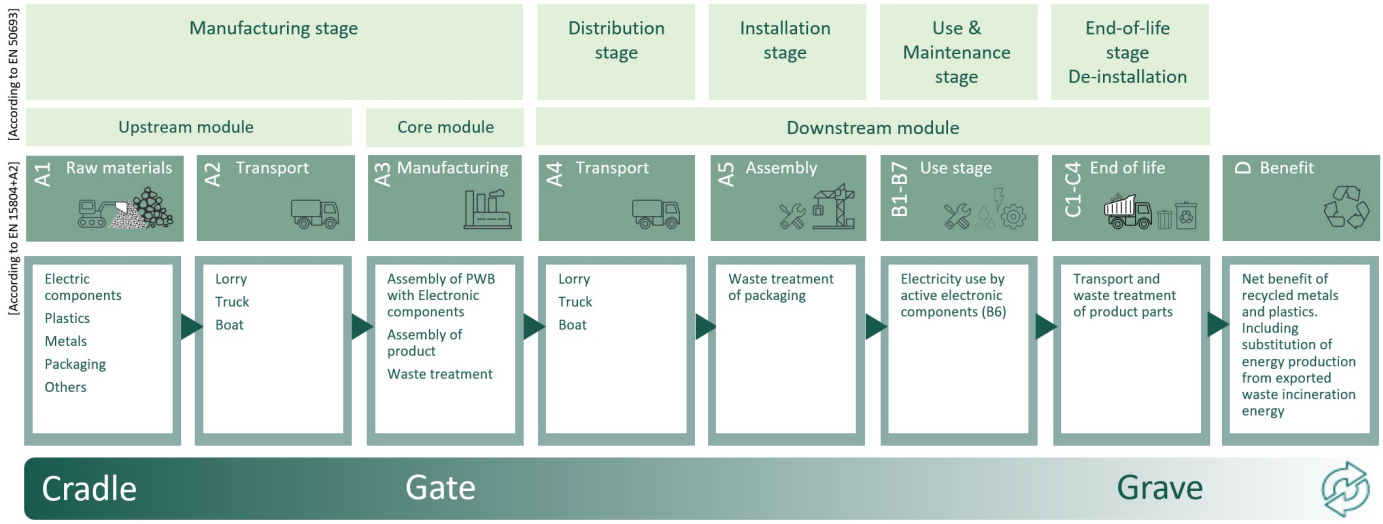
Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

Materials	Source	Data quality	Year
Electronic - Capacitor	ecoinvent 3.6	Database	2019
Electronic - Charging Cable	Ecoinvent 3.6 + Supplier Information	Database + Supplier Information	2019
Electronic - Connector	Ecoinvent 3.6	Database	2019
Electronic - Diode	ecoinvent 3.6	Database	2019
Electronic - Inductor	ecoinvent 3.6	Database	2019
Electronic - Integrated circuit	ecoinvent 3.6	Database	2019
Electronic - LED chip	Scholand et al. (2012) + Ecoinvent 3.6	Scientific literature + database	2017
Electronic - Printed wiring board	Modified ecoinvent 3.6	Database	2019
Electronic - Resistor	ecoinvent 3.6	Database	2019
Electronic - Solder material	ecoinvent 3.6	Database	2019
Electronic - Transistor	ecoinvent 3.6	Database	2019
Electronic - Unspecified	ecoinvent 3.6	Database	2019
Electronic component	Ecoinvent 3.6 + Supplier Information	Database + Supplier Information	2019
Ethylene propylene diene monomer (EPDM)	ecoinvent 3.6	Database	2019
Metal - Steel	Ecoinvent 3.6	Database	2019
Metal/plastic - Stainless steel and EVA	Product composition + Ecoinvent 3.6	Supplier data + database	2019
Packaging - Cardboard	Modified ecoinvent 3.6	Database	2019
Packaging - Paper	ecoinvent 3.6	Database	2019
Plastic - Plexiglass (PMMA)	Product composition + ecoinvent 3.6	Supplier data + database	2019
Plastic - Polycarbonate (PC)	ecoinvent 3.6	Database	2019
Plastic compound - PC and ABS	Ecoinvent 3.6	Database	2019
Product label - supercalendered	Ecoinvent 3.6	Database	2019
Tape - Polyester	ecoinvent 3.6	Database	2019

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

Product stage			Construction installation stage		Use stage							End of life stage				Beyond the system boundaries
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	X	MND	X	X	X	X	X

System boundary:



Additional technical information:

LCA: Scenarios and additional technical information

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

Module A4 = An average distance between the factory and the market is considered.

Modules A5 = installation is done by manual labor. The use of portable electrical devices such as drills usually have low energy requirements falling under the cut-off criterion of 1% and are therefore neglected. No product scraps are generated during installation, but the end-of-life treatment of packaging is accounted for in this module.

Module B6 = The operational energy use of the charging station is calculated based on the methodology provided in EPD Italy PCR 017 for charging stations (details are provided in section 4.2.3.5). Calculations focus on the energy consumed by the charging station during its entire service life. It is important to note that impacts related to electricity delivered to the charging vehicle are outside of the system boundaries of this EPD. Use phase considers only the energy absorbed by the charging station to keep operating and ready (e.g., display, LEDs) to transfer electric power to the connected vehicle. The energy absorbed is calculated as follows:

- Power consumed by the charging station (Puse) = 0.78 watt
- Reference service life of the charging station (RSL) = 20 years (standard value)
- Hours per year = 8760 hours (standard value)
- Conversion factor from watt to kilowatt = 1000 (standard value)

Module C1 = De-installation is done by manual labor. The use of portable electrical devices such as drills usually have low energy requirements falling under the cut-off criterion of 1% and are therefore neglected.

Module C2 = An average distance between the market and the waste treatment facility is considered. It is assumed that transport of charging stations after the use phase is done by the end user with an average petrol car.

Modules C3 and C4 = Waste treatment of the product follows the default values provided in EN 50693, Product Category Rules for life cycle assessments of electronic and electrical products and systems, table G.4. This table specified how different types of raw materials used in A1 will likely be treated during the end-of-life of the product. Waste treatments in C3 include material recycling and incineration with energy recovery and fly ash extraction. Disposal in C4 consist of landfilling of different waste fractions and of ashes.

Module D = The recyclability of metals, plastics, and electronic components allows the producers a credit for the net scrap that is produced at the end of a product's life. The benefits from recycling of net scrap are described in formula from EN 15804:2012+A2:2019. Substitution of heat and electricity generated by the incineration with energy recovery of plastic insulation and other parts is also calculated in module D.

Transport from production place to user (A4)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km) - Europe	36,7 %	350	0,043	l/tkm	15,05

Assembly (A5)	Unit	Value			
Waste, packaging, corrugated board box, to average treatment - A5 including transport (kg)	kg	0,45			
Waste, packaging, paper printed, to average treatment - A5 including transport (kg)	kg	0,06			

Operational energy (B6)	Unit	Value			
Electricity, Nordic (kWh)	kWh/DU	136,66			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Passenger car, large size, petrol, EURO 5 (km) - Europe	%	15	0,625	l/tkm	9,38

Waste processing (C3)	Unit	Value			
Copper to recycling (kg)	kg	0,39			
Non-ferrous metal to recycling (kg)	kg	0,03			
Steel to recycling (kg)	kg	0,03			
Waste treatment of plastic mixture, incineration with energy recovery and fly ash extraction (kg)	kg	0,76			
Waste treatment per kg electronics scrap from PWB, with components, recycling of metals C3 (kg)	kg	0,17			
Waste treatment per kg used electronic cable, manual seperation (kg)	kg	1,54			
Waste treatment per kg used PWB, shredding and separation - C3 (kg)	kg	0,35			

Disposal (C4)	Unit	Value			
Landfilling of ashes from incineration of Plastic mixture, process per kg ashes and residues (kg)	kg	0,03			
Landfilling of copper (kg)	kg	0,26			
Landfilling of hazardous waste (kg)	kg	0,17			
Landfilling of municipal solid waste (kg)	kg	0,00			
Landfilling of non-ferrous metal (kg)	kg	0,02			
Landfilling of plastic mixture (kg)	kg	0,76			
Landfilling of steel (kg)	kg	0,01			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of electricity, in Norway (MJ)	MJ	1,17			
Substitution of primary copper with net scrap (kg)	kg	0,38			
Substitution of primary metals with net scrap from PWB, with components (kg)	kg	0,05			
Substitution of primary other non-ferrous metals with net scrap (kg)	kg	0,03			
Substitution of primary steel with net scrap (kg)	kg	0,02			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	17,73			

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

Environmental impact							
Indicator		**Unit**	A1	A2	A3	A4	A5
	GWP-total	kg CO_2 -eq	5,74E+01	8,12E-01	5,80E-02	1,79E-01	8,83E-01
	GWP-fossil	kg CO_2 -eq	5,79E+01	8,11E-01	5,42E-02	1,78E-01	8,31E-03
	GWP-biogenic	kg CO_2 -eq	-5,74E-01	3,17E-04	3,66E-03	7,38E-05	8,75E-01
	GWP-luluc	kg CO_2 -eq	7,50E-02	3,17E-04	1,38E-04	6,35E-05	2,75E-06
	ODP	kg CFC11 -eq	4,17E-06	1,83E-07	3,83E-09	4,04E-08	1,76E-09
	AP	mol H+ -eq	1,11E+00	6,22E-03	2,94E-04	5,13E-04	3,94E-05
	EP-FreshWater	kg P -eq	1,76E-02	5,99E-06	2,44E-06	1,43E-06	6,83E-08
	EP-Marine	kg N -eq	1,45E-01	1,67E-03	5,03E-05	1,01E-04	1,30E-05
	EP-Terrestial	mol N -eq	1,83E+00	1,85E-02	5,58E-04	1,13E-03	1,41E-04
	POCP	kg NMVOC -eq	4,59E-01	5,25E-03	1,52E-04	4,35E-04	4,05E-05
	ADP-minerals&metals[1]	kg Sb-eq	5,89E-02	1,99E-05	2,40E-06	4,93E-06	2,02E-07
	ADP-fossil[1]	MJ	7,68E+02	1,20E+01	5,27E-01	2,70E+00	1,16E-01
	WDP[1]	m^3	1,61E+03	1,04E+01	7,24E+01	2,61E+00	1,47E-01

Indicator		**Unit**	B6	C1	C2	C3	C4	D
	GWP-total	kg CO_2 -eq	1,99E+01	0,00E+00	1,21E-01	2,11E+00	1,30E-01	-3,95E+00
	GWP-fossil	kg CO_2 -eq	1,86E+01	0,00E+00	1,21E-01	2,11E+00	1,28E-01	-3,93E+00
	GWP-biogenic	kg CO_2 -eq	3,39E-01	0,00E+00	9,59E-05	7,02E-04	1,31E-03	-1,25E-02
	GWP-luluc	kg CO_2 -eq	1,02E+00	0,00E+00	5,11E-05	5,89E-04	3,29E-04	-8,70E-03
	ODP	kg CFC11 -eq	2,01E-06	0,00E+00	2,17E-08	1,99E-08	5,41E-09	-7,49E-03
	AP	mol H+ -eq	8,56E-02	0,00E+00	4,17E-04	1,68E-03	2,64E-04	-3,36E-01
	EP-FreshWater	kg P -eq	1,23E-03	0,00E+00	2,08E-06	1,23E-05	1,81E-06	-2,04E-03
	EP-Marine	kg N -eq	1,35E-02	0,00E+00	6,24E-05	4,15E-04	1,60E-04	-1,59E-02
	EP-Terrestial	mol N -eq	1,82E-01	0,00E+00	7,18E-04	4,49E-03	7,37E-04	-2,28E-01
	POCP	kg NMVOC -eq	4,25E-02	0,00E+00	3,16E-04	1,17E-03	3,05E-04	-6,38E-02
	ADP-minerals&metals[1]	kg Sb-eq	2,89E-04	0,00E+00	9,19E-06	1,92E-06	3,02E-07	-5,20E-03
	ADP-fossil[1]	MJ	5,01E+02	0,00E+00	1,63E+00	3,51E+00	6,76E-01	-4,77E+01
	WDP[1]	m^3	3,88E+04	0,00E+00	1,90E+00	2,43E+01	4,24E+00	-5,28E+01

GWP-total = Global Warming Potential total; 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

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

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 experienced with the indicator

Remarks to environmental impacts

Additional environmental impact indicators

Indicator		Unit	A1	A2	A3	A4	A5
	PM	Disease incidence	4,47E-06	5,13E-08	2,46E-09	1,09E-08	5,81E-10
	IRP[2]	kgBq U235 -eq	2,43E+00	5,23E-02	7,93E-03	1,18E-02	4,98E-04
	ETP-fw[1]	CTUe	1,63E+04	8,63E+00	2,15E+00	2,00E+00	1,55E-01
	HTP-c[1]	CTUh	1,40E-07	0,00E+00	1,09E-10	0,00E+00	5,00E-12
	HTP-nc[1]	CTUh	1,07E-05	8,73E-09	2,58E-09	2,18E-09	1,95E-10
	SQP[1]	dimensionless	4,07E+02	7,54E+00	3,03E-01	1,89E+00	7,80E-02

Indicator		Unit	B6	C1	C2	C3	C4	D
	PM	Disease incidence	4,54E-07	0,00E+00	4,68E-09	1,08E-08	4,89E-09	-7,21E-07
	IRP[2]	kgBq U235 -eq	1,14E+01	0,00E+00	6,62E-03	1,63E-02	2,08E-03	-1,59E-01
	ETP-fw[1]	CTUe	6,28E+02	0,00E+00	2,20E+00	9,08E+00	1,78E+02	-2,71E+03
	HTP-c[1]	CTUh	1,46E-08	0,00E+00	9,40E-11	3,06E-09	1,75E-10	-2,62E-08
	HTP-nc[1]	CTUh	3,85E-07	0,00E+00	1,78E-09	1,78E-07	1,43E-09	-2,12E-06
	SQP[1]	dimensionless	3,78E+02	0,00E+00	7,09E-01	7,14E-01	1,86E+00	-5,51E+01

PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Potential Soil Quality Index (dimensionless)

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

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 experienced with the indicator
2. 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.

Resource use

Indicator		Unit	A1	A2	A3	A4	A5
	PERE	MJ	7,12E+01	1,59E-01	5,37E+00	3,86E-02	1,91E-03
	PERM	MJ	8,07E+00	0,00E+00	0,00E+00	0,00E+00	-4,59E+00
	PERT	MJ	7,93E+01	1,59E-01	5,37E+00	3,86E-02	-4,59E+00
	PENRE	MJ	7,10E+02	1,20E+01	5,27E-01	2,70E+00	1,16E-01
	PENRM	MJ	5,89E+01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PENRT	MJ	7,69E+02	1,20E+01	5,27E-01	2,70E+00	1,16E-01
	SM	kg	1,11E-01	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	RSF	MJ	1,15E+00	5,60E-03	4,35E-03	1,38E-03	6,35E-05
	NRSF	MJ	2,01E-01	2,15E-02	1,19E-02	4,94E-03	2,62E-04
	FW	m^3	5,52E-01	1,19E-03	4,01E-02	2,88E-04	5,49E-05

Indicator		Unit	B6	C1	C2	C3	C4	D
	PERE	MJ	4,93E+02	0,00E+00	4,44E-02	4,19E-01	1,64E-01	-1,58E+01
	PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	PERT	MJ	4,93E+02	0,00E+00	4,44E-02	4,19E-01	1,64E-01	-1,58E+01
	PENRE	MJ	5,09E+02	0,00E+00	1,63E+00	3,51E+00	6,76E-01	-4,77E+01
	PENRM	MJ	0,00E+00	0,00E+00	0,00E+00	-5,96E+01	0,00E+00	0,00E+00
	PENRT	MJ	5,09E+02	0,00E+00	1,63E+00	-5,61E+01	6,76E-01	-4,77E+01
	SM	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	5,24E-03	2,67E-01
	RSF	MJ	4,98E+00	0,00E+00	1,12E-03	8,60E-03	7,46E-04	2,57E-02
	NRSF	MJ	0,00E+00	0,00E+00	6,47E-03	-1,75E-04	3,27E-02	-4,28E-01
	FW	m^3	2,24E+00	0,00E+00	3,54E-04	4,11E-03	5,61E-04	-6,02E-02

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 resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Waste

Indicator		Unit	A1	A2	A3	A4	A5
	HWD	kg	2,27E-01	6,02E-04	1,14E-02	1,39E-04	0,00E+00
	NHWD	kg	5,60E+00	5,14E-01	4,39E-02	1,31E-01	5,14E-01
	RWD	kg	2,22E-03	8,20E-05	4,30E-06	1,84E-05	0,00E+00

Indicator		Unit	B6	C1	C2	C3	C4	D
	HWD	kg	4,70E-02	0,00E+00	3,98E-04	8,63E-05	1,84E-01	-2,09E-02
	NHWD	kg	3,11E+00	0,00E+00	4,36E-02	1,16E-01	1,06E+00	-9,72E-01
	RWD	kg	5,25E-03	0,00E+00	9,82E-06	4,28E-06	1,82E-06	-1,37E-04

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

End of life - Output flow

Indicator		Unit	A1	A2	A3	A4	A5
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	9,39E-02	0,00E+00	4,78E-01
	MER	kg	0,00E+00	0,00E+00	1,56E-01	0,00E+00	3,59E-02
	EEE	MJ	0,00E+00	0,00E+00	1,06E-01	0,00E+00	2,94E-02
	EET	MJ	0,00E+00	0,00E+00	1,60E+00	0,00E+00	4,45E-01

Indicator		Unit	B6	C1	C2	C3	C4	D
	CRU	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
	MFR	kg	0,00E+00	0,00E+00	0,00E+00	4,47E-01	7,11E-05	-1,05E-02
	MER	kg	0,00E+00	0,00E+00	0,00E+00	7,63E-01	3,78E-05	-1,38E-03
	EEE	MJ	0,00E+00	0,00E+00	0,00E+00	1,17E+00	4,29E-04	-3,37E-03
	EET	MJ	0,00E+00	0,00E+00	0,00E+00	1,77E+01	6,49E-03	-5,10E-02

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

"Reading example: 9,0 E-03 = 9,0*10-3 = 0,009"
*INA Indicator Not Assessed

Biogenic Carbon Content

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	1,07E-04
Biogenic carbon content in accompanying packaging	kg C	2,39E-01

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO2

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

Electricity mix	Data source	Amount	Unit
Electricity, Norway (kWh)	ecoinvent 3.6	24,33	g CO2-eq/kWh

Dangerous substances

The product contains no substances given by the REACH Candidate list.

Indoor environment

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products							
Indicator	**Unit**	A1	A2	A3	A4	A5	
GWPIOBC	kg CO_2 -eq	5,82E+01	8,12E-01	5,64E-02	1,79E-01	8,32E-03	

Indicator	**Unit**	B6	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	2,70E+01	0,00E+00	1,21E-01	2,11E+00	1,33E-01	-3,49E+00

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

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