

# Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

UNITRONIC® LiYY 20x0,5 / ELNR. 1091668



EPD-Global

**Owner of the declaration:**  
Lapp Norway AS

**Product:**  
UNITRONIC® LiYY 20x0,5 / ELNR. 1091668

**Declared unit:**  
1 m

**This declaration is based on Product Category Rules:**  
CEN Standard EN 15804:2012+A2:2019 serves as core  
PCR  
NPCR 027:2020 Part B for Electrical cables and wires

**Program operator:**  
EPD-Global

**Declaration number:**  
NEPD-14630-15241

**Issue date:**  
12.01.2026

**Valid to:**  
12.01.2031

**EPD software:**  
LCAno EPD generator ID: 1307335

## General information

### Product

UNITRONIC® LiYY 20x0,5 / ELNR. 1091668

### Program operator:

EPD-Global  
Post Box 5250 Majorstuen, 0303 Oslo, Norway  
Phone: +47 977 22 020  
web: [www.epd-global.com](http://www.epd-global.com)

### Declaration number:

NEPD-14630-15241

### This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR  
NPCR 027:2020 Part B for Electrical cables and wires

### Statement of liability:

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

### Declared unit:

1 m UNITRONIC® LiYY 20x0,5 / ELNR. 1091668

### Declared unit with option:

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

### Functional unit:

1 meter of UNITRONIC® LiYY 20x0,5 from cradle-to-grave.

### 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-Global'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-Global, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Global'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 EPD-Global's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT32.

Third party verifier:

Vito D'Incognito, Take Care International

(no signature required)

### Owner of the declaration:

Lapp Norway AS  
Contact person: Siv Kampen  
Phone: 41212320  
e-mail: [siv.kampen@lapp.com](mailto:siv.kampen@lapp.com)

### Manufacturer:

Lapp Norway AS  
Eikringen 11  
3036 Drammen, Norway

### Place of production:

Cableries Lapp S.a.r.l.  
Technopole Sud Forbach  
F - 57600 FORBACH, France

### Management system:

ISO 14001, ISO 9001

### Organisation no:

919 398 876

### Issue date:

12.01.2026

### Valid to:

12.01.2031

### 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-Global. Approval number: NEPDT133

Developer of EPD: Siv Kampen

Reviewer of company-specific input data and EPD: Lars Nilsen

### Approved:



Håkon Hauan, CEO EPD-Global

## Product

### Product description:

UNITRONIC LiYY is a data cable for low frequency applications. The cable is designed for fixed installation and for conditional flexible use. It is used in dry and damp interiors but not appropriate for outside usage.

The cable is used for example in computer systems, instrumentation technology, office equipment and balances.

### Product specification

#### Design

Based on standard VDE 0812 and EN 50288-7

#### Certification

EN 13501-6 and EN 50575

#### Classification of fire behaviour

(article/dimension range see [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr))

#### Conductor

Fine wire strands of bare copper wires

#### Insulation

Special PVC-based compound

#### Core identification code

Acc. to DIN 47100

#### Stranding

Cores are stranded in layers, optionally with fillers

#### Outer sheath

Special PVC-based compound

Colour: grey (similar RAL 7032).

Materials	kg	%
Metal - Copper	0.096	44.86
Plastic - Polyvinyl chloride (PVC)	0.118	55.14
Total	0.214	100.00

Packaging	kg	%
Packaging - Wood	0.01	100.00
Total incl. packaging	0.22	100.00

### Technical data:

Electrical properties at 20 °C

Conductor resistance  
0.14 mm<sup>2</sup>: max. 138.0 Ω/km  
0.25 mm<sup>2</sup>: max. 79.0 Ω/km  
0.34 mm<sup>2</sup>: max. 57.0 Ω/km  
0.5 mm<sup>2</sup>: max. 39.0 Ω/km  
0.75 mm<sup>2</sup>: max. 26.0 Ω/km  
1 mm<sup>2</sup>: max. 19.5 Ω/km  
1.5 mm<sup>2</sup>: max. 13.3 Ω/km

Specific volume resistivity  
> 20 G Ω x cm

Mutual capacitance  
C/C: approx. 120 nF/km  
(at 800 Hz)

Inductance  
Approx. 0.65 mH/km

Maximum operating voltage  
0.14 mm<sup>2</sup>: 350 V (not for power applications)  
= 0.25 mm<sup>2</sup>: 500 V (not for power applications)  
Must not be connected to the mains supply voltage.

Test voltage  
0.14 mm<sup>2</sup>: 1200 V  
= 0.25 mm<sup>2</sup>: 1500 V

Mechanical and thermal properties

Minimum bending radius  
Occasional flexing: 10 x outer diameter  
Fixed installation: 4 x outer diameter

Temperature range  
Flexing: - 5 °C up to +70 °C  
Fixed installation: - 40 °C up to +80 °C

Flammability  
Flame retardant acc. to IEC 60332-1-2 resp. EN 60332-1-2

General requirements

These cables are conform to EU-Directive 2011/65/EU (RoHS, Restriction of the use of certain hazardous substances) and EU-Directive 2014/35/EU (Low Voltage Directive).  
A part of these cables (see [www.lappkabel.com/cpr](http://www.lappkabel.com/cpr)) are classified in accordance with the EU-Regulation no. 305/2011 (CPR).

Environmental information

These cables meet the substance-specific requirements of the EU Directive 2011/65/EU (RoHS).

**Market:**

Norway

**Reference service life, product**

Expected lifetime 40 years, provided proper installation, load and ambient temperature.

**Reference service life, building or construction works**

40 years

**LCA: Calculation rules**

**Declared unit:**

1 m UNITRONIC® LiYY 20x0,5 / ELNR. 1091668

**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.

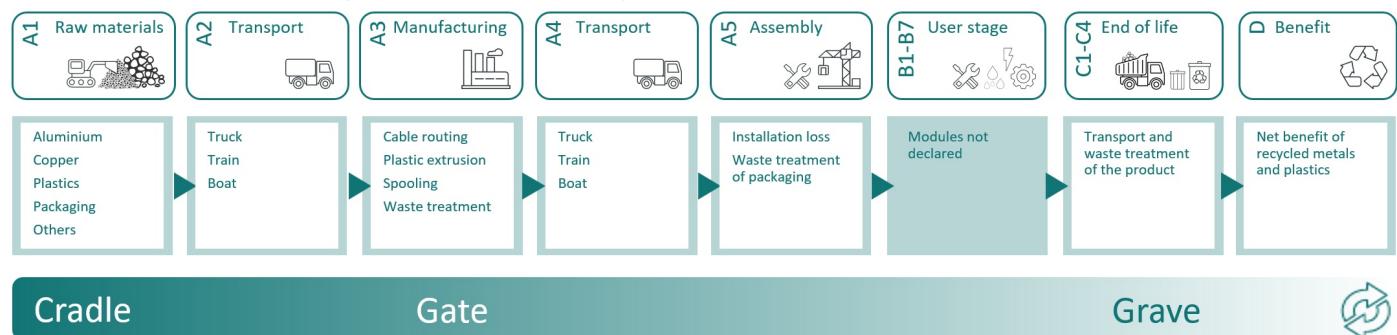
Materials	Source	Data quality	Year
Metal - Copper	ecoinvent 3.6	Database	2019
Packaging - Wood	ecoinvent 3.6	Database	2019
Plastic - Polyvinyl chloride (PVC)	ecoinvent 3.6	Database	2019

**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	MND	MND	X	X	X	X	X

**System boundary:**

The flowchart below illustrates the system boundaries of the analysis:


**Additional technical information:**

ARTICLE NO 0028520 UNITRONIC® LiYY 20x0,50 / ELNR. 1091668 represents the product with the highest expenditure of raw materials and energy consumption during manufacturing of all the following products from the same product family:

Elnumber Article no

1091667 0028516 UNITRONIC® LiYY 16X0,5  
1091666 0028512 UNITRONIC® LiYY 12X0,5

This EPD is only valid for the declared product. This EPD includes only the specific cable as named in the heading. For other cross sections EPD can be made on request.

## LCA: Scenarios and additional technical information

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

Module A4 = In A4, a transport distance from the production site to LAPP Norway's warehouse in Drammen was included. A distance of 300 km was also added as additional transport to market.

Modules A5 = 5 % product losses during installation are estimated by the company. No energy use has been quantified since installation in buildings is often done by manual labour. Use of portable electrical devices (e.g., drill) usually have low energy requirements falling under the cutoff criterion of 1%. Cable drums are reused and also assumed under the cut-off criterion of 1%.

Module C1 = de-construction in buildings is often done by manual labour. Use of portable electrical devices (e.g., drill) usually have low energy requirements falling under the cut-off criterion of 1%.

Module C2 = 85 km is added as an average distance to the waste facility

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 and without 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 and plastics 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, over 32 tonnes, EURO 6 (km)	53.3 %	2256.00	0.023	l/tkm	51.89
Assembly (A5)	Unit	Value			
Product loss during installation (percentage of cable)	Units/DU	0.05			
Waste, packaging, pallet, EUR wooden pallet, single use, to average treatment (kg) - A5, inkl. 85 km transp.	kg	0.005			
Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, 16-32 tonnes, EURO 6 (km)	36.7 %	85.00	0.043	l/tkm	3.66
Waste processing (C3)	Unit	Value			
Copper to recycling (kg)	kg	0.0576			
Waste treatment of polyvinylchloride (PVC), incineration with energy recovery and fly ash extraction (kg)	kg	0.059			
Disposal (C4)	Unit	Value			
Landfilling of plastic mixture (kg)	kg	0.0695			
Landfilling of copper (kg)	kg	0.0384			
Landfilling of ashes from incineration of Polyvinylchloride (PVC), process per kg ashes and residues (kg)	kg	0.009399			
Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary copper with net scrap (kg)	kg	0.05494			
Substitution of thermal energy, district heating, in Norway (MJ)	MJ	0.9653			
Substitution of electricity, in Norway (MJ)	MJ	0.06381			

## 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	C1	C2	C3	C4	D
 GWP-total	kg CO <sub>2</sub> -eq	7.36E-01	2.85E-02	2.51E-02	4.21E-02	5.59E-02	0	2.97E-03	1.18E-01	1.07E-02	-1.38E-01
 GWP-fossil	kg CO <sub>2</sub> -eq	7.33E-01	2.84E-02	2.35E-02	4.20E-02	4.81E-02	0	2.97E-03	1.18E-01	1.07E-02	-1.37E-01
 GWP-biogenic	kg CO <sub>2</sub> -eq	2.94E-03	1.18E-05	1.57E-03	1.80E-05	7.81E-03	0	1.23E-06	4.81E-05	1.79E-06	-6.22E-04
 GWP-luluc	kg CO <sub>2</sub> -eq	7.02E-04	1.01E-05	1.44E-05	1.28E-05	3.76E-05	0	1.06E-06	9.23E-06	6.42E-07	-3.31E-04
 ODP	kg CFC11 -eq	1.74E-07	6.44E-09	7.58E-09	1.01E-08	1.02E-08	0	6.73E-10	3.89E-09	5.15E-10	-4.08E-04
 AP	mol H <sup>+</sup> -eq	2.35E-02	8.17E-05	8.09E-05	1.35E-04	1.20E-03	0	8.54E-06	6.84E-05	1.58E-05	-2.21E-02
 EP-FreshWater	kg P -eq	1.91E-04	2.27E-07	5.80E-07	3.35E-07	9.64E-06	0	2.37E-08	3.48E-07	4.89E-08	-1.49E-04
 EP-Marine	kg N -eq	1.70E-03	1.62E-05	1.77E-05	2.96E-05	9.03E-05	0	1.69E-06	1.67E-05	1.35E-05	-9.20E-04
 EP-Terrestrial	mol N -eq	2.42E-02	1.81E-04	1.68E-04	3.31E-04	1.26E-03	0	1.89E-05	1.79E-04	5.93E-05	-1.42E-02
 POCP	kg NMVOC -eq	6.22E-03	6.93E-05	4.67E-05	1.30E-04	3.28E-04	0	7.24E-06	5.06E-05	1.82E-05	-3.86E-03
 ADP-minerals&metals <sup>1</sup>	kg Sb -eq	2.11E-04	7.86E-07	3.71E-07	7.49E-07	1.06E-05	0	8.21E-08	2.49E-07	1.65E-08	-1.24E-04
 ADP-fossil <sup>1</sup>	MJ	1.22E+01	4.30E-01	1.65E+00	6.83E-01	7.61E-01	0	4.49E-02	1.56E-01	4.24E-02	-1.25E+00
 WDP <sup>1</sup>	m <sup>3</sup>	3.77E+01	4.16E-01	2.50E+01	5.24E-01	3.38E+00	0	4.35E-02	3.18E+00	6.98E-01	6.19E+00

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"

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	C1	C2	C3	C4	D	
	PM	Disease incidence	7.09E-08	1.74E-09	4.91E-10	3.86E-09	3.91E-09	0	1.82E-10	4.44E-10	2.39E-10	-4.69E-08
	IRP <sup>2</sup>	kgBq U235 -eq	3.76E-02	1.88E-03	1.63E-02	2.99E-03	3.00E-03	0	1.96E-04	7.56E-04	2.36E-04	-1.97E-03
	ETP-fw <sup>1</sup>	CTUe	2.75E+02	3.19E-01	5.94E-01	4.99E-01	1.54E+01	0	3.33E-02	7.45E+00	2.38E+01	-2.03E+02
	HTP-c <sup>1</sup>	CTUh	5.00E-09	0.00E+00	1.80E-11	0.00E+00	2.52E-10	0	0.00E+00	1.70E-11	3.00E-12	-2.87E-09
	HTP-nc <sup>1</sup>	CTUh	3.72E-07	3.48E-10	4.46E-10	4.83E-10	1.88E-08	0	3.60E-11	1.76E-09	1.08E-10	-2.46E-07
	SQP <sup>1</sup>	dimensionless	6.67E+00	3.01E-01	9.68E-02	7.83E-01	4.04E-01	0	3.14E-02	5.66E-02	1.27E-01	-3.11E+00

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"

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	C1	C2	C3	C4	D	
	PERE	MJ	1.68E+00	6.16E-03	2.51E-01	8.59E-03	9.85E-02	0	6.43E-04	1.99E-02	3.75E-03	-9.64E-01
	PERM	MJ	6.94E-02	0.00E+00	0.00E+00	0.00E+00	-6.59E-02	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	1.75E+00	6.16E-03	2.51E-01	8.59E-03	3.26E-02	0	6.43E-04	1.99E-02	3.75E-03	-9.64E-01
	PENRE	MJ	9.64E+00	4.30E-01	1.65E+00	6.83E-01	6.34E-01	0	4.49E-02	1.56E-01	4.24E-02	-1.25E+00
	PENRM	MJ	2.54E+00	0.00E+00	0.00E+00	0.00E+00	-2.26E-02	0	0.00E+00	-2.99E+00	0.00E+00	0.00E+00
	PENRT	MJ	1.22E+01	4.30E-01	1.65E+00	6.83E-01	6.11E-01	0	4.49E-02	-2.83E+00	4.24E-02	-1.25E+00
	SM	kg	1.64E-02	0.00E+00	0.00E+00	0.00E+00	8.20E-04	0	0.00E+00	0.00E+00	1.15E-06	3.84E-02
	RSF	MJ	4.33E-02	2.20E-04	1.81E-03	3.01E-04	2.30E-03	0	2.30E-05	3.59E-04	8.25E-05	3.57E-03
	NRSF	MJ	1.75E-03	7.88E-04	4.63E-03	1.01E-03	4.35E-04	0	8.23E-05	0.00E+00	2.26E-04	-2.14E-02
	FW	m³	1.23E-02	4.60E-05	1.53E-03	7.77E-05	8.87E-04	0	4.80E-06	3.72E-03	4.94E-05	-3.81E-03

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"

**End of life - Waste**

Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D	
☒	HWD	kg	6.43E-03	2.22E-05	3.33E-03	3.74E-05	6.05E-04	0	2.32E-06	0.00E+00	2.29E-03	-1.49E-03
☒	NHWD	kg	2.28E-01	2.09E-02	1.60E-02	5.94E-02	2.72E-02	0	2.18E-03	0.00E+00	1.17E-01	-6.52E-02
☒	RWD	kg	3.43E-05	2.93E-06	2.10E-05	4.66E-06	3.17E-06	0	3.06E-07	0.00E+00	2.26E-07	-1.74E-06

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"

**End of life - Output flow**

Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D	
⌚	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00	
⌚	MFR	kg	0.00E+00	0.00E+00	1.21E-02	0.00E+00	3.49E-03	0	0.00E+00	5.76E-02	6.23E-06	-1.50E-03
⌚	MER	kg	0.00E+00	0.00E+00	1.43E-02	0.00E+00	8.62E-03	0	0.00E+00	5.90E-02	1.52E-07	-1.98E-04
⌚	EEE	MJ	0.00E+00	0.00E+00	8.73E-03	0.00E+00	6.90E-03	0	0.00E+00	6.04E-02	9.89E-06	-4.85E-04
⌚	EET	MJ	0.00E+00	0.00E+00	1.32E-01	0.00E+00	1.04E-01	0	0.00E+00	9.13E-01	1.50E-04	-7.34E-03

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"

**Biogenic Carbon Content**

Indicator	Unit	At the factory gate
Biogenic carbon content in product	kg C	0.00E+00
Biogenic carbon content in accompanying packaging	kg C	2.07E-03

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>

## 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	Source	Amount	Unit
Electricity, Norway (kWh)	ecoinvent 3.6	24.33	g CO2-eq/kWh
Electricity, France (kWh)	ecoinvent 3.6	94.37	g CO2-eq/kWh

### Dangerous substances

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

### Indoor environment

No effect on indoor environment.

## Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products											
Indicator	Unit	A1	A2	A3	A4	A5	C1	C2	C3	C4	D
GWPIOBC	kg CO <sub>2</sub> -eq	7.43E-01	2.85E-02	2.48E-02	4.21E-02	4.86E-02	0	2.97E-03	1.19E-01	9.63E-03	-6.80E-02

GWPIOBC: 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 GWPIOBC is required as it declares climate impacts calculated according to the principle of instantaneous oxidation. GWPIOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

## Bibliography

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