TKF CONNECTIVITY SOLUTIONS

SD-EPD >

YMvK Dca 0,6/1 kV 12 G 1,5 rm

Power cables 0,6/1 kV suitable for all applications described in NEN1010 low voltage installations where fire safety is required.



Self-Declared
Environmental Product Declaration

Owner of the declaration:	TKF
Product:	YMvK Dca 0,6/1 kV 12 G 1,5 rm
Article and configuration nr.	165126 CONF167893
Declaration nr.	165126_SD-EPD_Energy_ALCAS_v2
Construction date of this EPD	12 September 2026
SD-EPD according to:	NEN EN 15804+A2, ISO14040, ISO14044 & NMD Assessment Method for Environmental Performance of Construction Works v2.0 (February 2025)
Declared/functional unit	1 meter of cable
Database	Set A1: Ecoinvent 3.6 allocation, cut-off by classification Set A2: Ecoinvent 3.9.1 allocation, cut-off by classification
Software	SimaPro 10.3.0.1
Verification	Independently verified tool and dataset setup – see verification statement at the end of this document.

TKF.NL >

Background information

About EPDs

WHAT IS AN EPD?

An Environmental Product Declaration (EPD) is a transparent, standardized profile of a product's environmental impacts across its life cycle—from raw materials and manufacturing to transport, use, and end-of-life—based on a Life Cycle Assessment (LCA) and aligned with standards such as EN 15804.

WHY IT MATTERS

An EPD makes impacts visible, supporting better design and procurement. It covers more than carbon, showing multiple impact categories so improvements in one area don't cause harm in another.

WHAT IS THE MKI?

The Environmental Cost Indicator (MKI) is a Dutch metric that converts total environmental impact into euros using shadow prices. It aggregates multiple categories into one number, reported per functional unit and defined scenario. In general: the lower the MKI, the lower the environmental burden. Two MKI variants are defined: an older A1-based set (EN 15804+A1; Ecoinvent 3.6) and a newer A2-based set (EN 15804+A2; this EPD uses Ecoinvent 3.9.1. Note: some legacy EPDs in the market may use Ecoinvent 3.6.).

WHAT THIS SD-EPD PROVIDES

This SD-EPD presents the same information and results as an official EPD, generated with a verified tool; however, this document itself has not been independently verified or published by a program operator. Aligned with the latest rules, Set A2 (EN 15804+A2) is reported using the newer database version: Ecoinvent 3.9.1.

HOW TO COMPARE

Comparing EPD results and MKI values can help you make more sustainable choices, but outcomes depend on modelling choices—so interpret with care. First, match the use: the same functional (or declared) unit. Second, match the scope: the same life-cycle modules (A1–A3, A4, A5, B, C, D) and similar assumptions for transport, energy mix, maintenance, and end-of-life. Third—and especially important—match the method: the same standard/PCR version (EN 15804+A1 or EN 15804+A2), the same background database/version (e.g., Ecoinvent 3.6 or 3.9.1), and the same MKI set. If these don't align, the results are not comparable. When they do, the lower MKI is a sensible rule of thumb; a quick check of key impact categories supports a confident, well-balanced choice.

General Information

COMPANY INFORMATION

Manufacturer	Twentsche Kabelfabriek BV
Production location	Haaksbergen
Address	Spinnerstraat 15, 7481 KJ Haaksbergen, the Netherlands
E-mail	info@tkf.nl
Website	https://www.tkf.nl/en

Since 1930, TKF has been at the forefront of cable and connectivity innovation. Today, we are the trusted global partner, delivering advanced solutions that power secure and reliable energy and data connections.

Our comprehensive range of cables, systems, and services supports critical infrastructure across industries worldwide. With a strong focus on sustainability and innovation, we play a key role in the global transition to cleaner energy and smarter networks. Together, we are building a sustainable future for generations to come.

As part of TKH Group, TKF harnesses group-wide technology and expertise to deliver reliable, high-quality, sustainable cable solutions.

EPD INFORMATION

EPD for	YMvK Dca 0,6/1 kV 12 G 1,5 rm
SD-EPD commissioner (company):	Twentsche Kabelfabriek BV
Generated with:	TKF ALCAS (Automatic LCA Software) v2
Tool developer / responsible contact:	A. Mentink (a.mentink@tkf.nl) LCA engineer, TKF
Goal of the LCA study	To identify and quantify the environmental impacts associated with each stage of the life cycle of the cable.

EPDs have limited comparability; construction product EPDs may not be comparable if non-compliant with EN 15804+A2 or the assessment method. Results are subject to change.

Product Description

An overview of the cable parameters relevant to an LCA is provided below. Corresponding datasheets are available on our website. Please note that the values shown are based on design standards; actual material weights may vary slightly. The given picture on the front page may also differ from the actual product.

CABLE CHARACTERISTICS

- KEMA-APPROVED

CONSTRUCTION CHARACTERISTICS

Conductor material	Copper	
Conductor category	Class 1 = solid	
Material core insulation	Vulcanized polyethylene (XLPE)	
Material outer sheath	Polyvinyl chloride (PVC)	
Number of cores	12	
Nominal cross section conductor	1,5	mm^2
Insulation thickness	0,7	mm
Outer sheath thickness	2,2	mm
Outer diameter approx.	19,0	mm

MATERIAL CLASSIFICATION

Material category	kg/m	%
Metal	0,16	31%
Plastics	0,35	69%
Other	0,00	0%
Total	0,51	100%

Cable materials are classified into three categories: Metals, Plastics, and Other. Metals include copper, aluminum, and steel; Plastics include polymer materials such as PVC, PE, and XLPE; Other covers any remaining materials.

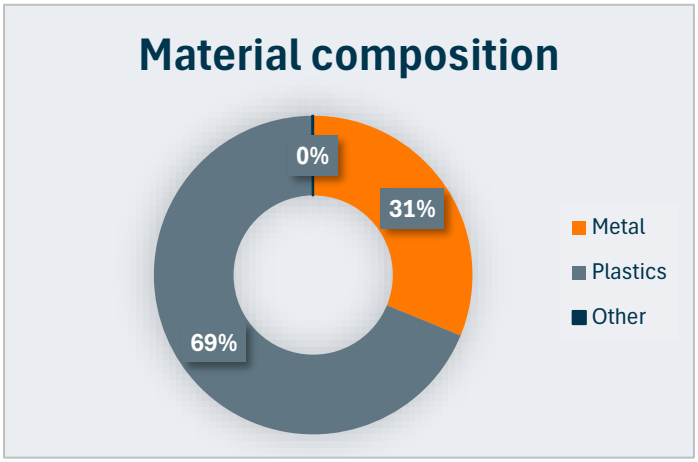


Figure 1: Material composition of the cable

PRODUCTION PROCESS

Cable production consists of several stages. First, the conductors are drawn to the required diameter and cut to length; depending on the conductor type, they are assembled into the specified configuration. The conductors are then insulated and combined to form the cable core. Where required, the core is armoured and/or fitted with additional components to meet the specification. Finally, an outer sheath is applied and the cable is prepared for transport.

FLOW DIAGRAM LIFE CYCLE CABLE

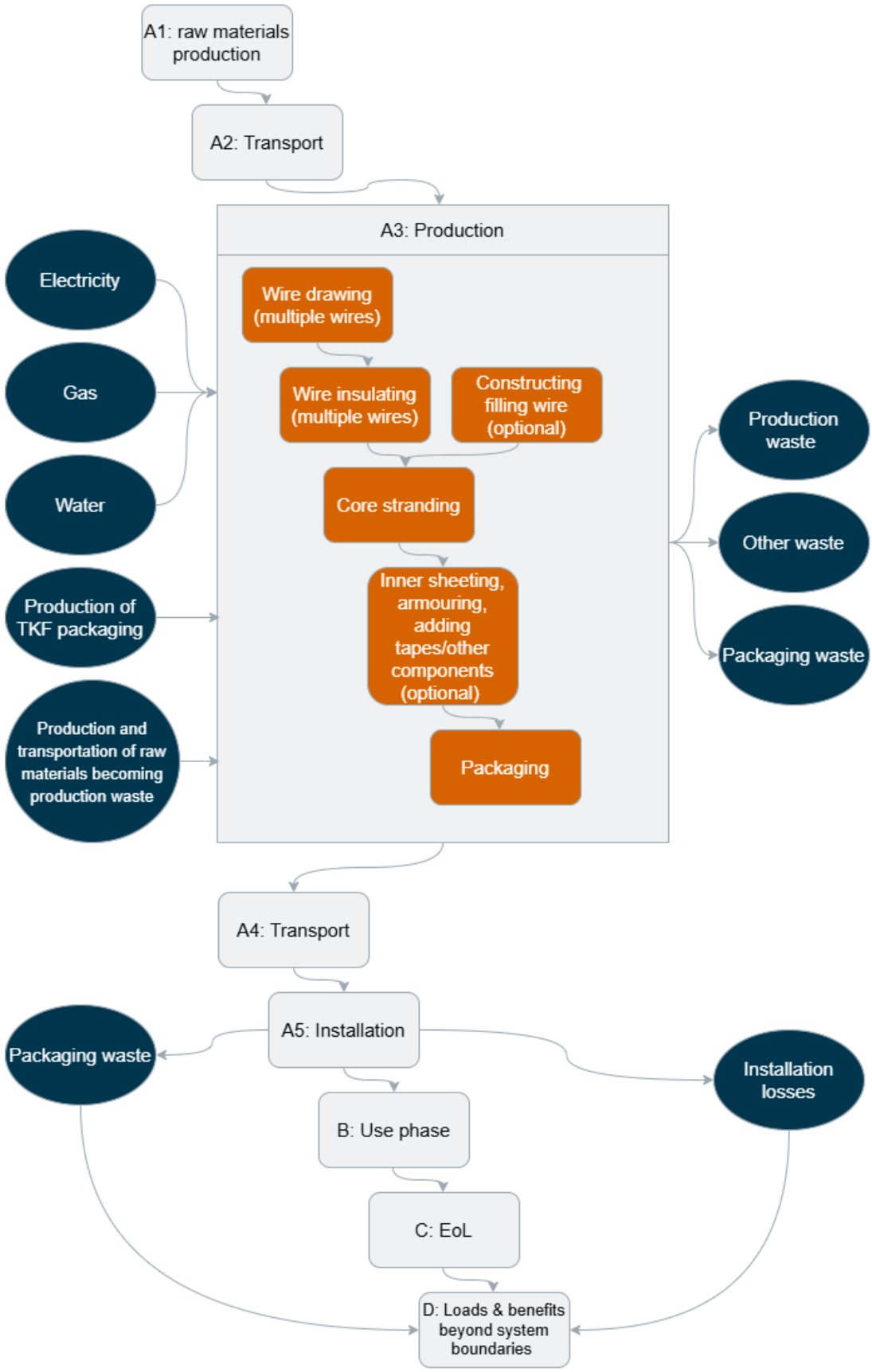


Figure 2: The flow diagram of the life cycle of a cable

Life Cycle Methodology

EPD TYPE & CUT-OFF CRITERIA

This EPD has been prepared for the YMvK Dca 0,6/1 kV 12 G 1,5 rm cable, manufactured and supplied by Twentsche Kabelfabriek B.V. The scope is a cradle-to-grave approach in accordance with EN 15804+A2 (option c in Figure 3). Cable manufacturing takes place at Spinnerstraat 15, 7481 KJ Haaksbergen, the Netherlands. The reference year for this assessment is 2024.

The product is primarily used in civil engineering and infrastructure applications within the Netherlands. For Module A4 (transport to site), the NMD method assumptions are applied, specifying a transport distance of 150 km to the installation location. Installation waste is assumed to be 3% in accordance with NMD method guidelines (Module A5). Modules B1–B5 and B7 exhibit no significant activities or emissions during the Reference Service Life (RSL) and are therefore declared with zero impacts; Module B6 (operational energy use) is likewise declared zero in line with NMD reports for cables, reflecting the absence of use-phase impacts over the RSL. End-of-life (EoL) scenarios are based on the NMD document “Bijlage: Forfaitaire waarden verwerkingsscenario’s einde leven” (Appendix: Standard values for end-of-life treatment scenarios); the corresponding scenarios are detailed in the following chapter.

	Construction works assessment information																
	Construction works life cycle information																Supplementary information beyond construction works life cycle
	A1-A3			A4-A5		B1-B7							C1-C4				D
	Product stage			Construction process stage		Use stage							End of life stage				Benefits and loads beyond the system boundary
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
	Raw material supply	Transport	Manufacturing	Transport	Construction-Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction demolition	Transport	Waste processing	Disposal	Reuse, recovery, recycling, potential
				scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario	scenario
Option a	Mandatory	Mandatory	Mandatory										Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Option b	Mandatory	Mandatory	Mandatory	Opt	Opt	Opt	Opt	Opt	Opt	Opt	Opt	Opt	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Option c	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory	Mandatory
Option d	Mandatory	Mandatory	Mandatory														
Option e	Mandatory	Mandatory	Mandatory	Opt	Opt												

Figure 3: Life cycle stages of EN 15804+A2

Results

INTRODUCTION

The results presented below cover all impact, resource use, and waste indicators specified by EN 15804+A2 and the NMD assessment method. The Environmental Cost Indicator (MKI) is reported for both NMD Set A1 and Set A2, together with the corresponding weighting factors (WF).

This EPD applies the latest NMD Assessment Method for Environmental Performance of Construction Works v2.0 (February 2025). Calculations for Set A1 are based on Ecoinvent v3.6, while Set A2 uses Ecoinvent v3.9.1. Characterisation follows the methods prescribed by the NMD: for Set A1, "Bepalingsmethode 'set 1', 'set 2' & param (NMD 3.4) for Ecoinvent 3.6"; for Set A2, "Bepalingsmethode 'set 2' & param, EF 3.1 (NMD 3.9), aligned with EN 15804+A2 (adapted) v1.00".

ENVIRONMENTAL IMPACT PER METER CABLE INDICATORS SET A1 & MKI RESULTS

Ecoinvent 3.6 set A1 Impact Indicator & unit		A1	A2	A3	A4	A5	B	C1	C2	C3	C4	D	**Total A1-A3**	Total excl D	Total incl D	MKI wf (€/unit)	MKI incl D
ADPE	kg Sb eq	1,8E-04	1,0E-06	6,9E-06	2,6E-07	5,9E-06	0,0E+00	0,0E+00	2,6E-07	3,1E-06	5,2E-09	-1,0E-04	**1,9E-04**	2,0E-04	1,0E-04	1,6E-01	< € 0,01
ADPF	kg Sb eq	8,6E-03	2,9E-04	1,8E-03	7,5E-05	3,5E-04	0,0E+00	0,0E+00	7,5E-05	4,9E-04	6,0E-06	-3,5E-03	**1,1E-02**	1,2E-02	8,2E-03	1,6E-01	< € 0,01
GWP	kg CO2 eq	8,6E-01	4,0E-02	2,1E-01	1,0E-02	1,2E-01	0,0E+00	0,0E+00	1,0E-02	6,8E-01	3,0E-03	-3,8E-01	**1,1E+00**	1,9E+00	1,5E+00	5,0E-02	€ 0,08
ODP	kg CFC-11 eq	1,6E-07	7,1E-09	1,8E-08	1,8E-09	6,4E-09	0,0E+00	0,0E+00	1,8E-09	1,7E-08	1,3E-10	-5,6E-08	**1,8E-07**	2,1E-07	1,6E-07	3,0E+01	< € 0,01
POCP	kg C2H4	1,1E-03	2,4E-05	1,8E-04	6,2E-06	4,2E-05	0,0E+00	0,0E+00	6,2E-06	4,0E-05	8,8E-07	-3,1E-04	**1,3E-03**	1,4E-03	1,1E-03	2,0E+00	< € 0,01
AP	kg SO2 eq	1,4E-02	1,8E-04	1,1E-03	4,5E-05	4,8E-04	0,0E+00	0,0E+00	4,5E-05	3,8E-04	3,4E-06	-4,4E-03	**1,5E-02**	1,6E-02	1,1E-02	4,0E+00	€ 0,05
EP	kg PO4--- eq	1,2E-03	3,4E-05	1,2E-04	8,8E-06	5,1E-05	0,0E+00	0,0E+00	8,8E-06	6,7E-05	1,1E-06	-1,7E-04	**1,4E-03**	1,5E-03	1,3E-03	9,0E+00	€ 0,01
HTTP	kg 1,4-DB eq	2,0E+00	1,7E-02	1,6E-01	4,3E-03	7,2E-02	0,0E+00	0,0E+00	4,3E-03	7,5E-02	4,0E-04	-6,9E-01	**2,2E+00**	2,4E+00	1,7E+00	9,0E-02	€ 0,15
FAETP	kg 1,4-DB eq	6,9E-02	4,9E-04	6,6E-03	1,3E-04	3,2E-03	0,0E+00	0,0E+00	1,3E-04	4,6E-03	1,5E-04	-2,0E-02	**7,7E-02**	8,5E-02	6,4E-02	3,0E-02	< € 0,01
MAETP	kg 1,4-DB eq	2,6E+02	1,8E+00	1,4E+01	4,5E-01	9,8E+00	0,0E+00	0,0E+00	4,5E-01	1,2E+01	1,4E-01	-9,3E+01	**2,8E+02**	3,0E+02	2,1E+02	1,0E-04	€ 0,02
TETP	kg 1,4-DB eq	5,7E-03	5,9E-05	7,7E-04	1,5E-05	2,4E-04	0,0E+00	0,0E+00	1,5E-05	3,5E-04	1,1E-06	-1,2E-03	**6,6E-03**	7,2E-03	6,0E-03	6,0E-02	< € 0,01

MKI Total	€ 0,32	<€0,01	€ 0,03	<€0,01	€ 0,02	€ 0,00	€ 0,00	<€0,01	€ 0,04	<€0,01	-€ 0,11	**€ 0,36**	€ 0,42	€ 0,31	-	€ 0,31

Abbreviations

ADPE	Abiotic Depletion Potential for non-fossil resources
ADPF	Abiotic Depletion Potential for fossil resources
GWP	Global Warming Potential
ODP	Depletion potential of the stratospheric ozone layer
POCP	Formation potential of tropospheric ozone photochemical oxidants
AP	Acidification Potential of land and water
EP	Eutrophication Potential
HTTP	Human Toxicity Potential
FAETP	Fresh water aquatic ecotoxicity potential
MAETP	Marine aquatic ecotoxicity potential
TETP	Terrestrial ecotoxicity potential

ENVIRONMENTAL IMPACT PER METER CABLE CORE AND ADDITIONAL INDICATORS SET A2 & MKI RESULTS

Ecoinvent 3.9.1 set A2 Impact Indicator & unit		A1	A2	A3	A4	A5	B	C1	C2	C3	C4	D	**Total A1-A3**	Total excl D	Total incl D	MKI wf (€/unit)	MKI incl D (€)
GWP-total	kg CO2 eq	1,7E+00	4,5E-02	8,3E-02	1,1E-02	2,8E-01	0,0E+00	0,0E+00	1,1E-02	6,8E-01	3,0E-03	-1,0E+00	**1,8E+00**	2,8E+00	1,8E+00	1,2E-01	€ 0,21
GWP-fossil	*kg CO2 eq*	*1,7E+00*	*4,4E-02*	*2,1E-01*	*1,1E-02*	*1,4E-01*	*0,0E+00*	*0,0E+00*	*1,1E-02*	*6,8E-01*	*3,0E-03*	*-1,0E+00*	***1,9E+00***	*2,8E+00*	*1,8E+00*	*1,2E-01*	*€ 0,20*
GWP-biogenic	*kg CO2 eq*	*3,0E-04*	*6,9E-05*	*-1,3E-01*	*1,8E-05*	*1,4E-01*	*0,0E+00*	*0,0E+00*	*1,8E-05*	*1,2E-03*	*1,0E-05*	*9,3E-04*	***-1,3E-01***	*1,4E-02*	*1,5E-02*	*1,2E-01*	*< € 0,01*
GWP-luluc	*kg CO2 eq*	*3,4E-03*	*1,6E-04*	*7,3E-04*	*4,0E-05*	*1,4E-04*	*0,0E+00*	*0,0E+00*	*4,1E-05*	*7,7E-05*	*3,5E-07*	*-1,4E-03*	***4,3E-03***	*4,6E-03*	*3,3E-03*	*1,2E-01*	*< € 0,01*
ODP	kg CFC11 eq	1,2E-07	7,9E-10	9,9E-09	2,0E-10	4,2E-09	0,0E+00	0,0E+00	2,0E-10	1,1E-08	1,5E-11	-3,8E-08	**1,3E-07**	1,4E-07	1,1E-07	3,2E+01	< € 0,01
AP	mol H+ eq	1,0E-01	2,1E-04	2,6E-03	5,4E-05	3,2E-03	0,0E+00	0,0E+00	5,4E-05	4,7E-04	4,1E-06	-5,8E-02	**1,1E-01**	1,1E-01	5,1E-02	3,9E-01	€ 0,02
EP-freshwater	kg P eq	3,1E-04	4,4E-07	-7,9E-07	1,1E-07	9,4E-06	0,0E+00	0,0E+00	1,1E-07	2,2E-06	7,6E-09	-2,7E-04	**3,1E-04**	3,2E-04	5,2E-05	2,0E+00	< € 0,01
EP-marine	kg N eq	4,0E-03	8,1E-05	1,2E-04	2,1E-05	1,5E-04	0,0E+00	0,0E+00	2,1E-05	1,2E-04	2,3E-06	-2,9E-03	**4,3E-03**	4,6E-03	1,7E-03	3,3E+00	< € 0,01
EP-terrestrial	mol N eq	5,8E-02	8,6E-04	1,2E-03	2,2E-04	2,0E-03	0,0E+00	0,0E+00	2,2E-04	1,3E-03	1,7E-05	-4,2E-02	**6,0E-02**	6,3E-02	2,1E-02	3,6E-01	< € 0,01
POCP	kg NMVOC	1,8E-02	2,9E-04	7,2E-04	7,5E-05	6,4E-04	0,0E+00	0,0E+00	7,5E-05	4,2E-04	6,5E-06	-1,2E-02	**1,9E-02**	2,1E-02	8,7E-03	1,2E+00	€ 0,01
ADP-minerals&metals	kg Sb eq	1,4E-03	1,4E-07	3,7E-05	3,6E-08	4,3E-05	0,0E+00	0,0E+00	3,6E-08	6,2E-07	1,3E-09	-7,5E-04	**1,4E-03**	1,5E-03	7,3E-04	3,0E-01	< € 0,01
ADP-fossil	MJ	2,8E+01	6,3E-01	3,8E+00	1,6E-01	1,0E+00	0,0E+00	0,0E+00	1,6E-01	9,6E-01	1,3E-02	-1,4E+01	**3,3E+01**	3,5E+01	2,1E+01	3,3E-04	< € 0,01
WDP	m3 depriv.	2,3E+00	3,5E-03	2,1E-01	8,9E-04	9,6E-02	0,0E+00	0,0E+00	8,9E-04	7,5E-01	4,0E-04	-8,6E-01	**2,5E+00**	3,3E+00	2,5E+00	5,1E-03	€ 0,01
PM	disease inc.	2,2E-07	4,4E-09	9,3E-09	1,1E-09	7,3E-09	0,0E+00	0,0E+00	1,1E-09	4,2E-09	9,0E-11	-1,3E-07	**2,3E-07**	2,4E-07	1,1E-07	5,5E+05	€ 0,06
IRP	kBq U-235 eq	8,8E-02	2,5E-04	6,9E-03	6,3E-05	2,9E-03	0,0E+00	0,0E+00	6,3E-05	1,6E-03	1,0E-05	-2,6E-02	**9,5E-02**	1,0E-01	7,3E-02	4,9E-02	< € 0,01
ETP-fw	CTUe	8,3E+01	4,7E-01	1,7E+00	1,2E-01	3,5E+00	0,0E+00	0,0E+00	1,2E-01	2,8E+01	2,5E-01	-7,1E+01	**8,6E+01**	1,2E+02	4,7E+01	1,3E-04	< € 0,01
HTP-c	CTUh	1,7E-08	2,3E-11	7,8E-10	6,0E-12	5,5E-10	0,0E+00	0,0E+00	6,0E-12	1,2E-10	4,4E-13	-8,4E-09	**1,8E-08**	1,9E-08	1,0E-08	1,1E+06	€ 0,01
HTP-nc	CTUh	1,5E-06	5,1E-10	4,7E-08	1,3E-10	4,7E-08	0,0E+00	0,0E+00	1,3E-10	3,9E-09	2,1E-11	-7,4E-07	**1,6E-06**	1,6E-06	8,8E-07	1,5E+05	€ 0,13
SQP	Pt	3,4E+01	5,0E-01	1,3E+01	1,3E-01	1,5E+00	0,0E+00	0,0E+00	1,3E-01	5,6E-01	3,0E-02	-2,2E+01	**4,8E+01**	5,0E+01	2,8E+01	8,7E-05	< € 0,01

MKI Total	€	€ 0,69	<0,01	€ 0,03	<0,01	€ 0,05	€ 0,00	€ 0,00	<0,01	€ 0,09	<0,01	-€ 0,39	**€ 0,73**	€ 0,88	€ 0,47	-	€ 0,48

Abbreviations

GWP-total	Global Warming Potential total
GWP-fossil	Global Warming Potential fossil fuels
GWP-biogenic	Global Warming Potential biogenic
GWP-luluc	Global Warming Potential land use and land use change
ODP	Depletion potential of the stratospheric ozone layer
AP	Acidification Potential, Accumulated Exceedence
EP-freshwater	Eutrophication Potential, fraction of nutrients reaching freshwater end compartment
EP-marine	Eutrophication Potential, fraction of nutrients reaching marine end compartment
EP terrestrial	Eutrophication Potential, Accumulated Exceedence
POCP	Formation potential of tropospheric ozone photochemical oxidants
ADP-minerals&metals	Abiotic Depletion Potential for non-fossil resources [1]
ADP-fossil	Abiotic Depletion for fossil resources potential [1]
WDP	Water (user) deprivation potential, deprivation-weighted water consumption [1]
PM	Potential incidence of disease due to PM emissions
IRP	Potential Human exposure efficiency relative to U235 [2]
ETP-fw	Potential Comparative Toxic Unit for ecosystems [1]

List continues on next page

HTP-c	Potential Comparative Toxic Unit for humans [1]
HTP-nc	Potential Comparative Toxic Unit for humans, non-cancer [1]
SQP	Potential soil quality index [1]

Disclaimers

[1] The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

[2] This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste.

RESOURCE USE PER METER CABLE (ECOINVENT 3.9.1)

Indicator		Unit	A1	A2	A3	A4	A5	B	C1	C2	C3	C4	D	**Total A1-A3**	Total excl D	Total incl D
Use of renewable energy excluding renewable primary energy resources	PERE	MJ	4,7E+00	9,0E-03	2,0E+00	2,3E-03	2,5E-01	n/a or 0	0,0E+00	2,3E-03	9,0E-02	4,2E-04	-3,3E+00	**6,7E+00**	7,0E+00	3,8E+00
Use of renewable energy resources used as raw materials	PERM	MJ	0,0E+00	0,0E+00	1,5E+00	n/a	n/a	n/a or 0	n/a	n/a	n/a	n/a	0,0E+00	**1,5E+00**	1,5E+00	1,5E+00
Total use of renewable primary energy resources	PERT	MJ	4,7E+00	9,0E-03	3,6E+00	2,3E-03	2,5E-01	n/a or 0	0,0E+00	2,3E-03	9,0E-02	4,2E-04	-3,3E+00	**8,2E+00**	8,6E+00	5,3E+00
Use of non-renewable primary energy resources excluding non-renewable	PENRE	MJ	2,0E+01	6,4E-01	2,2E+00	1,6E-01	1,0E+00	n/a or 0	0,0E+00	1,6E-01	9,6E-01	1,3E-02	-1,4E+01	**2,2E+01**	2,5E+01	1,1E+01
Use of non-renewable primary energy resources used as raw materials	PENRM	MJ	8,7E+00	0,0E+00	1,6E+00	n/a	n/a	n/a or 0	n/a	n/a	n/a	n/a	0,0E+00	**1,0E+01**	1,0E+01	1,0E+01
Total use of non-renewable primary energy resources	PENRT	MJ	2,8E+01	6,4E-01	3,8E+00	1,6E-01	1,0E+00	n/a or 0	0,0E+00	1,6E-01	9,6E-01	1,3E-02	-1,4E+01	**3,3E+01**	3,5E+01	2,1E+01
Use of secondary materials	SM	kg	3,8E-02	0,0E+00	4,0E-03	n/a	n/a	n/a or 0	n/a	n/a	n/a	n/a	0,0E+00	**4,2E-02**	4,2E-02	4,2E-02
Use of renewable secondary fuels	RSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	n/a or 0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	**0,0E+00**	0,0E+00	0,0E+00
Use of non-renewable secondary fuels	NRSF	MJ	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	n/a or 0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	**0,0E+00**	0,0E+00	0,0E+00
Use of net fresh water	FW	m3	4,8E-02	1,5E-04	4,9E-03	3,9E-05	2,3E-03	n/a or 0	0,0E+00	3,9E-05	2,3E-02	1,4E-05	-2,0E-02	**5,3E-02**	7,8E-02	5,8E-02

OUTPUT FLOWS AND WASTE CATEGORIES PER METER CABLE (ECOINVENT 3.9.1)

Indicator		Unit	A1	A2	A3	A4	A5	B	C1	C2	C3	C4	D	**Total A1-A3**	Total excl D	Total incl D
Hazardous Waste Disposed	HWD	kg	2,5E-03	4,0E-06	2,6E-04	1,0E-06	8,4E-05	n/a or 0	0,0E+00	1,0E-06	4,5E-06	6,2E-08	-5,0E-05	**2,8E-03**	2,9E-03	2,8E-03
Non Hazardous Waste Disposed	NHWD	kg	5,5E-01	4,2E-02	5,5E-02	1,1E-02	3,6E-02	n/a or 0	0,0E+00	1,1E-02	1,5E-01	5,1E-02	-3,1E-01	**6,5E-01**	9,1E-01	6,0E-01
Radioactive Waste Disposed	RWD	kg	6,0E-05	1,5E-07	5,3E-06	3,7E-08	2,0E-06	n/a or 0	0,0E+00	3,7E-08	1,1E-06	6,0E-09	-1,5E-05	**6,5E-05**	6,9E-05	5,4E-05
Components for reuse	CRU	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	n/a or 0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	n/a	**0,0E+00**	0,0E+00	0,0E+00
Materials for recycling	MFR	kg	0,0E+00	0,0E+00	2,2E-02	0,0E+00	6,6E-03	n/a or 0	0,0E+00	0,0E+00	1,5E-01	0,0E+00	n/a	**2,2E-02**	1,8E-01	1,8E-01
Materials for energy recovery	MER	kg	0,0E+00	0,0E+00	0,0E+00	0,0E+00	0,0E+00	n/a or 0	0,0E+00	0,0E+00	0,0E+00	0,0E+00	n/a	**0,0E+00**	0,0E+00	0,0E+00
Exported Electrical Energy	EEE	MJ	0,0E+00	0,0E+00	1,5E-01	0,0E+00	4,5E-01	n/a or 0	0,0E+00	0,0E+00	1,3E+00	0,0E+00	n/a	**1,5E-01**	1,9E+00	1,9E+00
Exported Thermal Energy	EET	MJ	0,0E+00	0,0E+00	2,6E-01	0,0E+00	7,7E-01	n/a or 0	0,0E+00	0,0E+00	2,3E+00	0,0E+00	n/a	**2,6E-01**	3,3E+00	3,3E+00

BIOGENIC CARBON CONTENT PER METER CABLE (ECOINVENT 3.9.1)

The following Information describes the biogenic carbon content in (the main parts of) the product at the factory gate per meter:

Biogenic carbon content		Unit	Amount
Biogenic carbon content in product	BCCpr	kg C	0,0E+00
Biogenic carbon content in packaging	BCCpa	kg C	5,5E-02

Scenarios and Additional Technical Information

SCENARIOS

A1 – Raw material supply

This module encompasses the extraction and processing of raw materials used in cable manufacturing. Both primary and secondary material supply routes are considered, utilizing average European and global datasets sourced from Ecoinvent 3.9.1.

A2 – Transport

Transportation of raw materials to the manufacturing site is conducted primarily by truck. Transportation distances are based on realistic European supply routes. When multiple suppliers provide the same raw material, the weighted average transportation distance is calculated.

A3 – Manufacturing

This module includes electricity, gas, and water consumption during manufacturing. Production waste treatment and waste treatment of supplier packaging are included, along with the production of packaging provided by TKF.

Description of scenarios for modules beyond A1–A3:

A4 – Transport to construction site

A fixed transportation distance of 150 km is assumed per NMD assessment methods. For consistency, NMD-prescribed processes are applied, despite TKF's actual use of HVO diesel and electric vehicles.

A5 - Construction/Installation process

Installation losses are set at 3%, aligned with the prefabricated product category for cables. Consequently, 3% of the environmental impact from modules A1-A4 and C1-C4 is allocated as waste. This module also includes TKF packaging waste treatment. Benefits are allocated to Module D.

Installation methods vary significantly. Therefore, manual installation is assumed or impacts are to be determined by the executing party with no additional environmental impacts attributed here.

C1 – Deconstruction

Deconstruction methods vary significantly. Therefore, manual removal is assumed or impacts are to be determined by the executing party, with no additional environmental impacts attributed to this module.

C2 – Transport to EoL processing

The distances are modeled with truck transport. 30% of the product is transported for recycling over a distance of 50 km. 10% of the product is transported for landfill over a distance of 150 km. 60% of the product is transported for incineration over a distance of 200 km. The distances for recycling and landfill include the 50 km distance for sorting and decommissioning of the cable corresponding to the recycling distance.

C3 – Waste processing

Waste processing calculations are based on Ecoinvent data and utilize the scenarios specified by the NMD.

C4 – Disposal

Waste disposal calculations are based on Ecoinvent data and utilize the scenarios specified by the NMD.

D – Module D (recovery)

Environmental benefits from recycled materials are calculated based on the net quantity of primary material inputs. Energy recovery is considered for applicable materials.

References & Notes

REFERENCES

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.
NEN EN 15804+A2:2019: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products
Stichting Nationale Milieudatabase, 2025, Bepalingsmethode Milieuprestatie Bouwwerken, version 2.0
PRé Sustainability, 2024, SimaPro 10.3.0.1 [Computer Software]. Amersfoort, The Netherlands

REMARKS

Set 1 indicators have been calculated using Ecoinvent v3.6 Cut-off by classification database, while set 2 indicators have been calculated using Ecoinvent v3.9.1 Cut-off by classification database.

DECLARATION OF SVHC

The product does not contain materials listed in the “Candidate list of Substances of Very High Concern for authorisation".

Statement on Tool and Data Verification for TKF's Self-Declared EPDs

PURPOSE

TKF issues product-specific Self-Declared Environmental Product Declarations (SD-EPDs) for TKF cables to provide transparent and robust life-cycle information.

DECLARED SCOPE

• These SD-EPDs declare life-cycle results for modules A1–A3, A4–A5, B, C1–C4 and D (A1–D).

METHODOLOGICAL BASIS

• All results are calculated in accordance with EN 15804:2012+A2:2019 and the NMD Assessment Method for Environmental Performance of Construction Works v2.0 (February 2025).
• LCA modelling is performed in accordance with NEN-EN-ISO 14040:2006 and NEN-EN-ISO 14044:2006.

VERIFICATION (TOOL AND INPUT DATA)

• TKF ALCAS (Automatic LCA Software) v1 was peer reviewed by ir. Harry van Ewijk (PRé Sustainability).
• TKF ALCAS (Automatic LCA Software) v2 and the selection/use of the input datasets were independently verified by ir. Mantijn van Leeuwen (NIBE) for conformity with EN 15804:2012+A2:2019 and the NMD Assessment Method v2.0 (February 2025).

• Verification covered:
 - correct implementation of the modular structure and calculations for A1–A3, A4–A5, B, C1–C4 and D;
 - correct calculation of indicator and resource parameters;
 - correct implementation of scenario logic for transport, installation waste, use stage and end-of-life, in line with EN 15804+A2 and the NMD Assessment Method v2.0;
 - dataset selection and application in SimaPro, using NMD-prescribed LCI databases (Ecoinvent v3.9.1 and v3.6), including suitability, source and version control, module mapping, allocation/cut-off rules, and application of the EN 15804+A2 / NMD v2.0 indicator set and characterization factors.

STATUS, AUTOMATION NOTICE, AND RESPONSIBILITIES

• These EPDs are self-declared (SD-EPDs).
• SD-EPDs are generated automatically using TKF ALCAS based on validated calculation rules, verified datasets, and product-specific inputs.
• Although TKF applies robust quality assurance measures, residual risk of unintended errors or omissions cannot be fully excluded.
• TKF is responsible for the product-specific inputs and assumptions used to generate each SD-EPD.

CONTENT (FORMAT AND DISCLOSURES)

• Each SD-EPD reports the EN 15804+A2 indicators, declared modules (A1–D) and methodological disclosures in an EPD-style reporting format, including the MKI (Milieukostenindicator) where applicable.

SIGN-OFF (INDEPENDENT VERIFICATION)

• I, the undersigned (ir. Mantijn van Leeuwen, NIBE), confirm that I independently verified TKF ALCAS (Automatic LCA Software) v2 and the selection/use of the input datasets as described above, for conformity with EN 15804:2012+A2:2019 and the NMD Assessment Method v2.0 (February 2025).
• This confirmation applies to tool verification and input dataset verification as described above and does not constitute third-party verification of individual SD-EPDs.

Name	dr. ir. Mantijn van Leeuwen
Organisation	NIBE
Date 6 August 2026	**Signature**

