

# ICME ECAB S.A.



## ENVIRONMENTAL PRODUCT DECLARATION

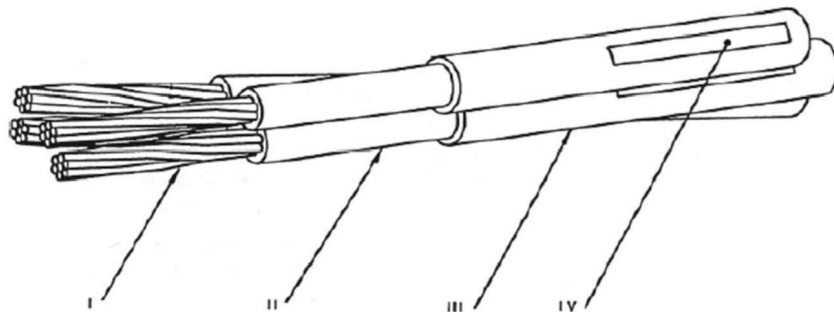
### Product names:

- **Underground cable ARE4EX  
3X150 + 1X95RM COMP 0.6/1  
(1.2) kV**
- **Aerial cable AL/XLPE/XLPE  
BUNDLED TYPE IV  
3X70+1X54.6 RM STRANDED  
0.6/1 (1.2) kV**

### Site Plant:

Drumul Între Tarlale 42, București 032982, Bucharest,  
Romania

<b>Program Operator</b>	EPDItaly
<b>Publisher</b>	EPDItaly
<b>Declaration Number</b>	EI0004
<b>Registration Number</b>	EPDITALY 0773
<b>Issue date</b>	2024-07-01
<b>Valid to</b>	2026-01-01



in compliance with ISO 14025:2006 and EN 50693:2019

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## General information

<b>EPD OWNER</b>	ICME ECAB S.A. Drumul Între Tarlale 42, București 032982, Bucharest, Romania
<b>SITE</b>	Drumul Între Tarlale 42, București 032982, Bucharest, Romania
<b>FIELD OF APPLICATION OF THE PRODUCT</b>	<p>The present document includes the environmental impact assessments of:</p> <ul style="list-style-type: none"><li>• Underground cable ARE4EX 3X150 + 1X95RM COMP 0.6/1 (1.2) kV</li><li>• Aerial cable AL/XLPE/XLPE BUNDLED TYPE IV 3X70+1X54.6 RM STRANDED 0.6/1 (1.2) kV</li></ul> <p>Geographical scope is global for upstream module and manufacturing is performed in Romania and distribution (downstream) in Italy.</p>
<b>PROGRAM OPERATOR</b>	EPDItaly <a href="mailto:info@epditaly.it">info@epditaly.it</a> (via Gaetano De Castilia n° 10 - 20124 Milan, Italy)
<b>VERIFICATION INFORMATION</b>	<p>The PCR EPDITALY007 review was performed by Ing. Massimo De Pieri, Arch. Michele Paleari, Ing. Sara Toniolo. - <a href="mailto:info@epditaly.it">info@epditaly.it</a>. (via Gaetano De Castilia n° 10 20124 Milan, Italy. Accredited by Accredia.)</p> <p>Independent verification of the declaration and data, carried out according to ISO 14025: 2010.</p> <p><input type="checkbox"/> Internal <input checked="" type="checkbox"/> External</p> <p>Third party verification carried out by: SGS Italia S.p.A., 0005VV</p>
<b>EPD type</b>	Product specific EPD
<b>CPC CODE</b>	463 – family “Insulated wire and cable; optical fibre cables” and sub-sequent clusters
<b>CONTACTS for information on the EPD</b>	Konstantinos Loukas <a href="mailto:kloukas@hellenic-cables.com">kloukas@hellenic-cables.com</a>
<b>PROJECT REPORT LCA</b>	ICME ECAB S.A. (internally performed)
<b>COMPARABILITY STATEMENT</b>	Environmental statements published within the same product category, but from different programs, may not be comparable.
<b>LIABILITY STATEMENT</b>	ICME ECAB S.A. declares to comply with environmental legislation (ISO 14001 certified). The holder of the declaration will be responsible for the information and supporting evidence.
<b>PRODUCT CATEGORY RULES – PCR</b>	<p>Core-PCR: EPDITALY007 " Electronic and electrical product and systems" Rev. 3 13/01/2023</p> <p>Sub-PCR: EPDITALY016 "Electronic and electrical product and systems – Cables and wires" Rev. 2 del 25/09/2020</p>
<b>SYSTEM BOUNDARIES</b>	Cradle-to-grave, excluding installation and de-installation stages

With regards to the products covered by the EPD are at the design stage; the future execution of the product in accordance with the design data is the sole responsibility of the EPD Owner. The present EPD follows EPD regulations v.6.0 from the EPDItaly. The database used is regarded as representative on the basis of a comparative study, which examined the data for a reference product of the EPD Owner.

## Introduction

ICME ECAB S.A. is a power and telecommunication cable manufacturer, as well as polymer and rubber compounds. The Company is located in Bucharest, Romania and operates a single manufacturing facility. The company's wide product range extends to PVC, EPR power and telecom, low smoke halogen free cables, fire resistant cables, telecommunication, signal and data cables with copper conductors or optical fibers, as well as fire retardant halogen free plastic and elastomer compounds. Wires and cables are supplied to a variety of international standards. The Company's Quality Management System is certified to ISO 9001:2015, its Environmental Management System to ISO 14001:2015, GHG emissions Management System to ISO 14064:2018 and its Occupational Health and Safety to ISO 45001:2018. The present EPD follows EPD regulations v.6.0 from the EPDItaly.

## Goal and scope of the study

The goal of the study is to evaluate the environmental performance of a low voltage four core underground cable and a low voltage four core aerial cable, in order to develop the Environmental Product Declarations (EPDs) of these products. The scope of the study is to calculate the environmental performance of the production of a low voltage four core underground cable and a low voltage four core aerial cable from cradle to grave, excluding the installation and de-installation stage (as it does not classify as a construction product). The additional/potential benefits at the EoL stage are excluded. Table 1 presents the modules included in the present study.

Table 1 Modules included under cradle to grave

MANUFACTURING STAGE		DISTRIBUTION STAGE	USE STAGE	END-OF-LIFE STAGE
UPSTREAM MODULE	CORE MODULE	DOWNSTREAM MODULE		
Extraction and preparation of raw materials, including waste recycling-pretreatment processes	manufacturing of the product constituents, including relevant processes, energy flows and packaging materials	Transportation via ship and truck to the customer	Electrical losses of the cable during use stage (energy dissipated as heat)	Cable stripping and dismantling, treatment of different components (energy recovery, recycling)
transportation of raw materials to the manufacturing site	product assembly	According to EN 50693		
	packaging			
	waste management processes			

## Products Description

The present assessment was performed according to the guidelines of the EPDI Italy Program Operator in accordance with standards (ISO 14040 and 14044) and other reference documents already cited in the introduction (PCR EPDI Italy 016 - Cables and wires). The power cables under assessment are the 1. ARE4EX 3X150 + 1X95RM COMP 0.6/1 (1.2) kV and 2. AL/XLPE/XLPE BUNDLED TYPE IV 3X70+1X54.6 RM STRANDED 0.6/1 (1.2) kV. The cables are used as an underground and aerial cable respectively, being finished products which do not require further processing (apart from the installation). Electrical and mechanical properties are usually defined by the end customer and the design phase follows the corresponding technical specifications, to meet the use phase conditions (nominal voltage, power in Amperes etc.). Tables 2 and 3 include the main technical specifications and the bill of materials for the first cable design.

Table 2 Technical specifications of the cable

<b>General Description: Underground cable ARE4EX 3X150 + 1X95RM COMP 0.6/1 (1.2) kV</b>	
Standard specification:	GSC002 REV.6 2022
Type of cable:	ARE4EX
Rated voltage U <sub>0</sub> /U (U <sub>max</sub> ):	0.6/1 (1.2) kV
Number of cores x Nominal cross-section:	3x150+1x95 mm <sup>2</sup>
Approximate cable overall diameter:	45.92 mm
Approximate cable overall weight:	2.002 kg/m
Nominal drum length (Tolerance):	500 m (± 1%)

For the first cable, the production includes utilization of aluminum sheets, used for the production of the cable conductors (melting primary aluminum to form a solid aluminum rod, which will then undergo a wire drawing process, reducing the rods diameter to the designed cross-sections, in this case 150 and 95 mm<sup>2</sup>). The conductors will be then electrically insulated with a XLPE compound. A Polyolefin-based compound, internally produced at the site, will be then extruded as the outer sheath of the cable. Table 3 presents the main components included.

Table 3 Cable bill of materials according to IEC 62474

Material class	Material category	Raw materials	Units	Amount
Inorganic materials	M-120	Aluminum conductor	Kg/km	1.376,2
Organic materials	M-251	Cross-Linked Polyethylene	Kg/km	238,8
Organic materials	M-201	High density PE (LSF)	Kg/km	386,8
<b>Total weight</b>			<b>Kg/km</b>	<b>2.001,8</b>

The total weight of the wood used for packaging (wooden drum) per 1 km is 700 kg.

Manufacturing stage includes all the processes presented below:

1. Aluminum conductor casting
2. Aluminum wire drawing and stranding
3. Insulating layer (XLPE)
4. LSF outer jacket (HDPE-based compound)

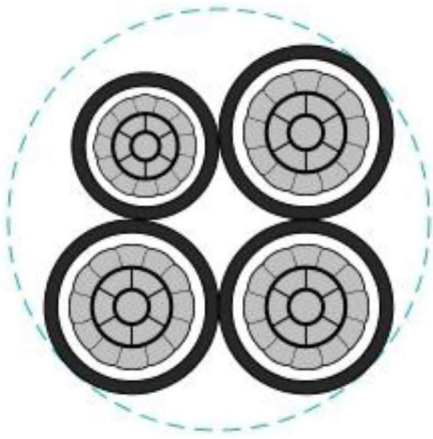


Figure 1 Cable manufacturing steps for Underground Cable

For the second cable, the production includes utilization of aluminum sheets, used for the production of the cable conductors (melting primary aluminum to form a solid aluminum rod, which will then undergo a wire drawing process, reducing the rods diameter to the designed cross-sections, in this case 70 and 54.6 mm<sup>2</sup>). The conductors will be then electrically insulated with a XLPE compound. Tables 4 and 5 presents the technical specification and the main components included.

Table 4 Technical specifications of the cable

<b>General Description: Aerial cable AL/XLPE/XLPE 0.6/1 (1.2) kV 3X70+1X54.6 RM Stranded Bundled</b>	
Standard specification:	GSCC009 REV.01/2018
Type of cable:	AL/XLPE/XLPE BUNDLED TYPE IV
Rated voltage U <sub>0</sub> /U (U <sub>max</sub> ):	0.6/1 (1.2) kV
Number of cores x Nominal cross-section:	3x70+1x54.6 mm <sup>2</sup>
Approximate cable overall diameter:	32.01 mm
Approximate cable overall weight:	0.936 kg/m
Nominal drum length (Tolerance):	750 m (± 1%)

Table 5 Cable bill of materials according to IEC 62474

Material class	Material category	Raw materials	Units	Amount
Inorganic materials	M-120	Aluminum conductor	Kg/m	0,6760
Organic materials	M-251	Cross-Linked Polyethylene	Kg/m	0,2563
<b>Total weight</b>			<b>Kg/m</b>	<b>0,9323</b>

The total weight of the wood used for packaging (wooden drum) per 1 km is 249,3 kg.

Manufacturing stage includes all the processes presented below:

1. Aluminum conductor casting
2. Aluminum wire drawing and stranding
3. Insulating layer (Cross Linked Polyethylene)

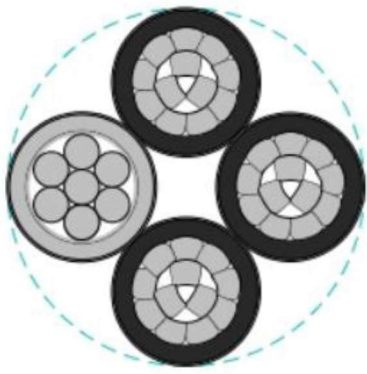


Figure 2 Cable manufacturing steps for Aerial Cable

Both products do not contain any hazardous substances, specifically identified as substances of very high concern, according to REACH regulation.

## Description of modules included

The production starts with the material supply. This stage includes the mining and processing of raw materials. The company is part of a global supply chain, with suppliers and raw materials scattered across different continents. Main materials used in the production are the aluminum sheets used for the production of the cable conductors, XLPE compound for electrical insulation and HDPE-based compound, internally produced at the site, used as the outer sheath of the cable. Primary materials arrive to the company's gate mostly via trucks and container ships. During manufacturing, the company is using diesel oil (for inhouse transportation) and natural gas for steam generation. In addition, manufacturing stage includes the treatment of generated waste, which considers plastics and metals recycling/landfilling. The manufactured product will be transported to Italy, to the storage facility.

For the use stage of the products, an amount of electrical energy will be dissipated to the environment, as a result of the conductor's electrical losses from the resistivity of copper. To calculate the respective losses over the cable's life cycle, the following assumptions were used:

### For Underground Cable:

- Current: 1 A
- Resistivity of Aluminum conductors: 0,618  $\Omega$ /km (IEC 60228)
- Reference Service Life: 40 years and 100% use rate (seconds)

Losses are calculated as:  $I^2 \cdot R \cdot RSL$  (in Joules)

### For Aerial Cable:

- Current: 1 A
- Resistivity of Aluminum conductors: 1,329  $\Omega$ /km (IEC 60228)
- Reference Service Life: 40 years and 100% use rate (seconds)

Losses are calculated as:  $I^2 \cdot R \cdot RSL$  (in Joules)

After deinstallation of the cable (excluded in this study), dismantled cables will be transported to the recycling facility to reclaim recyclable parts, where plastics will be driven to energy recovery, via mechanical separation. Therefore, no disposal will take place with regards to stripped cable components.

### Use of renewable electricity

ICME ECAB has an active power purchase agreement with Hidroelectrica, the largest producer of hydropower in Romania, followed by the respective guarantees of origin (GOs). Hence, the following dataset has been used in the LCI: RO: Electricity from hydropower Sphera.

## Impact Assessment

Results per declared unit of the Underground cable included in this study are presented below. (EN 15804:2012+A2:2019, EF 3.1)

### ARE4EX 3X150 + 1X95RM COMP 0.6/1 (1.2) kV

INDICATOR	UNIT	TOTAL	Manufacturing		Distribution	Use	End of Life
			UPSTREAM	CORE	DOWNSTREAM		
GWP-total*	kg CO2eq	3,05E+04	2,76E+04	-9,30E+02	5,32E+02	7,96E+01	3,14E+03
GWP-fossil	kg CO2eq	3,04E+04	2,76E+04	3,05E+02	5,36E+02	7,85E+01	1,92E+03
GWP-biogenic	kg CO2eq	1,42E+00	3,24E+01	-1,24E+03	-1,35E+01	1,08E+00	1,22E+03
GWP-luluc	kg CO2eq	2,29E+01	7,37E+00	6,22E+00	8,85E+00	1,16E-02	4,78E-01
ODP	kg CFC-11eq	8,39E-08	8,00E-08	5,96E-10	7,76E-11	1,92E-09	1,37E-09
POCP	kg NMVOC eq	8,11E+01	7,47E+01	1,94E+00	3,66E+00	8,23E-02	7,01E-01
AP	mol H+eq	1,33E+02	1,27E+02	1,86E+00	3,77E+00	1,36E-01	7,64E-01
EP-freshw	kg P eq	2,02E-02	8,59E-03	8,62E-03	2,25E-03	4,54E-04	2,81E-04
WDP	m3 depriv.	5,57E+03	4,98E+03	3,59E+02	8,16E+00	3,61E+01	1,78E+02
ADP-fossil	MJ	3,29E+05	3,07E+05	8,27E+03	6,94E+03	1,15E+03	5,82E+03
ADP-min&met	kg Sb eq	1,92E-02	1,90E-02	8,97E-05	4,59E-05	1,40E-05	2,66E-05

GWP-total = Global Warming Potential; GWP-fossil = Global Warming Potential - fossil; 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; 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 deprivation potential, deprivation weighted water consumption The results of these environmental impact indicators (ODP, WDP) should be used with caution as uncertainties are high or experience with the indicator is limited.  
\*GWP-total manufacturing value is negative due to biogenic emissions from wooden packaging

INDICATOR	UNIT	TOTAL	Manufacturing		Distribution	Use	End of Life
			UPSTREAM	CORE	DOWNSTREAM		
PENRE	MJ	3,16E+05	2,94E+05	8,27E+03	6,94E+03	1,15E+03	5,82E+03
PERE	MJ	1,02E+05	7,45E+04	2,53E+04	5,98E+02	1,19E+03	7,16E+02
PENRM	MJ	1,32E+04	1,32E+04	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	3,29E+05	3,07E+05	8,27E+03	6,94E+03	1,15E+03	5,82E+03
PERT	MJ	1,02E+05	7,45E+04	2,53E+04	5,98E+02	1,19E+03	7,16E+02
FW	m3	2,01E+02	1,56E+02	3,91E+01	6,66E-01	9,42E-01	4,06E+00
MS	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	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

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 nonrenewable 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 freshwater; MS = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels.

INDICATOR	UNIT	Manufacturing			Distribution	Use	End of Life
		TOTAL	UPSTREAM	CORE	DOWNSTREAM		
HWD	kg	3.16E-04	3.10E-04	1.99E-06	2.66E-07	2.12E-06	1.72E-06
NHWD	kg	6.76E+03	6.48E+03	1.33E+02	1.13E+00	2.66E+00	1.44E+02
RWD	kg	5.45E+00	4.96E+00	3.53E-01	1.26E-02	9.07E-02	3.60E-02
MER	kg	1.38E+03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.38E+03
MFR	kg	6.26E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.26E+02
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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.

Results per declared unit of the Aerial cable included in this study are presented below. (EN 15804:2012+A2:2019, EF 3.1)

**AL/XLPE/XLPE 0.6/1 (1.2) kV 3X70+1X54.6 RM Stranded Bundled**

INDICATOR	UNIT	Manufacturing			Distribution	Use	End of Life
		TOTAL	UPSTREAM	CORE	DOWNSTREAM		
GWP-total*	kg CO2eq	1,50E+04	1,35E+04	-2,46E+02	2,36E+02	1,71E+02	1,26E+03
GWP-fossil	kg CO2eq	1,49E+04	1,35E+04	1,93E+02	2,38E+02	1,69E+02	8,22E+02
GWP-biogenic	kg CO2eq	2,78E+00	1,31E+01	-4,42E+02	-6,00E+00	2,32E+00	4,35E+02
GWP-luluc	kg CO2eq	1,09E+01	3,61E+00	3,14E+00	3,93E+00	2,48E-02	2,20E-01
ODP	kg CFC-11eq	4,52E-08	4,01E-08	2,56E-10	3,44E-11	4,13E-09	6,47E-10
POCP	kg NMVOC eq	3,94E+01	3,61E+01	1,20E+00	1,63E+00	1,77E-01	3,29E-01
AP	mol H+eq	6,51E+01	6,16E+01	1,19E+00	1,67E+00	2,93E-01	3,57E-01
EP-freshw	kg P eq	9,89E-03	4,37E-03	3,42E-03	9,98E-04	9,77E-04	1,30E-04
WDP	m3 depriv.	2,74E+03	2,42E+03	1,63E+02	3,62E+00	7,77E+01	7,63E+01
ADP-fossil	MJ	1,65E+05	1,52E+05	3,70E+03	3,08E+03	2,47E+03	2,80E+03
ADP-min&met	kg Sb eq	6,67E-04	5,64E-04	3,97E-05	2,03E-05	3,00E-05	1,28E-05

GWP-total = Global Warming Potential; GWP-fossil = Global Warming Potential - fossil; 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; 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 deprivation potential, deprivation weighted water consumption The results of these environmental impact indicators (ODP, WDP) should be used with caution as uncertainties are high or experience with the indicator is limited.  
\*GWP-total manufacturing value is negative due to biogenic emissions from wooden packaging

INDICATOR	UNIT	Manufacturing			Distribution	Use	End of Life
		TOTAL	UPSTREAM	CORE	DOWNSTREAM		
PENRE	MJ	1,34E+05	1,22E+05	3,70E+03	3,08E+03	2,47E+03	2,80E+03
PERE	MJ	4,99E+04	3,69E+04	9,89E+03	2,65E+02	2,56E+03	3,37E+02
PENRM	MJ	3,09E+04	3,09E+04	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PERM	MJ	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
PENRT	MJ	1,65E+05	1,52E+05	3,70E+03	3,08E+03	2,47E+03	2,80E+03
PERT	MJ	4,99E+04	3,69E+04	9,89E+03	2,65E+02	2,56E+03	3,37E+02
FW	m3	9,83E+01	7,63E+01	1,80E+01	2,95E-01	2,03E+00	1,73E+00
MS	kg	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	MJ	0,00E+00	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

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 nonrenewable 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 freshwater; MS = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels.



INDICATOR	UNIT	TOTAL	Manufacturing		Distribution	Use	End of Life
			UPSTREAM	CORE	DOWNSTREAM		
HWD	kg	4.55E-05	4.18E-05	7.49E-07	1.18E-07	2.13E-06	7.52E-07
NHWD	kg	3.27E+03	3.17E+03	5.40E+01	5.03E-01	2.68E+00	3.63E+01
RWD	kg	2.67E+00	2.43E+00	1.26E-01	5.61E-03	9.12E-02	1.21E-02
MER	kg	1.56E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.56E+02
MFR	kg	6.76E+02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	6.76E+02
CRU	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
ETE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
EEE	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

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.

## METHODOLOGY

The methodology followed as a reference standard is that of the Life Cycle Assessment, which considers all environmental aspects and potential environmental impacts along the life cycle of the product, from the extraction and transport of raw materials through manufacture and use, up to at the end of life.

### DECLARED UNIT

1km of cable for all the life cycle stages besides use phase.

### EXCLUSIONS AND CUT OFF

The impacts from these things are not considered in the present study:

- electricity consumption for office;
- production, transport and installation of capital goods (buildings, infrastructures, machinery);
- materials and energy flows of the installation and deinstallation stages

### DATA QUALITY

In the context of this study, the activity data are mainly of “primary type”, i.e., collected with the support of the Company for the specific production site.

Generic data refer to LCA for Experts, professional database CUP v.2023.2. The database used is regarded as representative on the basis of a comparative study, which examined the data for a reference product of the EPD Owner.

### REFERENCE PERIOD

The primary data collected in the context of this study refer to the year 2023.

### ALLOCATION

The allocation criteria adopted for the LCA model comply with the reference standards. Primary data from the production stage have been allocated to the product on the basis of production mass. Mass allocation was used to estimate energy and resources consumption of each product.

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## STAGES

### ***UPSTREAM CORE***

#### **Manufacturing stage:**

- Extraction of raw materials and production of final cable products;
- Transport of materials in manufacturing site;
- Manufacturing and assembling of the product;
- Waste disposal and recycling.

### ***DOWNSTREAM***

**Distribution stage:** transport of the finished product to the final customer.

**Use and maintenance stage:** the electrical energy losses of the cables encountered during operation, for the whole duration of their life cycle (40 years).

**End of life stage:** the transport of the product to the treatment site and the final disposal of the product.

The disposal scenario of both cables under the present EPD consider stripping, plastics incineration and metals recycling.

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## Reference

### **Service Life (RSL)**

In this LCA study, functional to obtaining the EPD certification, a useful life was considered 40 years and 100% use rate, in accordance with the provisions of the reference PCR.

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## REFERENCES:

- General Programme Instructions of the EPDItaly, Version 6.0
- EPDItaly007-CORE-PCR-EN-50693\_13012023-rev.3
- EN 15804:2012+A2:2019 Sustainability of construction works - Environmental Product Declarations, Core rules for the product category of construction products
- EN 50693:2019 Product category rules for life cycle assessments of electronic and electrical products and systems
- ISO 14020:2000 Environmental labels and declarations, General principles
- ISO 14025:2006 Environmental labels and declarations - Type III environmental declarations — Principles and procedures
- ISO 14040:2006 Environmental management - Life cycle assessment-Principles and framework
- ISO 14044:2006 Environmental management - Life cycle assessment - Requirements and guidelines
- EPDItaly016-SUB-PCR-EN-50693\_cables\_v2