

## ENVIRONMENTAL PRODUCT DECLARATION

### Power Cable Y180420 - ARE4H5EXY 3x1x50+50ACS 12/20kV

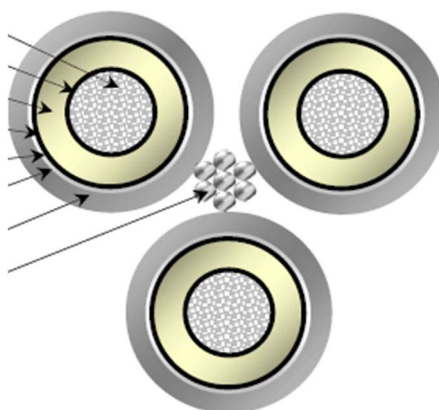
Arcozelo, Vila Nova de Gaia – Portugal

In accordance with ISO 14025 and EN 50693:2019

Program Operator	EPDIItaly
Publisher	EPDIItaly

Declaration Number	EPD04
Registration Number	EPDITALY0516

Issue date	22/07/2025
Valid to	22/07/2030



Disclaimer: Image may not be identical to declared product but represents the product family

**GENERAL INFORMATION**
**EPD OWNER**

<b>Name of the company</b>	Cabelte - Cabos Eléctricos, S.A
<b>Registered office</b>	Rua de Espírito Santo 4410-420 ARCOZELO VILA NOVA DE GAIA PORTUGAL
<b>Contacts for information on the EPD</b>	+351 227 537 500 <a href="mailto:inform@cabelte.pt">inform@cabelte.pt</a>

**PROGRAM OPERATOR**

<b>EPDIItaly</b>	Via Gaetano De Castillia n° 10 - 20124 Milano, Italy
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**INFORMATION ON THE EPD**

<b>Product name (s)</b>	Power cable Y180420
<b>Site (s)</b>	The product was produced in the following Cabelte's sites: Arcozelo unit: Rua de Espírito Santo 4410-420 ARCOZELO VILA NOVA DE GAIA PORTUGAL Ribeirão unit: Avenida da Indústria, 382 4760-715 RIBEIRÃO VILA NOVA DE FAMALICÃO PORTUGAL
<b>Short description and technical information of the product (s)</b>	Medium voltage cable Triplex formation with bare messenger Aluminium conductors XLPE insulation Screen of laminated Al/copolymer tape bonded to the outer sheath Outer sheath of extruded PE Alumoweld messenger, type 20SA ARE4H5EXY 3x1x50+50ACS 12/20kV Rated voltage: Uo/U (Um): 12/20 (24) kV
<b>Field of application of the product (s)</b>	Medium voltage networks
<b>CPC Code (number)</b> <a href="https://unstats.un.org/unsd/classifications/Econ">https://unstats.un.org/unsd/classifications/Econ</a>	46310 Insulated wire and cable; optical fibre cables

**VERIFICATION INFORMATION**

<b>PCR (title, version, date of publication or update)</b>	PCR EPDIItaly007- Electronic and electrical products and systems - Rev. 3.1; 12/11/2024 PCR EPDIItaly016- Electronic and electrical products and systems - Cables and wires - Rev. 3; 03/10/2024
<b>EPDIItaly Regulation (version, date of publication or update)</b>	Regulations of the EPDIItaly Programme, revision 6.0, 30/10/2023
<b>Project Report LCA</b>	LCA Report Y180420
<b>Independent Verification Statement</b>	The PCR review was performed by the EPD review panel - <a href="mailto:info@epditaly.it">info@epditaly.it</a> . Independent verification of the declaration and data, carried out according to ISO 14025: 2010. <input type="checkbox"/> Internal <input checked="" type="checkbox"/> External Third party verification carried out by: ICMQ S.p.A., via Gaetano De Castillia n ° 10 - 20124 Milan, Italy. Accredited by Accredia.
<b>Comparability Statement</b>	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 and EN 50693:2019.
<b>Liability Statement</b>	The EPD Owner releases EPDIItaly from any non-compliance with environmental legislation. The holder of the declaration will be responsible for the information and supporting evidence. EPDIItaly disclaims any responsibility for the information, data and results provided by the EPD Owner for life cycle assessment.

**Information about the EPD**

This is a product specific declaration.

Geographic locations: The product is produced in Portugal. The use and the end of life phase occur in Italy.

Time representativeness: Data was collected during 2023 and its valid until any change implies its revision.

LCI and LCIA were performed using the LCA software Umberto with the database Ecoinvent EN15804 add on.

**Scope of the study**

All the stages of the life cycle are included (cradle to grave).

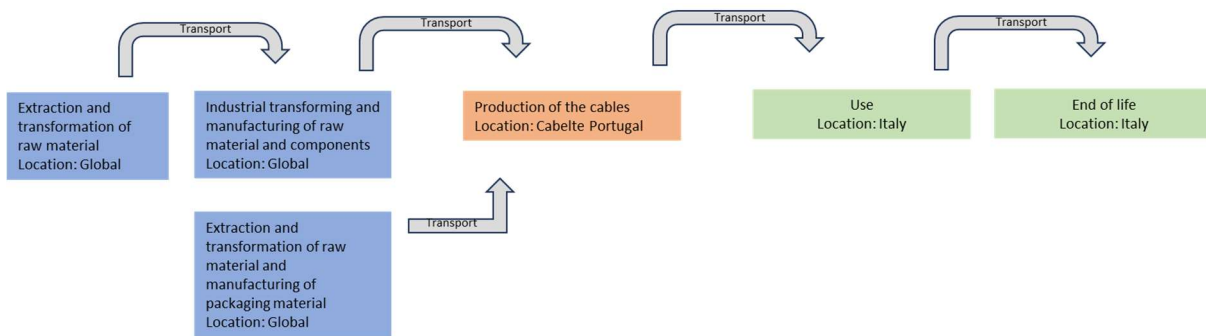


Figure 1 – Schematic representation of the life cycle of the product under study – geographic location

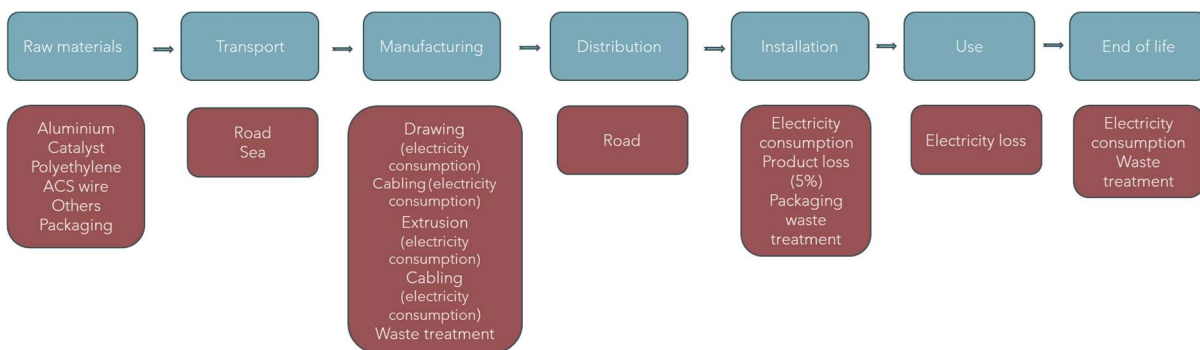


Figure 2 – Schematic representation of the life cycle of the product under study – main environmental factors

**Organization description**

Cabelte has been in business for over 80 years, which is a reflection of the trust we have earned with some of the world's most demanding utilities and demonstrates our commitment to quality, reliable products and competitive prices.

Integrated manufacturing that sources aluminium ingots directly from partner mines and uses its own smelting facilities, all to control the purity of the aluminium. Our integrated approach and long history with our suppliers has reduced our exposure to supply chain problems in these difficult times.

For the Energy sector, the Cabelte Group supplies Low (LV), Medium (MV) and High Voltage (HV) electrical cables to the main electrical utilities in the Iberian market. In recent years, the most important segments have been Renewable Energies and Energy Transmission Networks.

Cabelte is certified ISO 9001, ISO 14001 and ISO 45001.

The industrial units involved in the production of this cable are:

Arcozelo unit: Rua de Espírito Santo  
4410-420 ARCOZELO VILA NOVA DE GAIA  
PORTUGAL

Ribeirão unit: Avenida da Indústria, 382  
4760-715 RIBEIRÃO VILA NOVA DE FAMALICÃO  
PORTUGAL

## Product description

<p>Medium voltage cable Triplex formation with bare messenger Aluminium conductors XLPE insulation Screen of laminated Al/copolymer tape bonded to the outer sheath Outer sheath of extruded PE Alumoweld messenger, type 20SA ARE4H5EXY 3x1x50+50ACS 12/20kV Rated voltage: U<sub>o</sub>/U (U<sub>m</sub>): 12/20 (24) kV</p>
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Product Composition				
	Material		Mass (kg)	% mass
	Mass composition of the main materials	FIO MAQ.AL.9,50mm - Tipo H12	Aluminium wire	391.04
SCI/SCE ADER.DRY CUR(XLC 09)		Catalyst	242.42	10%
PE CP104 - baixa densidade XLPE		Polyethylene	598.19	25%
FITA AL/PE-300x60 120 mm		Aluminium/Polyethylene	220.61	9%
PE CAB 4805-UV - Alta densidade		Polyethylene	492.38	21%
FIO ACS 3,00 MM		ACS wire	343.10	15%
Total with exclusions			2287.70	97%
Total without exclusions			2348.90	100%
Packaging		Wood	39.00	
Weight of final product (kg/km cable)	2187.00			

**Declared Unit:** One km of cable with a load of 1 A.

Weight of the declared unit: 2187.00 kg

The product is to be used in: Medium voltage networks

Reference Service Life (RSL): Forty years (based on the HD 605 S2:2008 standard, considering that a Medium Voltage cable (Power Cables) may be at an average operating temperature of 75°C, according to table 5.1.1 of this standard the estimated service life will be 40 years).

Presence of dangerous substances: No substances of concern or very high concern are present in the final product nor are expected to be released during use phase.

Calculation rules

Relevant aspect for the study	Description
<b>LCI and LCIA</b>	LCI and LCIA were performed using the LCA software Umberto with the database Ecoinvent EN15804 add on
<b>System model</b>	Allocation, cut-off, EN15804
<b>LCA assessment method</b>	EN15804 EF 3.1. EN15804
<b>Cut-off and exclusions</b>	Were followed the PCRs indications No relevant mass or energy flows were excluded. In the composition of the product the cut-off doesn't overcome the maximum of 5% mass.
<b>Allocation</b>	Physical allocation rules were used to determine the energy (natural gas and electricity) consumption and the waste production.
<b>Transportation and end of life scenarios</b>	Were followed the PCRs indications, described below
<b>Waste management</b>	Applied the polluters pays principle, adopting the end of waste state based on the definition of EN 15804 and EU's Waste Framework Directive (European Commission).

Technical and additional information

Processes/Stages	Description	Additional information
<p><b>Upstream</b></p> <p><b>Raw materials</b></p> <p><b>Production (extraction, treatment, transformation, etc.) of raw materials</b></p>	<p>This process takes place globally</p>	<p>The composition of each raw material and component of the product is primary data and derives from the ERP software.</p> <p>From there, given the difficulty to obtain information from the suppliers along the upstream chain, we resorted to the use of commercial database, taking into account the data availability at Ecoinvent data base.</p>
<p><b>Upstream</b></p> <p><b>Raw materials</b></p> <p><b>Production of finished product packaging, including packaging for distribution in the reference market segment</b></p>	<p>Similar to what was described in the previous point</p>	<p>Similar to what was described in the previous point</p>
<p><b>Upstream</b></p> <p><b>Transportation</b></p> <p><b>Transport of raw materials and semi-finished products along the entire supply chain</b></p>	<p>The environmental impact indicators associated with the transport of raw materials for the manufacture of components and integral parts to direct suppliers (tier 1) are included in their manufacturing process.</p>	<p>The transport distance was determined and included in the calculation</p>



Processes/Stages	Description	Additional information
<p><b>Downstream De-Installation</b></p>	<p>This stage takes place in Italy</p>	<p>In this process are used mainly manual and electrical tools.</p> <p>Electricity, low voltage, residual mix, IT, was used to model the electricity consumption</p> <p>The GWP value is 0.163 kgCO<sub>2</sub>e/kWh.</p>
<p><b>Downstream End of life (EoL)</b></p>	<p>This stage takes place in Italy</p>	<p>The EoL stage was modelled taking into account the composition of the cable, the percentages of EN50693_2019, table G.4 of material recovery, energy recovery and disposal per material, the shredding and grinding with separation of materials of the cable, the preparation for recycling of the materials taking into account "the end of waste state" and the final disposal of the materials, as well as the transportation to the waste managers.</p>

## LCA (life cycle assessment) Results

### ENVIRONMENTAL IMPACT DESCRIPTIVE PARAMETERS

Environmental impact indicators	Units	Manufacturing	Distribution	Installation	Use	EoL	Total
Climate change total	kg CO2-Eq	2,73E+03	1,47E+02	3,84E+01	1,13E+01	1,07E+03	4,00E+03
Climate change - biogenic	kg CO2-Eq	-1,14E+01	7,41E-02	7,25E+00	1,44E-01	3,95E+00	0,00E+00
Climate change - land use and land use change	kg CO2-Eq	1,97E+01	5,07E-02	7,81E-03	9,07E-04	1,80E-01	2,00E+01
Climate change - fossil	kg CO2-Eq	2,73E+03	1,47E+02	3,11E+01	1,11E+01	1,06E+03	3,98E+03
Ozone depletion (ODP)	kg CFC-11-Eq	5,18E-05	2,97E-06	1,96E-07	2,38E-07	3,57E-06	5,88E-05
Photochemical ozone formation (POCP)	kg NMVOC-Eq	1,18E+01	9,25E-01	3,89E-02	2,79E-02	1,04E+00	1,38E+01
Eutrophication potential - freshwater (EP-freshwater)	kg P-Eq	8,06E-01	1,01E-02	3,08E-03	1,44E-03	5,80E-02	8,79E-01
Eutrophication potential - marine (EP-marine)	kg N-Eq	2,39E+00	2,19E-01	1,32E-02	5,76E-03	6,98E-01	3,33E+00
Eutrophication potential - terrestrial (EP-terrestrial)	mol N-Eq	2,45E+01	2,39E+00	1,14E-01	6,11E-02	3,21E+00	3,03E+01
Acidification potential, accumulated Exceedance (AP)	mol H+-Eq	1,41E+01	5,86E-01	4,67E-02	2,93E-02	1,07E+00	1,59E+01
Depletion of abiotic resources - fossil resources (ADPF)	MJ	4,84E+04	2,14E+03	1,46E+02	1,64E+02	2,73E+03	5,36E+04
Depletion of abiotic resources – minerals and metals (ADPE)	kg Sb-Eq	1,27E-02	4,08E-04	5,17E-05	1,20E-05	1,23E-03	1,44E-02
Water (user) deprivation potential (WDP)	m3 world-Eq deprived	1,57E+03	1,08E+01	1,81E+01	8,40E-01	3,89E+02	1,99E+03

### PARAMETERS DESCRIBING RESOURCE USE

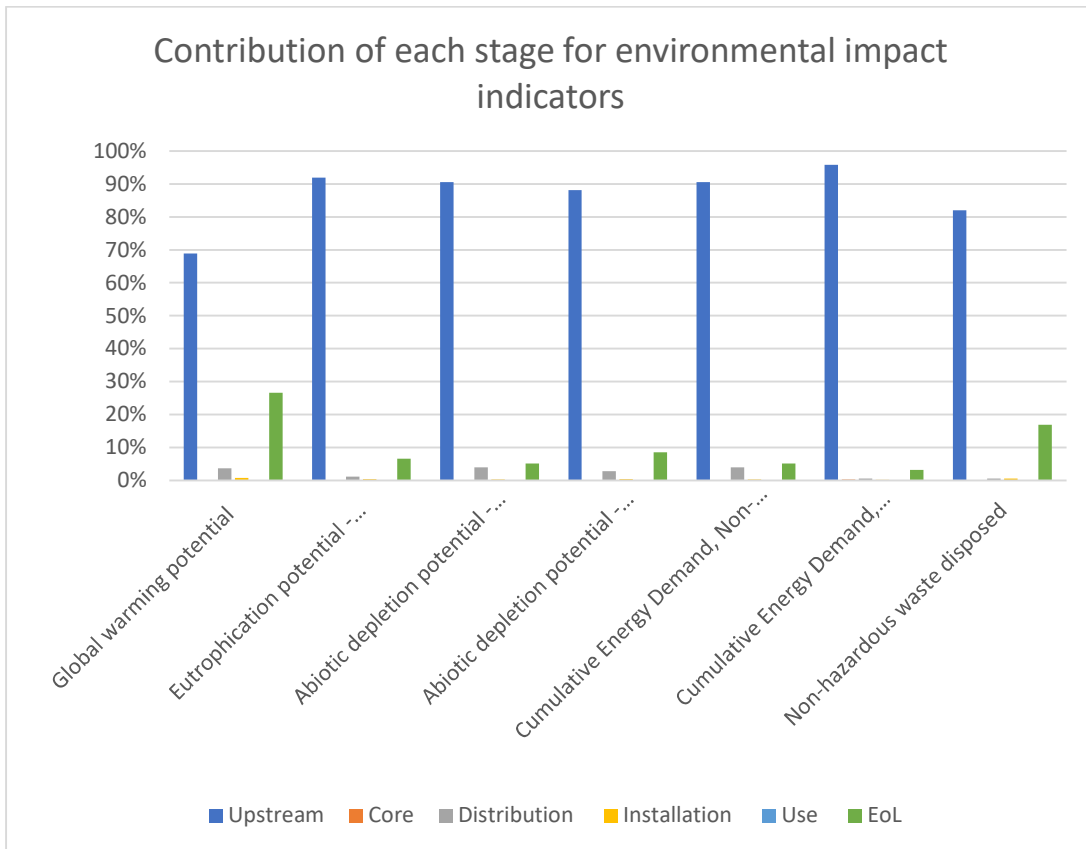
Environmental impact indicators	Units	Manufacturing	Distribution	Installation	Use	EoL	Total
Use of secondary materials (SM) (1)	kg	2,16E+01	9,27E-01	3,24E-02	2,06E-02	9,30E-01	2,35E+01
Use of renewable secondary fuels (RSF)	MJ	5,70E+00	1,17E-02	2,37E-03	5,59E-05	5,70E-02	5,77E+00
Use of non-renewable secondary fuels (RSF)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Net use of fresh water (FW)	m3	3,63E+01	3,12E-01	4,24E-01	8,23E-02	8,14E+00	4,52E+01
Total use of non renewable primary energy (PENRT)	MJ	4,84E+04	2,14E+03	1,46E+02	1,64E+02	2,73E+03	5,36E+04
Use of non renewable primary energy as energy carrier (PENRE)	MJ	4,84E+04	2,14E+03	1,46E+02	1,64E+02	2,73E+03	5,36E+04
Use of non renewable primary energy resources used as raw materials (PENRM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Total use of renewable primary energy (PERT)	MJ	6,02E+03	3,40E+01	1,19E+01	2,78E+00	2,03E+02	6,27E+03
Use of renewable primary energy as energy carrier (PERE)	MJ	6,02E+03	3,40E+01	1,19E+01	2,78E+00	2,03E+02	6,27E+03
Use of renewable primary energy resources used as raw materials (PERM)	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

WASTE PRODUCTION DESCRIPTIVE PARAMETERS

Environmental impact indicators	Units	Manufacturing	Distribution	Installation	Use	EoL	Total
Non-hazardous waste disposed (NHWD)	kg	9,44E+03	6,25E+01	6,40E+01	7,66E+00	1,94E+03	1,15E+04
Hazardous waste disposed (HWD)	kg	3,97E+02	3,12E+00	4,55E+00	4,31E-01	9,80E+01	5,03E+02
Radioactive waste disposed (RWD)	kg	5,09E-02	6,44E-04	1,91E-04	1,05E-04	3,66E-03	5,55E-02
Materials for recycling (MFR)	kg	3,08E+00	1,63E-02	1,37E-02	5,71E-03	1,45E+02	1,48E+02
Materials for energy recovery (MER)	kg	4,48E-03	9,38E-05	6,84E-06	2,25E-06	1,73E-04	4,75E-03
Components for reuse (CRU)	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electric (EEE)	MJ	9,33E+00	3,22E-01	7,60E-01	1,87E+00	4,85E+00	1,71E+01
Exported energy, thermal (EET)	MJ	6,10E+00	3,94E-01	3,08E-02	3,70E-02	1,44E+00	8,01E+00

(1) The values of the indicator use of secondary materials are default values from the database associated to the selected data sets.

Interpretation



For different impact categories, the manufacturing stage is the most relevant stage because of the production of the materials, especially the metal ores-based materials.

**REFERENCES**

LCA Report Y180420, 15/05/2025

ISO 14067:2018 - Greenhouse gases — Carbon footprint of products — Requirements and guidelines for quantification.

ISO 14025:2006 Environmental labels and declarations — Type III environmental declarations — Principles and procedures

ISO 14026:2017 Environmental labels and declarations — Principles, requirements and guidelines for communication of footprint information

ISO 14040:2006 Environmental management — Life cycle assessment — Principles and framework

ISO 14040:2006/Amd 1:2020 Environmental management — Life cycle assessment — Principles and framework — Amendment 1

ISO 14044:2006 Environmental management — Life cycle assessment — Requirements and guidelines

ISO 14044:2006/Amd 1:2017 Environmental management — Life cycle assessment — Requirements and guidelines — Amendment 1

ISO 14044:2006/Amd 2:2020 Environmental management — Life cycle assessment — Requirements and guidelines — Amendment 2

PCR EPDIItaly007- Electronic and electrical products and systems – Rev. 3.1; 12/11/2024

PCR EPDIItaly016- Electronic and electrical products and systems – Cables and wires - Rev. 3; 03/10/2024

EN 50693:2019 - Product category rules for life cycle assessments of electronic and electrical products 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.

EN IEC 62474:2019+A1:2021 - Material declaration for products of and for the electrotechnical industry

IEC TR 62635:2012 - Guidelines for end-of-life information provided by manufacturers and recyclers and for recyclability rate calculation of electrical and electronic equipment