

## Product Environmental Profile (PEP)

**ACOPTIC - Range COR1821**

Indoor LSOH-FR subscriber connection cable



COR1821 1 OF C250

Indoor LSOH-FR subscriber connection cable



**40,3 g CO<sub>2</sub> eq.**

Climate change  
- total\*



**1,08 MJ**

Total use of  
primary energy\*



**3,03E-09**

**kg Sb eq.**  
Depletion of  
abiotic resources  
- elements\*



**2,72 dm<sup>3</sup>**

Net use of  
freshwater\*

\* Results based on the lifecycle analysis of the reference product (COR1821 1 OF C250),  
at the scale of the UF, i.e.. the transmission of 1 communication signal (1 OF) over 1 meter of cable.

|                                                                                                                                                                             |                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| Registration Number : <b>ACOM-00086-V01.01-EN</b>                                                                                                                           | Drafting Rules : <b>PEP-PCR-ed4-EN-2021 09 06</b><br>Supplemented by : <b>PSR-0001-ed4-EN-2022 11 16</b> |
| Verifier accreditation number : <b>VH03</b>                                                                                                                                 | Information and reference : <b>www.pep-ecopassport.org</b>                                               |
| Date of issue : <b>06-2023</b>                                                                                                                                              | Validity period : <b>5 years</b>                                                                         |
| Independent verification of the declaration and data, in compliance with ISO 14025 : 2010<br>Internal <input type="checkbox"/> External <input checked="" type="checkbox"/> |                                                                                                          |
| The PCR review was conducted by a panel of experts chaired by Julie Orgelet (DDemain)                                                                                       |                                                                                                          |
| PEPs are compliant with XP C08-100-1:2016 or EN 50693:2019                                                                                                                  |                                                                                                          |
| The components of the present PEP may not be compared with components from any other program                                                                                |                                                                                                          |
| Document complies with ISO 14025:2010 "Environmental labels and declarations. Type III environmental declarations"                                                          |                                                                                                          |



The updated version of this document is available on the site [www.pep-ecopassport.org](http://www.pep-ecopassport.org) and on the site [www.acome.com](http://www.acome.com)

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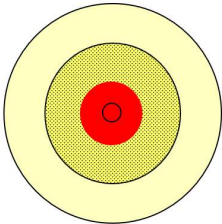


## GENERAL INFORMATIONS

### TYPICAL PRODUIT

ACOPTIC® is the ACOME brand for ranges of optical cables for telecom networks. The ranges of COR optical cables are the connection solutions for FTTH subscribers. The products in the COR1821 range are cables for indoor connection to connect the optical terminal port to the communication box.

These cables are light and their diameters are optimized. They are ideal for indoor wiring and can be glued to different surfaces.



Principle cut

- Semi-tight insulation 900 µm
- Reinforcement elements: Aramid yarns
- Outer sheath: Compound LSOH NF EN 50290-2-27

This environmental statement covers the optical cable of the COR1821 range consisting of an optical fiber (1 OF) with a packaging of 250 meters (C250). The reference product has the following characteristics:

| Technical characteristics       |                                                                                   |
|---------------------------------|-----------------------------------------------------------------------------------|
| Product category                | Communication and data wires and cables                                           |
| Description                     | Optical fiber cable – 1 optical fiber – packaging of 250 m                        |
| Reference lifetime              | 30 years                                                                          |
| Type of optical fiber           | Single mode                                                                       |
| Mass                            | 8,898 g including 1,832 g of packaging - measured by FU                           |
| Diameter                        | 3 mm                                                                              |
| Geographical representativeness | Manufactured in France; Distribution, Installation, Use and End of life in France |

Table 1 - Product Description

### FUNCTIONAL UNIT

The functional unit studied is "To transmit one communication signal on 1m, at a wavelength of 1310nm for a single-mode optical fiber, for 30 years and at a utilization rate of 70% in accordance with the standards in force such as indicated on the product sheet. as defined in PSR-0001-ed4-EN 2022 11 16.

The duration and rate of use correspond to the "BUILDING - Residential/Tertiary/Industrial excluding LAN" application as defined in the table given in Appendix 1 of the specific rules for Wires, Cables et Accessories.

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## CONSTITUENT MATERIALS

The total mass of the product is 8,898 g/m including 7,066 g of cable and 1,832 g of packaging.  
The constituent materials are:

(the calculations are made for a unit of 1 meter of cable)

|                 |      |          |       |        |      |           |       |
|-----------------|------|----------|-------|--------|------|-----------|-------|
| Metals/Minerals | 0,0% | Plastics | 74,4% | Others | 3,5% | Packaging | 21,1% |
|-----------------|------|----------|-------|--------|------|-----------|-------|

Table 2 - Constituent materials (in percentage)

Use of recycled materials: 0%

## LIFE CYCLE ASSESSMENT METHODOLOGY

The Life Cycle Assessment on which this Product Environmental Profile (PEP) is based is carried out in compliance with the criteria imposed by PCR-ed4-FR-2021 09 06 of the PEP ecopassport® Program. The functional unit and the distribution, use and waste treatment scenarios comply with the assumptions set out in PSR-0001-ed4-FR-2022 11 16.

The results were obtained using EIME software version 6.0.0 and its most recent database CODDE-02-2023.

## MANUFACTURE STAGE

COR1821 1FO C250 cables are manufactured at the Mortain industrial site (Manche-France) which has received ISO14001 design and manufacturing environmental certification.

Some materials have a European, North American or Asian origin.

The materials necessary for the manufacture of the product, the packaging upstream of the raw materials and the packaging of the finished product have been considered.

Upstream transport and transport to the last logistics platform have been taken into account. Truck transport was modeled by a truck with a loading capacity of 27t with a loading rate of 85% and an empty return rate of 20%.

Source PEFCR : [https://ec.europa.eu/environment/eussd/smgp/pdf/PEFCR\\_guidance\\_v6.3.pdf](https://ec.europa.eu/environment/eussd/smgp/pdf/PEFCR_guidance_v6.3.pdf)

The scrap rate of shaped elements and assembled elements was considered. The ACOME company transmitted the scrap rates obtained during the manufacture of the product.

Waste related to the manufacture of the product has been considered as buried or incinerated in accordance with appendix D of PCR-ed4-FR-2021 09 06.

The energy model used for the Manufacture stage is:

|              |                                                |
|--------------|------------------------------------------------|
| Energy model | Electricity Mix; Low voltage; 2018; France, FR |
|--------------|------------------------------------------------|

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## DISTRIBUTION STAGE

The distribution of the packaged product from the last logistics platform (ACOME SA factory – Industrial site of Mortain, France) to the place of installation (France) was modeled by transport by truck of 27 tonnes over a distance of 1000km (national transport scenario from PEP-PCR-ed4-FR-2021 09 06).

A truck load rate of 85% and an empty return rate of 20% were considered.

Source PEFCR : [https://ec.europa.eu/environment/eussd/smgp/pdf/PEFCR\\_guidance\\_v6.3.pdf](https://ec.europa.eu/environment/eussd/smgp/pdf/PEFCR_guidance_v6.3.pdf)

## INSTALLATION STAGE

Due to the large variety of possible installation of this product, the installation process is excluded from the scope of the PEP. The determination of the impact of the installation process will be carried out by the users of the PEP, depending on the context of use of the product.

The installation of the product generates packaging whose treatment has been modeled in accordance with PCR-ed4-FR-2021 09 06 and PSR-0001-ed4-FR-2022 11 16. The end of life of the packaging has been modeled as follows :

- Waste collection over 1,000 km via a 27-ton road transporter with a load rate of 85% and an empty return of 20%.
- The processing of packaging waste has been modeled as indicated below, in accordance with appendix D of PCR-ed4-FR-2021 09 06:

| Parameter of the "End of life treatment" formula (in %) |                     | Material recovery rate | Landfill | Incineration without energy recovery |
|---------------------------------------------------------|---------------------|------------------------|----------|--------------------------------------|
| Plastics                                                | PE (0,166 g)        | 0%                     | 50%      | 50%                                  |
| Others                                                  | Cardboard (0,066 g) | 0%                     | 100%     | 0%                                   |
|                                                         | Wood (1,6 g)        | 0%                     | 50%      | 50%                                  |

Table 3 - End of life scenario for packaging

This end-of-life treatment of the packaging was modeled using European data, French data not being available.

During installation, the laying of the cable generates offcuts and a offcut rate of 5% was considered. This value was chosen in accordance with PSR-0001-ed4-FR-2022 11 16. In this stage, the impact is taken into account:

- The production of product offcuts and their packaging.
- The distribution of product offcuts and their packaging.
- The end of life of product offcuts and their packaging.

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## USE STAGE

In accordance with PSR-0001-ed4-FR-2022 11 16 the product belongs to the "Fiber optic cables" family.

In this case, the energy consumed during the use stage is related to the attenuation of the transmitted signals due to the loss of signal energy along the conductors. This attenuation corresponds to the ratio between the energy emitted and the energy received. It is expressed in dB and depends on the type of fiber, the wavelength used and the length of the optical fibers.

According to PSR-0001-ed4-FR-2022 11 16, the energy consumed during the use stage can either be measured or determined by standards. For this study, the determination by the standards was retained on the basis of data from the reference standards (cable performance standard IEC 60793, IEC 60794 and Ethernet standard IEEE 802.3).

| Type of optical fiber | Wavelength | Consumed power | Lifetime | Service rate | Nber of OF in the cable |
|-----------------------|------------|----------------|----------|--------------|-------------------------|
| Single mode           | 1310 nm    | 0,09 $\mu$ W/m | 30 years | 70%          | 1 FO                    |

Table 4 - Electricity consumption calculation data

The electricity consumption of the product over the reference lifetime is 0.0166 Wh. The module used to model this energy consumption is:

|              |                                                |
|--------------|------------------------------------------------|
| Energy model | Electricity Mix; Low voltage; 2018; France, FR |
|--------------|------------------------------------------------|

There is no maintenance on this type of product.

## END OF LIFE STAGE

The end-of-life treatment of the product was modeled according to the end-of-life scenario of PSR-0001-ed4-FR-2022 11.

- National transport assumption: 1000 km per truck, modeled by a 27 tonne capacity truck (85% load rate and 20% empty return rate).
- A step of grinding / separation of materials.
- Landfilling of materials at 50% and incineration at 50%:
  - o For plastics (7.0335 g).
  - o For inert materials (Silica: 0.0325 g).

## NET BENEFITS AND EXPENSES BEYOND SYSTEM BOUNDARIES (MODULE D ACCORDING TO EN 15804)

In accordance with the methodological requirements of PCR ed.4 (cf §2.2.8), the benefits of recycling taking place throughout the life cycle [A1-B7]\* have been considered in Module D. These benefits correspond to the avoided impacts thanks to the recycling of the material. The impacts generated by the production of virgin material are counted negatively.

For this study, no benefit linked to recycling was observed in the life cycle. The product does not contain recycled material.

\*Manufacturing waste must be considered as co-products. Net profits and expenses (Module D) allocated to co-products cannot be taken into account. Consequently, the net benefits and expenses related to manufacturing waste should not be declared for the modules [A1-A3].

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## LIFE CYCLE ASSESSMENT METHODOLOGY

The impact results presented below were obtained using the methods defined by PCR-ed4-FR-2021 09 06 and PSR-0001-ed4-FR-2022 11 16. Flow contribution analysis basic environmental indicators is based on calculations from the EIME 6.0.0 life cycle analysis software. The set of indicators used is the set 'Indicators for PEF EF 3.0 (Compliance: PEF ed.4, EN15804+A2)' developed by the CODDE department of Bureau Veritas in accordance with appendix A of PCR-ed4-FR- 2021 09 06.

In accordance with PSR-0001-ed4-FR-2022 11 16, in the breakdown of modules B (B1 to B7), only sub-module B6 (Energy requirements during the use stage) generates impacts corresponding to losses product energy. The other submodules B1, B2, B3, B4, B5 and B7 are equal to zero.

The environmental impacts at the equipment level are equal to the environmental impacts at the functional unit level.  
(1 communication signal (1 OF) on 1 meter of cable)

## ENVIRONMENTAL IMPACTS OF THE REFERENCE PRODUCT AT THE FUNCTIONAL UNIT SCALE

| MANDATORY INDICATORS                                  |               |                        |                    |                    |              |                      |                     |                            |
|-------------------------------------------------------|---------------|------------------------|--------------------|--------------------|--------------|----------------------|---------------------|----------------------------|
| Impact indicators                                     | Unit          | Manufacturing<br>A1-A3 | Distribution<br>A4 | Installation<br>A5 | Use<br>B1-B7 | End of life<br>C1-C4 | TOTAL<br>(except D) | Benefits and<br>Loads<br>D |
| Climate change - total                                | kg CO2 eq.    | 2,34E-02               | 5,72E-04           | 3,95E-03           | 1,11E-06     | 1,24E-02             | 4,03E-02            | 0,00E+00                   |
| Climate change - fossil fuels                         | kg CO2 eq.    | 2,32E-02               | 5,72E-04           | 3,94E-03           | 1,10E-06     | 1,24E-02             | 4,01E-02            | 0,00E+00                   |
| Climate change - biogenics                            | kg CO2 eq.    | 1,96E-04               | 0,00E+00           | 9,78E-06           | 2,85E-09     | -9,49E-11            | 2,06E-04            | 0,00E+00                   |
| Climate change - land use and land use transformation | kg CO2 eq.    | 0,00E+00               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                   |
| Ozone depletion                                       | kg CFC-11 eq. | 4,85E-09               | 8,76E-13           | 2,51E-10           | 1,63E-14     | 8,42E-11             | 5,19E-09            | 0,00E+00                   |
| Acidification                                         | mole H+ eq.   | 1,56E-04               | 3,62E-06           | 1,01E-05           | 6,40E-09     | 7,05E-06             | 1,77E-04            | 0,00E+00                   |
| Freshwater eutrophication                             | kg P eq.      | 1,20E-07               | 2,14E-10           | 2,19E-08           | 5,26E-11     | 1,19E-07             | 2,61E-07            | 0,00E+00                   |
| Marine aquatic eutrophication                         | kg N eq.      | 2,12E-05               | 1,70E-06           | 2,14E-06           | 8,81E-10     | 2,05E-06             | 2,71E-05            | 0,00E+00                   |
| Terrestrial eutrophication                            | mole N eq.    | 2,32E-04               | 1,86E-05           | 2,17E-05           | 1,27E-08     | 2,56E-05             | 2,98E-04            | 0,00E+00                   |
| Photochemical ozone formation                         | kg NMVOC eq.  | 1,02E-04               | 4,69E-06           | 8,03E-06           | 2,61E-09     | 6,18E-06             | 1,21E-04            | 0,00E+00                   |
| Depletion of abiotic resources - elements             | kg Sb eq.     | 2,81E-09               | 2,25E-11           | 1,55E-10           | 5,23E-13     | 4,51E-11             | 3,03E-09            | 0,00E+00                   |
| Depletion of abiotic resources - fossil fuels         | MJ            | 9,56E-01               | 7,97E-03           | 5,21E-02           | 2,12E-04     | 1,85E-02             | 1,03E+00            | 0,00E+00                   |
| Water requirement                                     | m3 world eq.  | 1,10E-01               | 2,17E-06           | 5,68E-03           | 8,01E-08     | 1,05E-03             | 1,17E-01            | 0,00E+00                   |

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| Inventory flows                                                                                                         | Unit     | Manufacturing<br>A1-A3 | Distribution<br>A4 | Installation<br>A5 | Use<br>B1-B7 | End of life<br>C1-C4 | TOTAL<br>(except D) | Benefits and Loads<br>D |
|-------------------------------------------------------------------------------------------------------------------------|----------|------------------------|--------------------|--------------------|--------------|----------------------|---------------------|-------------------------|
| Use of renewable primary energy, excluding renewable primary energy resources used as raw materials                     | MJ       | 1,55E-02               | 1,06E-05           | 2,40E-03           | 1,96E-05     | 1,81E-04             | 1,81E-02            | 0,00E+00                |
| Use of renewable primary energy resources used as raw materials                                                         | MJ       | 3,16E-02               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 3,16E-02            | 0,00E+00                |
| Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)     | MJ       | 4,71E-02               | 1,06E-05           | 2,40E-03           | 1,96E-05     | 1,81E-04             | 4,97E-02            | 0,00E+00                |
| Use of non-renewable primary energy, excluding non-renewable primary energy resources used as raw materials             | MJ       | 8,42E-01               | 7,97E-03           | 5,21E-02           | 2,12E-04     | 1,85E-02             | 9,20E-01            | 0,00E+00                |
| Use of non-renewable primary energy resources used as raw materials                                                     | MJ       | 1,14E-01               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 1,14E-01            | 0,00E+00                |
| Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials) | MJ       | 9,56E-01               | 7,97E-03           | 5,21E-02           | 2,12E-04     | 1,85E-02             | 1,03E+00            | 0,00E+00                |
| Use of secondary materials                                                                                              | kg       | 0,00E+00               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                |
| Use of renewable secondary fuels                                                                                        | MJ       | 0,00E+00               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                |
| Use of non-renewable secondary fuels                                                                                    | MJ       | 0,00E+00               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                |
| Net use of freshwater                                                                                                   | m3       | 2,57E-03               | 5,05E-08           | 1,32E-04           | 1,87E-09     | 2,45E-05             | 2,72E-03            | 0,00E+00                |
| Hazardous waste disposed                                                                                                | kg       | 6,16E-04               | 0,00E+00           | 3,87E-04           | 1,65E-08     | 7,11E-03             | 8,12E-03            | 0,00E+00                |
| Non hazardous waste disposed                                                                                            | kg       | 5,61E-03               | 2,01E-05           | 2,71E-03           | 1,06E-07     | 7,78E-03             | 1,61E-02            | 0,00E+00                |
| Radioactive waste disposed                                                                                              | kg       | 1,17E-06               | 1,43E-08           | 1,15E-07           | 4,47E-11     | 3,06E-07             | 1,60E-06            | 0,00E+00                |
| Components for reuse                                                                                                    | kg       | 0,00E+00               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                |
| Matières destinées au recyclage                                                                                         | kg       | 0,00E+00               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                |
| Matières destinées à la valorisation énergétique                                                                        | kg       | 0,00E+00               | 0,00E+00           | 8,41E-04           | 0,00E+00     | 1,63E-05             | 8,57E-04            | 0,00E+00                |
| Énergie fournie à l'extérieur                                                                                           | MJ       | 1,13E-05               | 0,00E+00           | 7,32E-04           | 0,00E+00     | 0,00E+00             | 7,43E-04            | 0,00E+00                |
| Teneur en carbone biogénique du produit                                                                                 | kg of C. | 0,00E+00               | 0,00E+00           | 0,00E+00           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                |
| Teneur en carbone biogénique de l'emballage associé                                                                     | kg of C. | -6,51E-01              | 0,00E+00           | 6,51E-01           | 0,00E+00     | 0,00E+00             | 0,00E+00            | 0,00E+00                |

| OPTIONAL INDICATORS                               |                   |                        |                    |                    |              |                      |                     |                         |
|---------------------------------------------------|-------------------|------------------------|--------------------|--------------------|--------------|----------------------|---------------------|-------------------------|
| Impact indicators                                 | Unit              | Manufacturing<br>A1-A3 | Distribution<br>A4 | Installation<br>A5 | Use<br>B1-B7 | End of life<br>C1-C4 | TOTAL<br>(except D) | Benefits and Loads<br>D |
| Total use of primary energy during the life cycle | MJ                | 1,00E+00               | 7,98E-03           | 5,45E-02           | 2,32E-04     | 1,87E-02             | 1,08E+00            | 0,00E+00                |
| Emission of fine particles                        | disease incidence | 1,01E-09               | 2,94E-11           | 6,46E-11           | 2,48E-13     | 4,75E-11             | 1,15E-09            | 0,00E+00                |
| Ionizing radiation, human health                  | kBq of U235 eq.   | 5,37E-02               | 1,39E-06           | 2,70E-03           | 2,87E-05     | 1,46E-04             | 5,66E-02            | 0,00E+00                |
| Ecotoxicity (fresh water)                         | CTUe              | 2,01E-01               | 3,85E-04           | 1,69E-02           | 7,81E-06     | 1,13E-02             | 2,30E-01            | 0,00E+00                |
| Human toxicity, carcinogenic effects              | CTUh              | 1,82E-11               | 1,00E-14           | 7,72E-12           | 1,85E-16     | 1,23E-12             | 2,72E-11            | 0,00E+00                |
| Human toxicity, non-carcinogenic effects          | CTUh              | 2,85E-10               | 1,09E-12           | 1,97E-11           | 7,99E-15     | 1,43E-11             | 3,20E-10            | 0,00E+00                |
| Impacts related to land use/soil quality          | No dimension      | 7,40E-04               | 0,00E+00           | 3,70E-05           | 3,53E-08     | 0,00E+00             | 7,77E-04            | 0,00E+00                |

Table 5 - Results of the environmental indicators of the typical reference flow on the life cycle at the scale of the FU.

The impacts relating to the product installation process can be completed by the user.