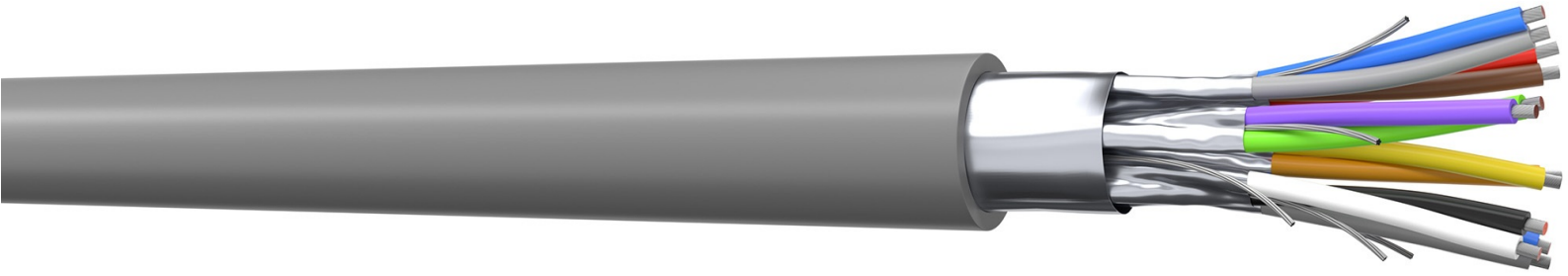
epd-global
Powered by EPD-Norway

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

MPI4 – MPI22A 4P0.22mm² multipair cable RS 232 RS 422



EPD-Global

Owner of the declaration:
ADALTRA We make the connection

Product:
MPI4 – MPI22A 4P0.22mm² multipair cable RS 232 RS 422

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-15894-20369

Issue date:
11.06.2026

Valid to:
11.06.2031

EPD software:
LCAno EPD generator ID: 1572213

General information

Product

MPI4 – MPI22A 4P0.22mm² multipair cable RS 232 RS 422

Owner of the declaration:

ADALTRA We make the connection
Contact person: Rangsimatiti Binda Saichompoo
Phone: +33169791414
e-mail: lca@adaltra.com

Program operator:

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

Manufacturer:

ADALTRA We make the connection
14 Mail du Commandant Cousteau
91300 Massy, France

Declaration number:

NEPD-15894-20369

Place of production:

TR001
Turkey

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

Management system:

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.

Organisation no:

FR 13 320 921 364

Declared unit:

1 m MPI4 – MPI22A 4P0.22mm² multipair cable RS 232 RS 422

Issue date:

11.06.2026

Declared unit with option:

A1, A2, A3, A4, A5, B1, B2, B3, B4, B5, B6, B7, C1, C2, C3, C4, D

Valid to:

11.06.2031

Year of study:

2024

Functional unit:

1 m of MPI22A 4P0.22mm² multipair cable RS 232 RS 422, installed and used to transmit 1 communication signal for residential, tertiary and industrial applications (excluding LAN) during a service life of 30 years, including waste treatment at end-of-life.

Comparability:

EPD for electronic and electrical products and systems may not be comparable if they do not comply with similar PCR standards.

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

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: NEPDT 227

Developer of EPD: Rangsimatiti Binda Saichompoo

Reviewer of company-specific input data and EPD: Vito D'Incognito, Take Care International

Verification of EPD tool:

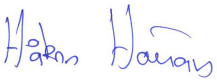
Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT32.

Third party verifier:

Børge Heggen Johansen, Energiråd AS, Energiråd AS

(no signature required)

Approved:



Håkon Hauan, CEO EPD-Global

Product

Product description:

The MPI-22A multipair cables, with a 0.22 mm² section, enable transmission of computer and data signals according to RS232 and RS422. They have low capacitance and feature individual pair shielding plus an overall aluminium tape shield, ensuring high signal protection.

Product specification

Materials	kg	%
Metal - Aluminium	0.004866	6.35
Metal - Copper	0.02637	34.43
Plastic - Polyethylene	0.000152	0.1985
Plastic - Polyethylene (HDPE)	0.00751	9.81
Plastic - Polyvinyl chloride (PVC)	0.03365	43.94
Textile - Polyester	0.004033	5.27
Total	0.07658	100.00

Packaging	kg	%
Wood	0.005	100.00
Total incl. packaging	0.08158	100.00

Technical data:

MPI22A 4P0.22mm² multipair cable RS 232 RS 422 with individual shielding

Market:

France

Reference service life, product

30 years

Reference service life, building or construction works

Not relevant

LCA: Calculation rules

Declared unit:

1 m MPI4 – MPI22A 4P0.22mm² multipair cable RS 232 RS 422

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.

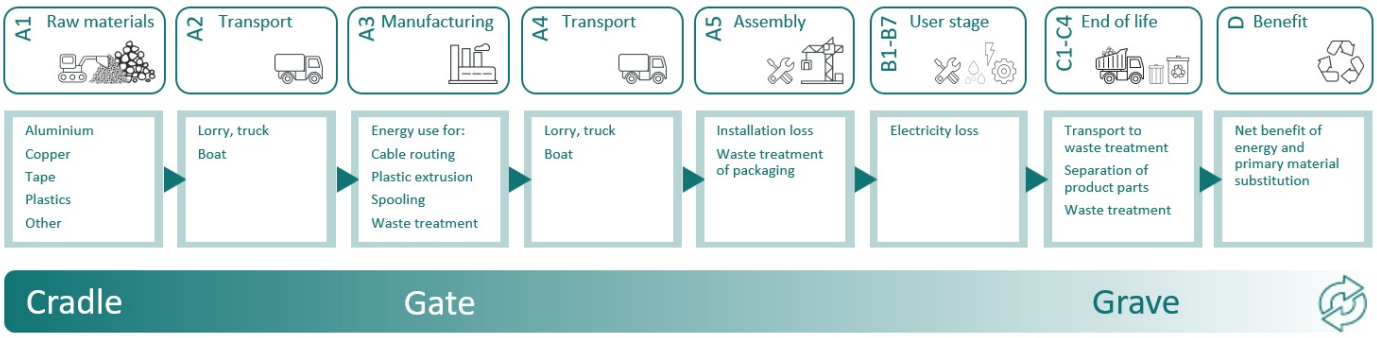
Materials	Source	Data quality	Year
Metal - Aluminium	ecoinvent 3.10.1	Database	2023
Metal - Copper	ecoinvent 3.10.1	Database	2023
Plastic - Polyethylene	ecoinvent 3.10.1	Database	2023
Plastic - Polyethylene (HDPE)	ecoinvent 3.10.1	Database	2023
Plastic - Polyvinyl chloride (PVC)	ecoinvent 3.10.1	Database	2023
Textile - Polyester	ecoinvent 3.10.1	Database	2023
Wood	ecoinvent 3.10.1	Database	2023

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	X	X	X	X	X	X	X	X	X	X	X	X

System boundary:

The flowchart below illustrates the system boundaries of the analysis:



Additional technical information:

Null

LCA: Scenarios and additional technical information

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

Module A4 = In this scenario, four transportation phases are considered. The supply chain includes truck transportation from the factory to the port of departure, the journey between the port of departure and the port of arrival, the journey from the port of arrival to our warehouse or the direct factory to warehouse and a journey to the customer according to PCR assumptions (national journey of 300 km).

Modules A5 = 5% product losses is applied according to PCR rules. No energy use for installation has been quantified for this product.

Modules B1, B2, B3, B4, B5, and B7 = Company data shows that no significant activities have been reported for use, maintenance, repair, replacement, refurbishment, and water use. This reflects an absence of impacts during the 30 years reference service life of the product in these modules.

Module B6 = The operational energy use of the cable is calculated based on the methodology described in PEP Ecopassport, Product Specific Rules (PSR) for wires, cables and accessories, reference PSR-0001-ed4-EN-2022 11 16. The following parameters are used to calculate the electricity loss:
- Reference service life = 30 years (according to appendix 1 of the PSR0001)
- Number of conductors = 4 pairs (the protection conductor is not transmitting power and is not included)
- Use rate = 70 percent (according to appendix 1 of the PSR0001)
- Linear conductor resistivity = 0,096 Ohm per meter
- Current intensity = 100 mA

Module C1 = De-construction in buildings is falling under the cut-off criterion of 1%.

Module C2 = An average distance between the market and the waste treatment facility is considered.

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 potential benefits and loads beyond the system boundary are quantified, resulting from the recovery and recycling of materials at the end of the product's life. These potential benefits are not credited to the manufacturer or the product system under assessment but may be realized by subsequent product systems that utilize the recovered materials as secondary resources. 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)
Transport, freight, sea, container ship (kgkm) - GLO - ecoinvent 3.10.1	65.0 %	5882.80	0.003	l/tkm	17.65
Truck, unspecified (km) - RER	48.7 %	529.80	0.051	l/tkm	27.02
Truck, unspecified (km) - ROW	48.7 %	1052.66	0.051	l/tkm	53.69

Assembly (A5)	Unit	Value			
Waste, packaging, wood, to average treatment (kg) - A5	kg	0.005			
Material losses during Installation (Unit)	kg	0.05			

Operational energy (B6)	Unit	Value			
B6 TR001 - Electricity, France, low voltage (kWh)	kWh	0.096			

Transport to waste processing (C2)	Capacity utilisation (incl. return) %	Distance (km)	Fuel/Energy Consumption	Unit	Value (Liter/tonne)
Truck, unspecified (km) - RER	48.7 %	100.00	0.051	l/tkm	5.10

Waste processing (C3)	Unit	Value			
Copper to recycling (kg)	kg	0.01582			
Waste Plastic mixture, Incineration FAE (kg) - RER	kg	0.02066			
Aluminium to recycling (kg)	kg	0.003406			

Disposal (C4)	Unit	Value			
Landfilling of copper (kg)	kg	0.01055			
Landfilling of plastic mixture (kg)	kg	0.02066			
Waste yarn, material landfill (kg)	kg	0.004033			
Landfilling of aluminium (kg)	kg	0.00146			

Benefits and loads beyond the system boundaries (D)	Unit	Value			
Substitution of primary copper with net scrap (kg)	kg	0.01582			
Substitution of Electricity, France (kWh)	kWh	0.000006689			
Substitution of thermal energy, district heating (MJ)	MJ	0.000007342			
Substitution of primary aluminium with net scrap (kg)	kg	0.003406			

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	B1	B2	B3
GWP-total	kg CO_2 -eq	4.76E-01	1.58E-02	2.96E-02	2.49E-02	3.76E-02	0	0	0
GWP-fossil	kg CO_2 -eq	4.71E-01	1.58E-02	2.88E-02	2.49E-02	2.97E-02	0	0	0
GWP-biogenic	kg CO_2 -eq	4.86E-03	3.81E-06	4.55E-04	8.64E-06	7.82E-03	0	0	0
GWP-luluc	kg CO_2 -eq	4.97E-04	7.21E-06	3.02E-04	1.12E-05	4.10E-05	0	0	0
ODP	kg CFC11 -eq	8.74E-08	2.01E-10	1.85E-10	3.01E-10	4.41E-09	0	0	0
AP	mol H+ -eq	6.84E-03	7.17E-05	1.98E-04	2.35E-04	3.69E-04	0	0	0
EP-FreshWater	kg P -eq	3.31E-03	1.26E-06	2.94E-05	1.67E-06	1.67E-04	0	0	0
EP-Marine	kg N -eq	1.61E-03	2.69E-05	3.40E-05	7.04E-05	9.01E-05	0	0	0
EP-Terrestial	mol N -eq	2.22E-02	2.94E-04	3.10E-04	7.75E-04	1.19E-03	0	0	0
POCP	kg NMVOC -eq	4.96E-03	1.01E-04	9.19E-05	2.40E-04	2.72E-04	0	0	0
ADP-minerals&metals[1]	kg Sb-eq	6.74E-05	5.07E-08	2.09E-07	6.87E-08	3.39E-06	0	0	0
ADP-fossil[1]	MJ	6.60E+00	2.25E-01	3.18E-01	3.45E-01	3.77E-01	0	0	0
WDP[1]	m^3	1.59E-01	1.08E-03	1.23E-02	1.56E-03	8.94E-03	0	0	0

Indicator	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-total	kg CO_2 -eq	0	0	8.58E-03	0	0	1.25E-03	4.89E-02	1.29E-02	-1.34E-01
GWP-fossil	kg CO_2 -eq	0	0	8.38E-03	0	0	1.25E-03	4.89E-02	2.14E-03	-1.33E-01
GWP-biogenic	kg CO_2 -eq	0	0	1.93E-04	0	0	8.65E-07	5.89E-07	1.07E-02	-1.51E-04
GWP-luluc	kg CO_2 -eq	0	0	8.38E-06	0	0	4.59E-07	1.93E-07	1.07E-07	-7.70E-04
ODP	kg CFC11 -eq	0	0	2.97E-10	0	0	2.40E-11	1.60E-11	1.20E-11	-4.47E-09
AP	mol H+ -eq	0	0	5.85E-05	0	0	5.61E-06	1.04E-05	2.70E-06	-8.97E-03
EP-FreshWater	kg P -eq	0	0	3.50E-06	0	0	8.51E-08	1.17E-07	3.59E-08	-7.10E-04
EP-Marine	kg N -eq	0	0	1.11E-05	0	0	2.20E-06	6.19E-06	4.38E-05	-4.52E-04
EP-Terrestial	mol N -eq	0	0	9.24E-05	0	0	2.40E-05	5.23E-05	1.19E-05	-6.23E-03
POCP	kg NMVOC -eq	0	0	3.17E-05	0	0	8.61E-06	1.31E-05	6.28E-06	-1.79E-03
ADP-minerals&metals[1]	kg Sb-eq	0	0	4.03E-07	0	0	3.97E-09	3.06E-09	1.13E-09	-1.14E-04
ADP-fossil[1]	MJ	0	0	1.09E+00	0	0	1.78E-02	7.31E-03	9.28E-03	-1.71E+00
WDP[1]	m^3	0	0	1.38E-02	0	0	9.03E-05	3.24E-03	1.60E-04	-1.37E-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"

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

The LCA results in the EPD are calculated using a specific methodological approach for accounting energy resources, see the additional requirements section for more information. In this EPD the following approach was used: Location-based approach.

Not relevant

Additional environmental impact indicators

Indicator		Unit	A1	A2	A3	A4	A5	B1	B2	B3
	PM	Disease incidence	5.49E-08	1.52E-09	8.70E-10	1.94E-09	2.98E-09	0	0	0
	IRP[2]	kgBq U235 -eq	2.90E-02	1.92E-04	2.65E-04	3.14E-04	1.49E-03	0	0	0
	ETP-fw[1]	CTUe	4.01E+01	3.54E-02	9.06E-02	4.68E-02	2.06E+00	0	0	0
	HTP-c[1]	CTUh	4.55E-10	0.00E+00	6.00E-12	0.00E+00	2.30E-11	0	0	0
	HTP-nc[1]	CTUh	1.57E-08	2.01E-10	3.43E-10	2.58E-10	8.36E-10	0	0	0
	SQP[1]	dimensionless	5.08E+00	1.68E-01	4.48E-02	2.18E-01	2.78E-01	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	PM	Disease incidence	0	0	5.34E-10	0	0	1.22E-10	4.50E-11	6.20E-11	-2.19E-08
	IRP[2]	kgBq U235 -eq	0	0	4.87E-02	0	0	2.35E-05	2.66E-05	3.14E-05	-1.75E-02
	ETP-fw[1]	CTUe	0	0	5.96E-02	0	0	2.33E-03	1.04E-01	7.97E-01	-1.00E+01
	HTP-c[1]	CTUh	0	0	7.00E-12	0	0	0.00E+00	2.00E-12	0.00E+00	-9.72E-10
	HTP-nc[1]	CTUh	0	0	3.55E-10	0	0	1.60E-11	1.11E-10	2.80E-11	-9.30E-08
	SQP[1]	dimensionless	0	0	6.57E-02	0	0	1.34E-02	1.77E-03	2.10E-02	-2.84E+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	B1	B2	B3
	PERE	MJ	1.18E+00	3.19E-03	1.45E-01	4.83E-03	6.69E-02	0	0	0
	PERM	MJ	5.73E-02	0.00E+00	0.00E+00	0.00E+00	-5.45E-02	0	0	0
	PERT	MJ	1.24E+00	3.19E-03	1.45E-01	4.83E-03	1.24E-02	0	0	0
	PENRE	MJ	5.45E+00	2.25E-01	3.18E-01	3.45E-01	3.20E-01	0	0	0
	PENRM	MJ	1.15E+00	0.00E+00	-1.12E-02	0.00E+00	-1.30E-02	0	0	0
	PENRT	MJ	6.60E+00	2.25E-01	3.07E-01	3.45E-01	3.07E-01	0	0	0
	SM	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0
	RSF	MJ	2.77E-04	1.27E-06	4.20E-07	1.67E-06	1.40E-05	0	0	0
	NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0
	FW	m^3	4.00E-03	3.16E-05	2.91E-04	4.43E-05	2.22E-04	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	PERE	MJ	0	0	1.15E-01	0	0	3.14E-04	4.58E-04	5.84E-04	-5.33E-01
	PERM	MJ	0	0	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	PERT	MJ	0	0	1.15E-01	0	0	3.14E-04	4.58E-04	5.84E-04	-5.33E-01
	PENRE	MJ	0	0	1.09E+00	0	0	1.78E-02	7.31E-03	9.28E-03	-1.71E+00
	PENRM	MJ	0	0	0.00E+00	0	0	0.00E+00	-1.12E+00	0.00E+00	0.00E+00
	PENRT	MJ	0	0	1.09E+00	0	0	1.78E-02	-1.11E+00	9.28E-03	-1.71E+00
	SM	kg	0	0	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	-5.49E-03
	RSF	MJ	0	0	5.86E-07	0	0	9.91E-08	2.80E-07	5.73E-08	-3.27E-05
	NRSF	MJ	0	0	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	-2.22E-07
	FW	m^3	0	0	3.32E-04	0	0	2.54E-06	5.58E-05	1.63E-08	-4.26E-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	B1	B2	B3
	HWD	kg	7.86E-02	3.94E-04	2.22E-03	5.49E-04	4.09E-03	0	0	0
	NHWD	kg	2.45E+00	7.39E-03	1.43E-01	1.02E-02	1.35E-01	0	0	0
	RWD	kg	5.92E-05	0.00E+00	6.30E-08	3.76E-08	2.97E-06	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	HWD	kg	0	0	6.76E-04	0	0	2.57E-05	0.00E+00	0.00E+00	-4.67E-02
	NHWD	kg	0	0	1.85E-02	0	0	5.42E-04	2.07E-02	3.67E-02	-2.71E+00
	RWD	kg	0	0	1.40E-05	0	0	5.83E-09	0.00E+00	0.00E+00	-4.60E-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	B1	B2	B3
	CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0	0	0
	MFR	kg	0.00E+00	0.00E+00	3.79E-04	0.00E+00	4.21E-03	0	0	0
	MER	kg	0.00E+00	0.00E+00	4.00E-12	0.00E+00	1.03E-03	0	0	0
	EEE	MJ	0.00E+00	0.00E+00	6.78E-09	0.00E+00	6.36E-06	0	0	0
	EET	MJ	0.00E+00	0.00E+00	1.43E-08	0.00E+00	3.17E-06	0	0	0

Indicator		Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
	CRU	kg	0	0	0.00E+00	0	0	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	MFR	kg	0	0	0.00E+00	0	0	0.00E+00	1.92E-02	0.00E+00	0.00E+00
	MER	kg	0	0	0.00E+00	0	0	0.00E+00	2.07E-02	0.00E+00	0.00E+00
	EEE	MJ	0	0	0.00E+00	0	0	0.00E+00	6.69E-06	1.19E-04	0.00E+00
	EET	MJ	0	0	0.00E+00	0	0	0.00E+00	7.35E-06	5.28E-05	0.00E+00

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	1.91E-03

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

The table below presents GWPtotal values for energy resources used in the manufacturing phase (A3), calculated with both the location-based and market-based approach. This information is provided for transparency, allowing EPD users to understand the impact of these methodological choices. In this EPD, the following methodology was used in the main results: Location-based approach.

Electricity mix	Source	Amount	Unit	GWPtotal [kg CO2/Unit]	SUM [kg CO2]
Location-based approach.					
Electricity, Turkey, low voltage (kWh)	ecoinvent 3.10.1	4.89E-02	kWh	6.00E-01	2.93E-02
Market-based approach.					
Electricity, Turkey, low voltage, residual mix (kWh)	Modified ecoinvent 3.11	4.89E-02	kWh	9.99E-01	4.89E-02

"Reading example: 9.0 E-03 = 9.0*10-3 = 0.009"

Dangerous substances

The product contains substances given by the REACH Candidate list that are less than 0,1 % by weight.

Indoor environment

Not relevant

Additional Environmental Information

Additional environmental impact indicators required in NPCR Part A for construction products										
Indicator	**Unit**	A1	A2	A3	A4	A5	B1	B2	B3	
GWPIOBC	kg CO_2 -eq	4.73E-01	1.58E-02	2.93E-02	2.49E-02	3.04E-02	0	0	0	

Indicator	Unit	B4	B5	B6	B7	C1	C2	C3	C4	D
GWPIOBC	kg CO_2 -eq	0	0	8.41E-03	0	0	1.25E-03	4.89E-02	1.29E-02	-1.34E-01

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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