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# Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

## 90410050C100 – HIFLEX–CY 4X0.5mm² LiYCY shielded cable



EPD-Global

**Owner of the declaration:**
ADALTRA We make the connection

**Product:**
90410050C100 – HIFLEX–CY 4X0.5mm² LiYCY shielded cable

**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-16124-20160

**Issue date:**
12.06.2026

**Valid to:**
12.06.2031

**EPD software:**
LCAno EPD generator ID: 1571967

## General information

**Product**

90410050C100 – HIFLEX–CY 4X0.5mm² LiYCY shielded cable

**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-16124-20160

**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 90410050C100 – HIFLEX–CY 4X0.5mm² LiYCY shielded cable

**Issue date:**

12.06.2026

**Declared unit with option:**

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

**Valid to:**

12.06.2031

**Year of study:**

2024

**Functional unit:**

1 m of HIFLEX–CY 4X0.5mm² LiYCY shielded cable , installed and used to transmit data and signals to control, measure and regulate equipments for the automation application during a service life of 5 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:**

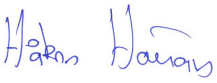
Independent third party verification of the EPD tool, background data and test-EPD in accordance with EPD-Global's procedures and guidelines for verification and approval of EPD tools. Approval number: NEPDT32.

Third party verifier:

Børge Heggen Johansen, Energiråd AS, Energiråd AS

(no signature required)

**Approved:**



Håkon Hauan, CEO EPD-Global

## Product

### Product description:

LIYCY cables transmit analog and digital signals for control and process equipment in applications such as measurement, weighing, electronics, and industrial automation. With a flexible, class 5 conductor, they are used fixed or mobile, in free movement without traction or forced guidance. Their tinned copper braid shielding protects against low-frequency electromagnetic interference.

### Product specification

| Materials | kg | % |
|---|---|---|
| Metal - Copper | 0.02434 | 48.35 |
| Plastic - Polyvinyl chloride (PVC) | 0.02543 | 50.52 |
| Textile - Polyester | 0.000567 | 1.13 |
| Total | 0.05034 | 100.00 |

| Packaging | kg | % |
|---|---|---|
| Packaging - Polyethylene (LDPE) | 0.001 | 100.00 |
| Total incl. packaging | 0.05134 | 100.00 |

### Technical data:

HIFLEX–CY 4X0.5mm² LiYCY shielded cable DIN 47100 color code – 1000m drum

### Market:

France

### Reference service life, product

5 years

### Reference service life, building or construction works

Not relevant

## LCA: Calculation rules

### Declared unit:

1 m 90410050C100 – HIFLEX–CY 4X0.5mm² LiYCY shielded cable

### 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.

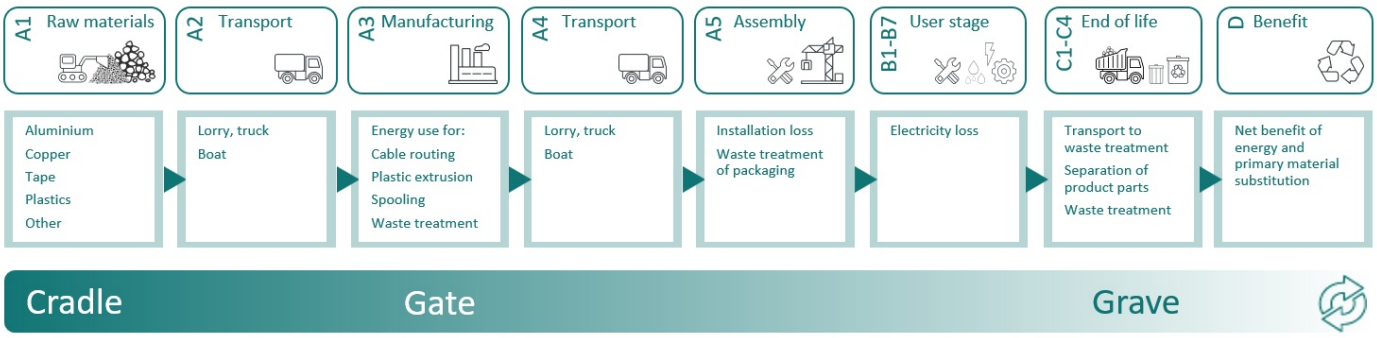
| Materials | Source | Data quality | Year |
|---|---|---|---|
| Metal - Copper | ecoinvent 3.10.1 | Database | 2023 |
| Packaging - Polyethylene (LDPE) | ecoinvent 3.10.1 | Database | 2023 |
| Plastic - Polyvinyl chloride (PVC) | ecoinvent 3.10.1 | Database | 2023 |
| Textile - Polyester | ecoinvent 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 5 years reference service life of the product in these modules.

Module B6 = The operational energy use is negligible for control and command wire and cable category 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.

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 | | | |
|---|---|---|---|---|---|
| Material losses during Installation (Unit) | kg | 0.05 | | | |
| Waste, packaging, plastic, mixture, to average treatment (kg) - A5 | kg | 0.001 | | | |

| 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 | 0.0146 | | | |
| Waste Plastic mixture, Incineration FAE (kg) - RER | kg | 0.01272 | | | |

| Disposal (C4) | Unit | Value | | | |
|---|---|---|---|---|---|
| Landfilling of copper (kg) | kg | 0.009736 | | | |
| Landfilling of plastic mixture (kg) | kg | 0.01272 | | | |
| Waste yarn, material landfill (kg) | kg | 0.000567 | | | |

| Benefits and loads beyond the system boundaries (D) | Unit | Value | | | |
|---|---|---|---|---|---|
| Substitution of primary copper with net scrap (kg) | kg | 0.0146 | | | |
| Substitution of Electricity, France (kWh) | kWh | 0.000004118 | | | |
| Substitution of thermal energy, district heating (MJ) | MJ | 0.000004523 | | | |

## 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 | 2.81E-01 | 8.08E-03 | 1.86E-02 | 1.57E-02 | 1.93E-02 | 0 | 0 | 0 |
| | GWP-fossil | kg $CO_2$ -eq | 2.71E-01 | 8.08E-03 | 1.82E-02 | 1.57E-02 | 1.86E-02 | 0 | 0 | 0 |
| | GWP-biogenic | kg $CO_2$ -eq | 1.01E-02 | 1.95E-06 | 2.86E-04 | 5.44E-06 | 5.93E-04 | 0 | 0 | 0 |
| | GWP-luluc | kg $CO_2$ -eq | 3.49E-04 | 3.69E-06 | 1.90E-04 | 7.05E-06 | 2.76E-05 | 0 | 0 | 0 |
| | ODP | kg CFC11 -eq | 3.08E-08 | 1.02E-10 | 1.17E-10 | 1.89E-10 | 1.57E-09 | 0 | 0 | 0 |
| | AP | mol H+ -eq | 5.10E-03 | 3.67E-05 | 1.24E-04 | 1.48E-04 | 2.72E-04 | 0 | 0 | 0 |
| | EP-FreshWater | kg P -eq | 2.99E-03 | 6.43E-07 | 1.85E-05 | 1.05E-06 | 1.51E-04 | 0 | 0 | 0 |
| | EP-Marine | kg N -eq | 1.31E-03 | 1.38E-05 | 2.14E-05 | 4.43E-05 | 7.14E-05 | 0 | 0 | 0 |
| | EP-Terrestial | mol N -eq | 1.86E-02 | 1.50E-04 | 1.95E-04 | 4.88E-04 | 9.78E-04 | 0 | 0 | 0 |
| | POCP | kg NMVOC -eq | 3.91E-03 | 5.19E-05 | 5.78E-05 | 1.51E-04 | 2.10E-04 | 0 | 0 | 0 |
| | ADP-minerals&metals[1] | kg Sb-eq | 6.16E-05 | 2.59E-08 | 1.32E-07 | 4.33E-08 | 3.09E-06 | 0 | 0 | 0 |
| | ADP-fossil[1] | MJ | 3.80E+00 | 1.15E-01 | 2.00E-01 | 2.17E-01 | 2.18E-01 | 0 | 0 | 0 |
| | WDP[1] | $m^3$ | 1.11E-01 | 5.53E-04 | 7.76E-03 | 9.83E-04 | 6.20E-03 | 0 | 0 | 0 |

| **Indicator** | | **Unit** | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | GWP-total | kg $CO_2$ -eq | 0 | 0 | 0 | 0 | 0 | 7.86E-04 | 3.01E-02 | 2.86E-03 | -1.01E-01 |
| | GWP-fossil | kg $CO_2$ -eq | 0 | 0 | 0 | 0 | 0 | 7.85E-04 | 3.01E-02 | 1.35E-03 | -1.01E-01 |
| | GWP-biogenic | kg $CO_2$ -eq | 0 | 0 | 0 | 0 | 0 | 5.44E-07 | 3.62E-07 | 1.51E-03 | -2.53E-05 |
| | GWP-luluc | kg $CO_2$ -eq | 0 | 0 | 0 | 0 | 0 | 2.89E-07 | 1.19E-07 | 7.58E-08 | -1.89E-04 |
| | ODP | kg CFC11 -eq | 0 | 0 | 0 | 0 | 0 | 1.50E-11 | 1.00E-11 | 7.00E-12 | -2.80E-09 |
| | AP | mol H+ -eq | 0 | 0 | 0 | 0 | 0 | 3.53E-06 | 6.39E-06 | 1.80E-06 | -8.14E-03 |
| | EP-FreshWater | kg P -eq | 0 | 0 | 0 | 0 | 0 | 5.35E-08 | 7.17E-08 | 2.60E-08 | -6.43E-04 |
| | EP-Marine | kg N -eq | 0 | 0 | 0 | 0 | 0 | 1.39E-06 | 3.81E-06 | 2.70E-05 | -3.98E-04 |
| | EP-Terrestial | mol N -eq | 0 | 0 | 0 | 0 | 0 | 1.51E-05 | 3.22E-05 | 7.86E-06 | -5.58E-03 |
| | POCP | kg NMVOC -eq | 0 | 0 | 0 | 0 | 0 | 5.42E-06 | 8.05E-06 | 3.38E-06 | -1.57E-03 |
| | ADP-minerals&metals[1] | kg Sb-eq | 0 | 0 | 0 | 0 | 0 | 2.50E-09 | 1.88E-09 | 8.23E-10 | -1.06E-04 |
| | ADP-fossil[1] | MJ | 0 | 0 | 0 | 0 | 0 | 1.12E-02 | 4.50E-03 | 6.41E-03 | -1.23E+00 |
| | WDP[1] | $m^3$ | 0 | 0 | 0 | 0 | 0 | 5.68E-05 | 2.00E-03 | 1.23E-04 | -8.32E-02 |

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 | 4.17E-08 | 7.79E-10 | 5.47E-10 | 1.22E-09 | 2.23E-09 | 0 | 0 | 0 |
| | IRP[2] | kgBq U235 -eq | 1.80E-02 | 9.81E-05 | 1.67E-04 | 1.97E-04 | 9.28E-04 | 0 | 0 | 0 |
| | ETP-fw[1] | CTUe | 3.63E+01 | 1.81E-02 | 5.70E-02 | 2.94E-02 | 1.86E+00 | 0 | 0 | 0 |
| | HTP-c[1] | CTUh | 3.18E-10 | 0.00E+00 | 4.00E-12 | 0.00E+00 | 1.60E-11 | 0 | 0 | 0 |
| | HTP-nc[1] | CTUh | 1.32E-08 | 1.02E-10 | 2.16E-10 | 1.63E-10 | 6.91E-10 | 0 | 0 | 0 |
| | SQP[1] | dimensionless | 3.61E+00 | 8.61E-02 | 2.82E-02 | 1.37E-01 | 1.95E-01 | 0 | 0 | 0 |

| Indicator | | Unit | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PM | Disease incidence | 0 | 0 | 0 | 0 | 0 | 7.70E-11 | 2.80E-11 | 4.00E-11 | -1.85E-08 |
| | IRP[2] | kgBq U235 -eq | 0 | 0 | 0 | 0 | 0 | 1.48E-05 | 1.64E-05 | 2.38E-05 | -1.02E-02 |
| | ETP-fw[1] | CTUe | 0 | 0 | 0 | 0 | 0 | 1.47E-03 | 6.39E-02 | 6.45E-01 | -9.22E+00 |
| | HTP-c[1] | CTUh | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 1.00E-12 | 0.00E+00 | -8.51E-10 |
| | HTP-nc[1] | CTUh | 0 | 0 | 0 | 0 | 0 | 1.00E-11 | 6.80E-11 | 1.60E-11 | -8.55E-08 |
| | SQP[1] | dimensionless | 0 | 0 | 0 | 0 | 0 | 8.40E-03 | 1.09E-03 | 1.34E-02 | -2.60E+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 | 9.07E-01 | 1.63E-03 | 9.13E-02 | 3.04E-03 | 5.02E-02 | 0 | 0 | 0 |
| | PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0 | 0 | 0 |
| | PERT | MJ | 9.07E-01 | 1.63E-03 | 9.13E-02 | 3.04E-03 | 5.02E-02 | 0 | 0 | 0 |
| | PENRE | MJ | 3.19E+00 | 1.15E-01 | 2.00E-01 | 2.17E-01 | 1.88E-01 | 0 | 0 | 0 |
| | PENRM | MJ | 6.05E-01 | 0.00E+00 | -5.57E-03 | 0.00E+00 | -4.03E-02 | 0 | 0 | 0 |
| | PENRT | MJ | 3.80E+00 | 1.15E-01 | 1.95E-01 | 2.17E-01 | 1.48E-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 | 1.48E-04 | 6.52E-07 | 2.64E-07 | 1.05E-06 | 7.53E-06 | 0 | 0 | 0 |
| | NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0 | 0 | 0 |
| | FW | $m^3$ | 2.86E-03 | 1.62E-05 | 1.83E-04 | 2.79E-05 | 1.58E-04 | 0 | 0 | 0 |

| Indicator | | Unit | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | PERE | MJ | 0 | 0 | 0 | 0 | 0 | 1.98E-04 | 2.82E-04 | 4.43E-04 | -3.54E-01 |
| | PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | PERT | MJ | 0 | 0 | 0 | 0 | 0 | 1.98E-04 | 2.82E-04 | 4.43E-04 | -3.54E-01 |
| | PENRE | MJ | 0 | 0 | 0 | 0 | 0 | 1.12E-02 | 4.50E-03 | 6.41E-03 | -1.23E+00 |
| | PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | -5.57E-01 | 0.00E+00 | 0.00E+00 |
| | PENRT | MJ | 0 | 0 | 0 | 0 | 0 | 1.12E-02 | -5.52E-01 | 6.41E-03 | -1.23E+00 |
| | SM | kg | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -5.07E-03 |
| | RSF | MJ | 0 | 0 | 0 | 0 | 0 | 6.23E-08 | 1.72E-07 | 3.99E-08 | -2.91E-05 |
| | NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.37E-07 |
| | FW | $m^3$ | 0 | 0 | 0 | 0 | 0 | 1.60E-06 | 3.44E-05 | 2.29E-09 | -2.98E-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 | 4.76E-02 | 2.01E-04 | 1.40E-03 | 3.46E-04 | 2.50E-03 | 0 | 0 | 0 |
| | NHWD | kg | 1.65E+00 | 3.78E-03 | 8.98E-02 | 6.42E-03 | 9.05E-02 | 0 | 0 | 0 |
| | RWD | kg | 1.25E-06 | 0.00E+00 | 3.97E-08 | 2.37E-08 | 6.57E-08 | 0 | 0 | 0 |

| Indicator | | Unit | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | HWD | kg | 0 | 0 | 0 | 0 | 0 | 1.62E-05 | 0.00E+00 | 0.00E+00 | -3.73E-02 |
| | NHWD | kg | 0 | 0 | 0 | 0 | 0 | 3.41E-04 | 1.27E-02 | 2.30E-02 | -2.45E+00 |
| | RWD | kg | 0 | 0 | 0 | 0 | 0 | 3.67E-09 | 0.00E+00 | 0.00E+00 | -2.67E-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 | 2.38E-04 | 0.00E+00 | 1.05E-03 | 0 | 0 | 0 |
| | MER | kg | 0.00E+00 | 0.00E+00 | 3.00E-12 | 0.00E+00 | 6.36E-04 | 0 | 0 | 0 |
| | EEE | MJ | 0.00E+00 | 0.00E+00 | 4.26E-09 | 0.00E+00 | 5.22E-06 | 0 | 0 | 0 |
| | EET | MJ | 0.00E+00 | 0.00E+00 | 8.99E-09 | 0.00E+00 | 2.43E-06 | 0 | 0 | 0 |

| Indicator | | Unit | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | CRU | kg | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| | MFR | kg | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 1.46E-02 | 0.00E+00 | 0.00E+00 |
| | MER | kg | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 1.27E-02 | 0.00E+00 | 0.00E+00 |
| | EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 4.12E-06 | 9.65E-05 | 0.00E+00 |
| | EET | MJ | 0 | 0 | 0 | 0 | 0 | 0.00E+00 | 4.52E-06 | 3.66E-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 | 0.00E+00 |

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 | 3.08E-02 | kWh | 6.00E-01 | 1.85E-02 |
| **Market-based approach.** | | | | | |
| Electricity, Turkey, low voltage, residual mix (kWh) | Modified ecoinvent 3.11 | 3.08E-02 | kWh | 9.99E-01 | 3.08E-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 | 2.72E-01 | 8.08E-03 | 1.84E-02 | 1.57E-02 | 1.88E-02 | 0 | 0 | 0 |

| Indicator | Unit | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWPIOBC | kg $CO_2$ -eq | 0 | 0 | 0 | 0 | 0 | 7.85E-04 | 3.01E-02 | 2.86E-03 | -1.01E-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.

## Bibliography

ISO 14025:2010. Environmental labels and declarations - Type III environmental declarations - Principles and procedures. International Organization for Standardization.
ISO 14044:2006. Environmental management - Life cycle assessment - Requirements and guidelines. International Organization for Standardization.
EN 15804:2012+A2:2019. Environmental product declaration - Core rules for the product category of construction products. European Committee for Standardization.
ISO 21930:2017. Sustainability in buildings and civil engineering works - Core rules for environmental product declarations of construction products. International Organization for Standardization.
EN 50693:2019. Product category rules for life cycle assessments of electronic and electrical products and systems. European Committee for Standardization.
Ecoinvent v3.10.1, EF v3.1 EN15804, 2022. Allocation, cut-off by classification. Swiss Centre of Life Cycle Inventories.
Iversen et al., (2021). eEPD v2021.09, background information for EPD generator tool system verification, LCA.no. Report number: 07.21. System verification report.
Philis et al., (2025). EPD generator for NPCR 027 part B for electrical wires and cables, background information for EPD generator application and LCA data, LCA.no Report number: 03.22. PCR verification report.
EPD Norway (2022). NPCR Part A: Construction products and services. The Norwegian EPD foundation. Version 2.0 published 24.03.2021.
EPD Norway (2022). NPCR 027 Part B for electrical cables and wires. The Norwegian EPD foundation. Version 2.0 published 01.03.2022.
PSR-0001-ed4-EN-2022 11 16. PEP Ecopassport, Product Specific Rules (PSR) for wires, cables and accessories.


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