Anhui Lasun Optic-Electric Co., Ltd.

ENVIRONMENTAL PRODUCT DECLARATION

CUXLPE /LSZH 500V
Double insulated building wire

No.27 Weiyi Road, Taihu Economic Development Zone, Taihu county, Anhui Province, China

In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021

Program Operator	EPDItaly
Publisher	EPDItaly

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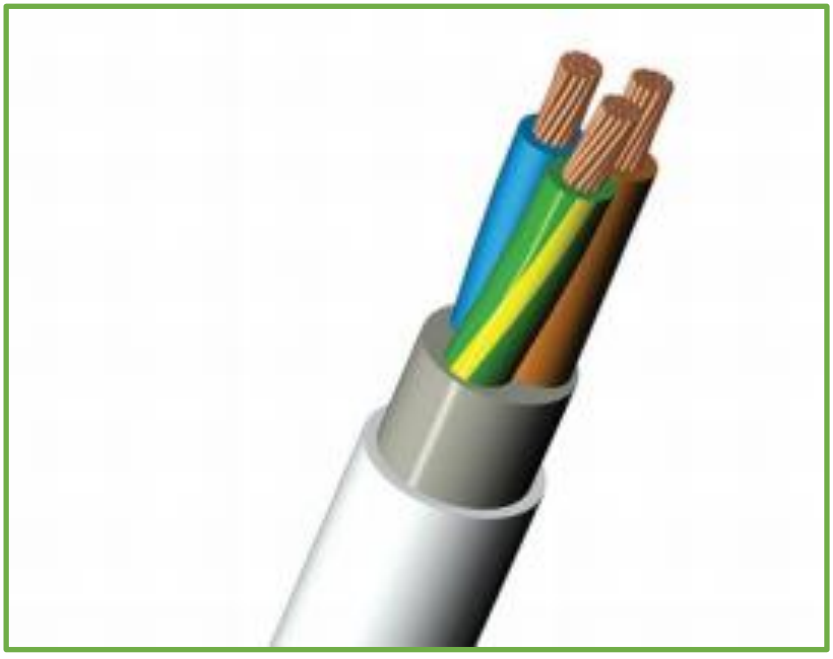

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GENERAL INFORMATION

EPD OWNER	
Name of the company	Anhui Lasun Optic-Electric Co., Ltd.
Registered office	No.27 Weiyi Road, Taihu Economic Development Zone, Taihu county, Anhui Province, China
Contacts for information on the EPD	lasun20@lasun.cn

PROGRAM OPERATOR	
EPDItaly	Via Gaetano De Castillia n° 10 - 20124 Milano, Italy

INFORMATION ON THE EPD	
Product name (s)	CUXLPE /LSZH 500V Double insulated building wire
Site (s)	No.27 Weiyi Road, Taihu Economic Development Zone, Taihu county, Anhui Province, China
Short description and technical information of the product (s)	Double insulated, halogen-free building cables, intended for fixed installation. Suitable for installation in cable trays or conduits. Approved for indoor and outdoor use, but not suitable for underground.
Field of application of the product (s)	Construction
Product (s) reference standards (if any)	
CPC Code (number) https://unstats.un.org/unsd/classifications/Econ	463 family "Insulated wire and cable; optical fibre cables" and sub-sequent clusters

VERIFICATION INFORMATION	
PCR	EPD Italy 016: "Electronic and Electrical Product and System – Cables and Wires", Rev.3 – 03/10/2024 EPDItaly007 Rev. 3.2 – 10/12/2025: "Electronic and electrical product and systems" EN 15804:2012 +A2:2019/AC:2021 Sustainability of construction works- Environmental product declarations- Core rules for the product category of construction products.
EPDItaly Regulation	EPDItaly Regulations Rev 6.0 – 30/10/2023
Project Report LCA	SGS/2025/LCAR/E/1101 – 16/01/2026
LCA Consultant	Ruthe.Fan@sgs.com Chris.Zhao@sgs.com SGS-CSTC Standards Technical Services Co., Ltd
Independent Verification Statement	Independent verification of the declaration and data, carried out according to ISO 14025: 2010. ☐ Internal ☑ External Third party verification carried out by: ICMQ S.p.A., via Gaetano De Castillia n ° 10 - 20124 Milan, Italy. Accredited by Accredia.

Comparability Statement	Environmental statements published within the same product category, but from different programs, may not be comparable. In particular, EPDs of construction products may not be comparable if they do not comply with EN 15804:2012+A2:2019/AC:2021
Liability Statement	The EPD Owner releases EPDItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence. EPDItaly disclaims any responsibility for the information, data and results provided by the EPD Owner for life cycle assessment.

OTHER INFORMATION	
Scope of EPD	This EPD is a specific EPD covering only the product manufactured at Anhui Lasun Optic-Electric Co., Ltd. under the declared functional unit. It is not an average or generic EPD.

Contents

1. Company Information

Lasun Optic-Electric, established in 2004 and headquartered in Taihu County, Anhui Province, is a modern technological enterprise specializing in the research, development, production, and sales of information and energy transmission solutions. Its product portfolio encompasses four key segments: Communication cables, Power cables, EV chargers and Polymer materials. With 3 production bases supporting its operations, the company serves over 80 countries and regions worldwide.

Research and development are the core vitality of Lasun. The budget is over millions of dollars per year. The team has more than 100 specialists led by top experts, and has established strategic partnerships with CESI, the National Technical Committee of Standardization for Plastic Products,

Wuhan University of Technology, Shanghai Electric Cable Research Institute, and other institutions. It has obtained more than 130 core patents and intellectual property rights.

Lasun has 9 major products, including LAN cables, fiber optic cables, data center cables, security cables, low-voltage cables, new energy cables, special cables, EV chargers, and polymer materials. Annual production capacities include: 100,000 kilometers of LAN cables; 8 million pieces of LAN patch cords; 10 million kilometers of fiber optic cables; 10 million pieces of fiber optic patch cords; 100,000 kilometers of power cables; 35,000 tons of polymer materials; and 50,000 sets of EV chargers.

Utilizing unique process technologies, LAN cables and patch cords have excellent performance and high transmission margin. Lasun provides OEM services that can fulfill customer needs at the most competitive price with top quality. With various types of hybrid cables, ADSS cables, MPO optical patch cords, and other series of products, and relying on strong research and development, Lasun's PVC, LSZH, TPE, TPU, and other polymers have excellent performance in flame retardant, temperature resistance, cold resistance, corrosion resistance, anti-aging, environmental protection, and other performance indicators.

2. Product Information

Product Name: CUXLPE /LSZH 500V Double insulated building wire

Product Description: Halogen-free flame-retardant cables, with low smoke emission and low smoke density, designed not to damage electrical equipment with their smoke. Excellent stripping performance. Suitable for fixed installations in conduits, ducts, below or within plaster, and in cable trays. Suitable for indoor and outdoor use, but direct burial or immersion in water is prohibited. The outer sheath has UV protection, and the core is UV resistant.
Since this product is permanently installed within the building, it can be considered as a construction product compliant with the scope of EN 15804 according to the applicable PCR. Therefore, this study follows all additional requirements applicable to construction products.

Table 1 Properties of Cable

PROPERTIES	CUXLPE /LSZH 500V Double insulated building wire
Maximum voltage (kV)	0.5
Electrical resistance at 20°C (Ω/km)	7.41
Nominal insulation thickness (mm)	0.5
Nominal outer diameter (mm)	8.9 ± 0.2
Section of the wire (mm2)	2.5

Manufacturing process: The manufacturing process involves multiple steps, including 1. wire drawing (annealing), 2. extrusion of insulation, 3. cabling, 4. extrusion of inner sheath, 5. extrusion of outer sheath, 6. finished product inspection.

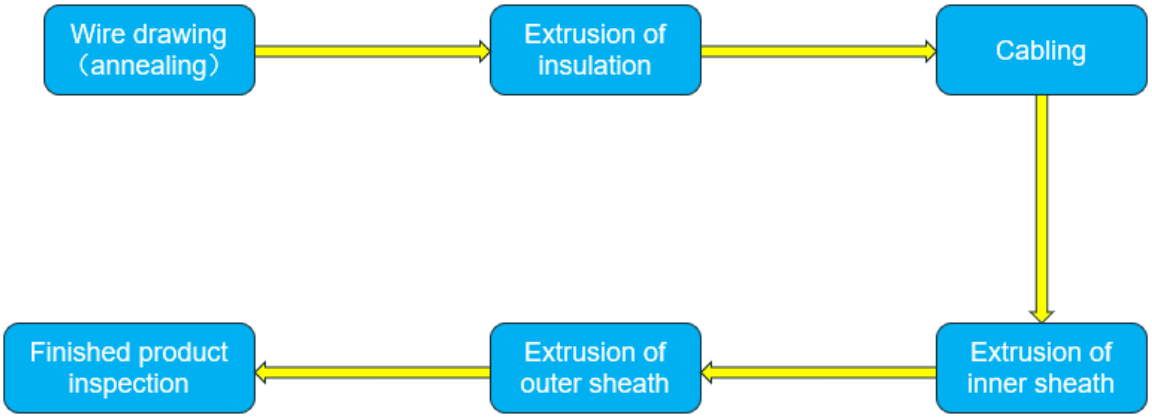

Table 2 Material composition of the product considered in the analysis.

Product components	% Mass
Conductor	41.73%
Insulation	6.98%
PE filling rope	0.12%
Inner semiconductor	23.51%
Outer semiconductor	27.66%
Total	100%

Table 3 Location of production, application and end-of-life of product

Product	**Location of production**	**Location of application and end-of-life**
CUXLPE /LSZH 500V Double insulated building wire	China	Norway

3. Life Cycle Assessment Information

A Life Cycle Assessment (LCA) is a methodology for assessing the environmental impacts associated with the life cycle of a particular product or process. LCA consists of 4 stages (Goal and Scope, Inventory Analysis, Impact Assessment, and review/presentation), which must follow similar procedures to a PCR (Product Category Rules) and helps to evaluate the carbon footprint and natural resources of a product or process. The product and life cycle stages are described in the following sections.

3.1 Declared Unit

According to PCR EPDItaly016 – "Electronic and electrical product and systems – cables and wires", the following declared unit was considered:

1 km cable with a load of 1A.

For the cable, 1 km (cable length) is equal to 158.53 kg. An average RSL of 20 years is used for the LCA calculations.

3.2 System boundary

The system boundary of the study shows as below, that is, all the substantial environmental impact generated by product stage (raw material supply, transport and manufacturing), distribution, installation, use&maintenance and end-of-life stage.

Table 4 system boundary of product

Product stage	Construction process stage	Use stage	End of Life stage	Benefits and loads beyond the system boundaries
A1 Raw material extraction and processing;	A4 Distribution of the product to the installation site	B1 The use of energy and water	C1 Dismantling of the cable	D Reuse- recovery- recycling- potential
A2 Transport of raw material site	A5 Installation of the cable	B2 Maintenance process related consumptions	C2 Transportation of the cables to the treatment platform	
A3 Manufacturing and final product assembly	A5 End of life of the packaging	B3 Materials/energy needed and waste produced to repair	C3 Waste processing for reuse, recovery and/or recycling	
A3 Production of packaging		B4 Materials/energy needed and waste produced to replace	C4 Cable waste disposal	
A3 Transport and disposal of the process waste		B5 Materials/energy needed and waste produced to refurbish		
		B6 Operational energy use		
		B7 Operational water use		

The system boundary of the research begins with the acquisition of raw materials, which will be processed and transported to the production site of Anhui Lasun Optic-Electric Co., Ltd. for production, and finally undergo end-of-life stage.

Life cycle stage	Description
Material acquisition (Module A1)	This includes the processing of all upstream raw materials of the cable (including the extraction and processing of natural resources), loss, packaging, and some transportation activities.
Material transportation (Module A2)	This includes the process of transporting all upstream raw materials of the cable to the production site.
Production (Module A3)	It considers the production and processing of cable, including the production of the auxiliary materials , water, and electricity consumption as well as waste generation.
Distribution (Module A4)	It considers the transportation of the cable from the assembly plant to the installation site.
Installation (Module A5)	Considering that the cable's installation does not require any relevant inputs in terms of materials and energy and is performed manually, a cut-off on the impacts included in this module was applied. Only packaging material waste is considered in this stage.
Use and Maintenance (Module B1-7)	Use: include the energy dissipates with the use due to the Joule effect, during the lifetime. Maintenance operations are declared within the cut-off criteria (according to EPDItaly 016).
End-of-life stage (Module C)	The end-of-life stage includes: C1, dismantling: Considering that the cable's dismantling does not require any relevant inputs in terms of materials and energy, a cut-off on the impacts included in this module was applied. C2, transport to waste processing: The transportation of the cables from the point of waste generation to the treatment platform. For recovery and recycling processes, which take place outside the boundaries of the product system, only impacts related to the transport of the waste to the treatment platform are considered. C3, waste processing for reuse, recovery and/or recycling: Includes collection of waste fractions from the dismantling and waste processing of material flows intended for reuse, recycling, and energy recovery. Shredding and granulation process requiring electricity is considered within this study. C4, cable waste disposal: The environmental impact derived from final waste treatment processes (landfill or incineration) are considered in this module.
Resource recovery stage (Module D)	Reuse, recovery and/or recycling potentials, expressed as net impacts and benefits.

3.3 Impact categories

The methodology chosen to evaluate the potential environmental impacts of the product subject of this study includes all the impact categories required by the EN15804:2012+ A2:2019 /AC:2021 as implemented in the SimaPro software. Some indicators have been analyzed in the LCA but are not reported in the EPD, such as Particulate matter, Ionising radiation, Ecotoxicity, freshwater, Human toxicity, cancer, Human toxicity, non-cancer and Land use. The categories analyzed are therefore:

Environment Impact Category	**Unit**
Climate change - Total	kg CO2 eq
Climate change - Fossil	kg CO2 eq
Climate change - Biogenic	kg CO2 eq
Climate change - Land use and LU change	kg CO2 eq
Ozone depletion	kg CFC11 eq
Acidification	mol H+ eq
Eutrophication, freshwater	kg P eq
Eutrophication, marine	kg N eq
Eutrophication, terrestrial	mol N eq
Photochemical ozone formation	kg NMVOC eq
Depletion of abiotic resources - minerals and materials	kg Sb eq
Depletion of abiotic resources - fossil resources	MJ
Water use	m3 depriv.
Particulate matter	disease inc.
Ionising radiation	kBq U-235 eq
Ecotoxicity, freshwater	CTUe
Human toxicity, cancer	CTUh
Human toxicity, non-cancer	CTUh
Land use	Pt
PERE	MJ (LHV)
PERM	MJ (LHV)
PERT	MJ (LHV)
PENRE	MJ (LHV)
PENRM	MJ (LHV)
PENRT	MJ (LHV)
Use of secondary material	kg
Use of renewable secondary fuels	MJ (LHV)

Use of non-renewable secondary fuels	MJ (LHV)
Net use of fresh water	m3
Hazardous waste disposed	kg
Non-hazardous waste disposed	kg
Radioactive waste disposed	kg
Components for re-use	kg
Materials for recycling	kg
Materials for energy recovery	kg
Exported energy- electricity	MJ
Exported energy - heat	MJ
Biogenic carbon content - product	kg C
Biogenic carbon content - packaging	kg C

3.4 Cut-off

All relevant input and output flows of matter and energy included within the system boundaries were considered.
According to the EPDItaly Regulations and PCR EPDItaly016, the following flows and operations were cut-off:

- Considering that the cable's installation does not require any relevant inputs in terms of materials and energy and is performed manually, a cut-off on the impacts included in module A5 was applied.
- For the use stage, no ordinary maintenance and routine repairs of the product was considered during its useful life. Replacement of the product are not planned by the downstream company. B2, B3 and B4 are set to zero. Considering that there are no scheduled interventions for refurbishment and no operational energy or water use consumed during the product's service life, B1-B5 and B7 are declared within the cut-off criteria and are set to zero according to EPDItaly 016 (Chapter 4.2.4.5).
- For the dismantling phase，the same impacts were considered as for the installation phase. Considering that the cable's dismantling is performed manually and does not require any relevant inputs in terms of materials and energy, a cut-off on the impacts included in module C1 was applied according to EPDItaly 016 (Chapter 4.2.4.6).
- Production, use and disposal of the packaging of raw materials.

3.5 Allocation Principles

The allocation for the energy, water and packaging material consumptions and for the waste was done using mass allocation method based on inventory data.

3.6 Assumption

The following assumptions were adopted in this study:

Life cycle stage	Assumptions
Material transportation (Module A2)	The road transport emission factor is selected according to Euro 4 standard which is similar to National 4 standard.
Production （Module A3）	The electricity mix used during production stage is selected based on the matufacturing scenario in east of China according to the power capacity from Ecoinvent 3.11, GWP for used electricity mix used is 0.78 kg CO2e./ kWh.
Distribution (Module A4)	For distribution, transport was considered EURO 4 category vehicle, in absence of primary data on the fleet of vehicle used.
Installation (Module A5)	Label and plastic packaging are assumed to be 100% landfilled at the end of life in A5.
Use and Maintenance (Module B1-7)	In the use phase, the cable dissipates energy due to the Joule effect was calculating according to the formula: $E_{use}\left[\frac{J}{km}\right] = R_{linear} * I^2 * RSL$ A RSL (Reference Service Life) of 20 years was assumed. For the Use phase the following scenario was considered: low voltage level in Norway provided by Ecoinvent 3.11. GWP for used electricity mix used is 0.03 kg CO2e./ kWh.
C2 Waste transport	An average distance of 200 km was used to estimate the transport of waste cable from installation site to the treatment platform.
C3 waste processing for reuse,	Waste treatment (shredding and granulation as the preparations to recycling) of cables is included. For the cables end of life (after dismantling), it was assumed 50% plastic and 100% copper are recycled (based on the statistics in 2019, the collection rate of WEEE

recovery and/or recycling	was 48.5 % in the European Union), thus the following End-of-life scenarios are assumed for each material: Plastics: 50% incineration/50%recycled Copper: 100% recycled
C4, disposal	It is assumed that the remaining of cable is disposed to incineration.

3.7 Data quality

All the main flows of matter and energy have been fully quantified and included in the study; the flows excluded from the analysis are identified in the Cut-off rules section.
LCI/LCA database: The secondary data are taken from the ecoinvent 3.11 environmental database.

Process	**Representativeness**		
	Geographical	**Technical**	**Time**
Conductor (Copper) production	Good	Good	Very good
Insulation (Cross-linked polyethylene) production	Good	Good	Very good
Filling (PE Filling Rope) production	Good	Good	Very good
Inner Protection (PVC) production	Fair	Good	Very good
External Blanket (LSZH) production	Good	Good	Very good
Wooden plate production	Good	Fair	Very good
Label production	Good	Good	Very good
PP Film production	Good	Good	Very good
Wooden board production	Good	Fair	Very good
Distribution by lorry	Good	Good	Very good
Distribution by vehicle	Good	Good	Very good
Distribution by container ship	Good	Good	Very good
Power mix generation in China	Very good	Very good	Very good
Power mix generation in Norway	Very good	Very good	Very good
Diesel preparation	Good	Good	Very good
Industrial water preparation	Good	Good	Very good
Recycling of copper in Norway	Good	Good	Very good
Recycling of PE in Norway	Good	Good	Very good
Recycling of PVC in Norway	Good	Good	Very good
Treatment of waste plastic in Norway	Good	Good	Very good

Treatment of waste copper in Norway	Good	Good	Very good

Geographic representativeness: primary site-specific data were used for the cable assembly processes; for the secondary data, datasets were selected from databases consistent with the geography of the processes.
Technological representativeness: the primary data used represent the specific production technology of the product. For the secondary data taken from the database, reference was made to the most representative technology for the processes.
Time representativeness: the primary data used refer to the year 2024 and 2025
Completeness: The LCA model included all known mass and energy flows for production of cables. No known processes or activities contributing to more than 1% of the total environmental impact for each indicator are excluded.
Precision/uncertainty: Data collected for operations were typically averaged for one year, which is expected to reducethe variability of results.
Representativeness analysis: Copper in Module A1 contributes more than 30% to the core indicate.
Use of Fair data with more than 30% of a core impact: No Fair data contributing 30% to the core indicate used.
Use of poor relevant data: No poor data used.
Use of very poor relevant data: No very poor data used.

3.8 Limitations

Exclusions: EPDs do not indicate that any environmental or social performance benchmarks are met, and there may be impacts that they do not encompass. LCAs do not typically address the site-specific environmental impacts of raw material extraction, nor are they meant to assess human health toxicity. EPDs can complement but cannot replace tools and certifications that are designed to address these impacts and/or set performance thresholds – e.g. Type 1 certifications, health assessments and declarations, environmental impact assessments, etc.
Accuracy of Results: EPDs regularly rely on estimations of impacts; the level of accuracy in estimation of effect differs for any particular product line and reported impact.
Comparability: EPDs from different programs may not be comparable. Full conformance with a PCR allows EPD comparability only when all stages of a life cycle have been considered. However, variations and deviations are possible". Example of variations: Different LCA software and background LCI datasets may lead to differences results for upstream or downstream of the life cycle stages declared.

4. Inventory

In the development of this EPD, primary data was preferentially utilized wherever accessible. For the secondary data, datasets were selected from the Ecoinvent v3.11 database, Environment footprint 3.1 and US LCI. The source and version of characterization factors used in this module are EF3.1 and EN 15804 +A2 LCIA & LCI indicators.
Data collection was implemented through the creation of a specialized sheet that compiled input and output data. This included mass - related data and energy consumption data, all of which were sourced within the production site from 2024/10/01 to 2025/09/30. Following data collection, the sheet underwent rigorous verification. This involved employing mass balance checks to identify any inconsistencies. Once detected, these inconsistencies were promptly clarified and resolved. All the original data and secondary data used have good transparency, completeness, accuracy and consistency, so the data quality is pretty good.

Regarding the study methodology, SimaPro 10.2 software was employed. It was utilized to construct the model for the product life cycle and to calculate the Life Cycle Assessment (LCA) results.
It should be noted that, in accordance with the principles of confidentiality, the complete LCA report (SGS/2025/LCAR/E/1101) and detailed inventory data have not been fully disclosed in this EPD. The withheld data primarily relates to specific proprietary processes and certain sensitive material compositions within the production phase. This decision was made to protect the company's intellectual property and trade secrets. However, we are committed to transparency and are willing to provide additional details of the inventory data upon request. Interested parties may contact our company directly to obtain further information.

5. Environmental Impact Assessment

For Potential Human exposure efficiency relative to U235 (IRP), 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.
While for environmental impact indicator(Abiotic depletion potential for non-fossil resources(ADP-minerals&metals), Abiotic depletion potential for fossil resources(ADP-fossil), Water (user) deprivation potential, deprivation-weighted water consumption (WDP), Potential Comparative Toxic Unit for ecosystems (ETP-fw), Potential Comparative Toxic Unit for humans (HTP-c), Potential Comparative Toxic Unit for humans (HTP-nc), Potential Soil quality index (SQP)), the results of these 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.

5.1 Environmental Impact Descriptive Parameters

5.1.1

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5
Climate change - Total	kg CO2 eq	9.96E+02	9.08E+01	9.68E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Climate change - Fossil	kg CO2 eq	1.06E+03	9.03E+01	3.48E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Climate change - Biogenic	kg CO2 eq	0.00E+00	4.63E-01	6.20E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Climate change - Land use and LU change	kg CO2 eq	1.43E+00	4.24E-02	6.52E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Ozone depletion	kg CFC11 eq	1.65E-05	2.61E-08	3.40E-08	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Acidification	mol H+ eq	5.32E+01	1.17E+00	2.34E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eutrophication, freshwater	kg P eq	2.59E+00	7.52E-03	4.42E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eutrophication, marine	kg N eq	2.50E+00	3.13E-01	1.69E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Eutrophication, terrestrial	mol N eq	3.30E+01	3.47E+00	4.69E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Photochemical ozone formation	kg NMVOC eq	1.07E+01	1.03E+00	3.80E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Resource use, minerals and metals	kg Sb eq	7.19E-01	3.70E-04	2.90E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Resource use, fossils	MJ	1.03E+04	0.00E+00	2.39E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Water use	m3 depriv.	8.06E+02	1.93E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator	Unit	B6	B7	C1	C2	C3	C4	D
Climate change - Total	kg CO2 eq	3.97E+01	0.00E+00	0.00E+00	6.76E+01	4.77E+01	1.10E+02	-2.47E+02
Climate change - Fossil	kg CO2 eq	3.83E+01	0.00E+00	0.00E+00	6.71E+01	4.68E+01	1.10E+02	-2.46E+02
Climate change - Biogenic	kg CO2 eq	1.22E+00	0.00E+00	0.00E+00	4.55E-01	8.05E-01	4.01E-02	-1.29E+00
Climate change - Land use and LU change	kg CO2 eq	2.03E-01	0.00E+00	0.00E+00	3.26E-02	4.55E-02	7.45E-04	-4.24E-01
Ozone depletion	kg CFC11 eq	9.67E-07	0.00E+00	0.00E+00	2.75E-08	1.80E-09	1.62E-08	-2.58E-06
Acidification	mol H+ eq	4.57E-01	0.00E+00	0.00E+00	3.15E-01	3.86E-02	2.52E-02	-2.52E+01
Eutrophication, freshwater	kg P eq	4.27E-02	0.00E+00	0.00E+00	8.99E-03	6.30E-05	3.48E-04	-1.24E+00
Eutrophication, marine	kg N eq	4.49E-02	0.00E+00	0.00E+00	1.01E-01	2.38E-02	1.43E-02	-8.96E-01
Eutrophication, terrestrial	mol N eq	5.26E-01	0.00E+00	0.00E+00	1.12E+00	2.74E-01	1.22E-01	-1.27E+01
Photochemical ozone formation	kg NMVOC eq	1.53E-01	0.00E+00	0.00E+00	4.29E-01	4.74E-02	3.07E-02	-4.01E+00
Resource use, minerals and metals	kg Sb eq	4.99E-03	0.00E+00	0.00E+00	5.28E-04	4.38E-06	5.55E-06	-3.58E-01
Resource use, fossils	MJ	5.44E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.52E-01	-2.65E+03
Water use	m3 depriv.	1.58E+03	0.00E+00	0.00E+00	2.10E+00	0.00E+00	3.82E+00	-3.62E+02

Climate change - Total = Global Warming Potential; **Climate change - Fossil** = Global Warming Potential - fossil; **Climate change - Biogenic** = Global Warming Potential - biogenic; **Climate change - Land use and LU change** = Global Warming Potential - land use and land use change; **Ozone depletion** = Depletion potential of the stratospheric ozone layer; **Acidification** = Acidification potential, Accumulated Exceedance; **Eutrophication, freshwater** = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; **Photochemical ozone formation** = Formation potential of tropospheric ozone; **Resource use, minerals and metals** = Abiotic depletion potential for non-fossil resources; **Resource use, fossils** = Abiotic depletion for

fossil resources potential; **Water use** = Water deprivation potential, deprivation weighted water consumption

5.2 Parameters Describing Resource Use

5.2.1

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5
PENRE	MJ (LHV)	1.03E+04	7.89E-02	2.39E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERE	MJ (LHV)	3.25E+03	1.98E+01	2.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRM	MJ (LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERM	MJ (LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ (LHV)	1.03E+04	7.89E-02	2.39E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ (LHV)	3.25E+03	1.98E+01	2.28E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m3	1.93E+01	7.72E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MS	kg	1.86E+01	0.00E+00	8.90E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	6.73E+01	0.00E+00	1.55E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator	Unit	B6	B7	C1	C2	C3	C4	D
PENRE	MJ (LHV)	5.44E+02	0.00E+00	0.00E+00	7.50E-02	0.00E+00	2.55E-01	-2.65E+03
PERE	MJ (LHV)	5.35E+03	0.00E+00	0.00E+00	2.39E+01	6.77E+01	8.61E-01	-7.74E+02
PENRM	MJ (LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERM	MJ (LHV)	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ (LHV)	5.44E+02	0.00E+00	0.00E+00	7.50E-02	0.00E+00	2.55E-01	-2.65E+03
PERT	MJ (LHV)	5.35E+03	0.00E+00	0.00E+00	2.39E+01	6.77E+01	8.61E-01	-7.74E+02

FW	m3	3.69E+01	0.00E+00	0.00E+00	8.41E-02	4.74E-01	1.30E-01	-8.65E+00
MS	kg	9.35E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.37E-03	-2.96E+00
RSF	MJ	3.44E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.02E-06	-6.63E-02
NRSF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

PENRE = Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials; **PERE** = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; **PENRM** = Use of non renewable primary energy resources used as raw materials; **PERM** = Use of renewable primary energy resources used as raw materials; **PENRT** = Total use of non-renewable primary energy resources; **PERT** = Total use of renewable primary energy resources; **FW** = Use of net fresh water; **MS** = Use of secondary material; **RSF** = Use of renewable secondary fuels; **NRSF** = Use of non-renewable secondary fuels;

5.3 Waste Production Descriptive Parameters

5.3.1

Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5
HWD	kg	2.80E+02	1.65E+00	4.03E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	1.80E+04	1.20E+01	5.02E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RWD	kg	1.49E-02	0.00E+00	6.18E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	2.36E+01	0.00E+00	7.29E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MFR	kg	4.27E+01	0.00E+00	7.55E-07	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	6.81E+00	0.00E+00	1.85E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	5.49E+00	0.00E+00	7.25E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Indicator	Unit	B6	B7	C1	C2	C3	C4	D
HWD	kg	4.25E+00	0.00E+00	0.00E+00	1.69E+00	0.00E+00	1.65E+00	-1.15E+02
NHWD	kg	2.34E+02	0.00E+00	0.00E+00	1.18E+01	0.00E+00	5.10E+01	-8.69E+03
RWD	kg	3.98E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.03E-08	-5.33E-03
MER	kg	1.09E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-01	-2.06E-01
MFR	kg	6.58E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.59E-08	-1.51E-03
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	1.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	7.43E-02	-1.62E+00

EEE	MJ	1.31E+01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	2.05E-01	-7.10E-01

HWD = Hazardous waste disposed; **NHWD** = Non-hazardous waste disposed; **RWD** = Radioactive waste disposed; **MER** = Materials for energy recovery; **MFR** = Materials for recycling; **CRU** = Components for reuse; **ETE**= Exported thermal energy; **EEE**= Exported electricity energy;

5.4 Information describing the biogenic carbon content at the factory gate

5.4.1

Environment Impact Category	Unit	Value
Biogenic carbon content - product	kg C	0.00E+00
Biogenic carbon content - packaging	kg C	0.00E+00

6. LCA results and interpretations

The results of the underlying LCA are provided in this section as for environmental impacts, resource use and waste categories. All parameters required by the sub-PCR EPD Italy016 are included and reported in the Section 5.
The main general conclusions of the LCA are:
Raw materials (A1) mostly and disposal of waste cable (C4), are the processes with the highest contribution in the lifecycle environmental burden. Operationl energy use during use stage (B6) results with a minor contribution. The distribution and installation stage (A4 and A5) does not result in any significant environmental impact. Thus, the overall environmental impacts of the cables are largely dependent on cable weight.
The cables under study are all made of copper (42% of the weight) and plastics (58%) (XLPE, PE and PVC), used as insolation material. In A1, the copper is the main contributor to all environmental categories, the impact depending on its weight. Thus, the environmental impact of the life cycle of the cable is mainly due to the extraction and processing of the materials in the stage (A1), with the production of conductor copper being the main hotspot.
The disposal of waste cable (C4) contributes a significant environmental impact in GWP, due to the lack of background data from Norway recycling company, this module was based on an assumption scenario. Depending on the significant environmental impact in GWP, the incineration of plastic is considered as the main contributing process.

7. Reference

- ISO 14040:2006 Environmental management — Life cycle assessment — Requirements and guidelines
- ISO 14044:2006 Environmental management — Life cycle assessment — Principles and framework
- EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
- EPD Italy 016: "Electronic and Electrical Product and System – Cables and Wires", Rev.3 – 03/10/2024
- EPD Italy 007 Rev. 3.2 – 10/12/2025: "Electronic and electrical product and systems"
- SGS/2025/LCAR/E/1101 LCA Report-16/01/2026