

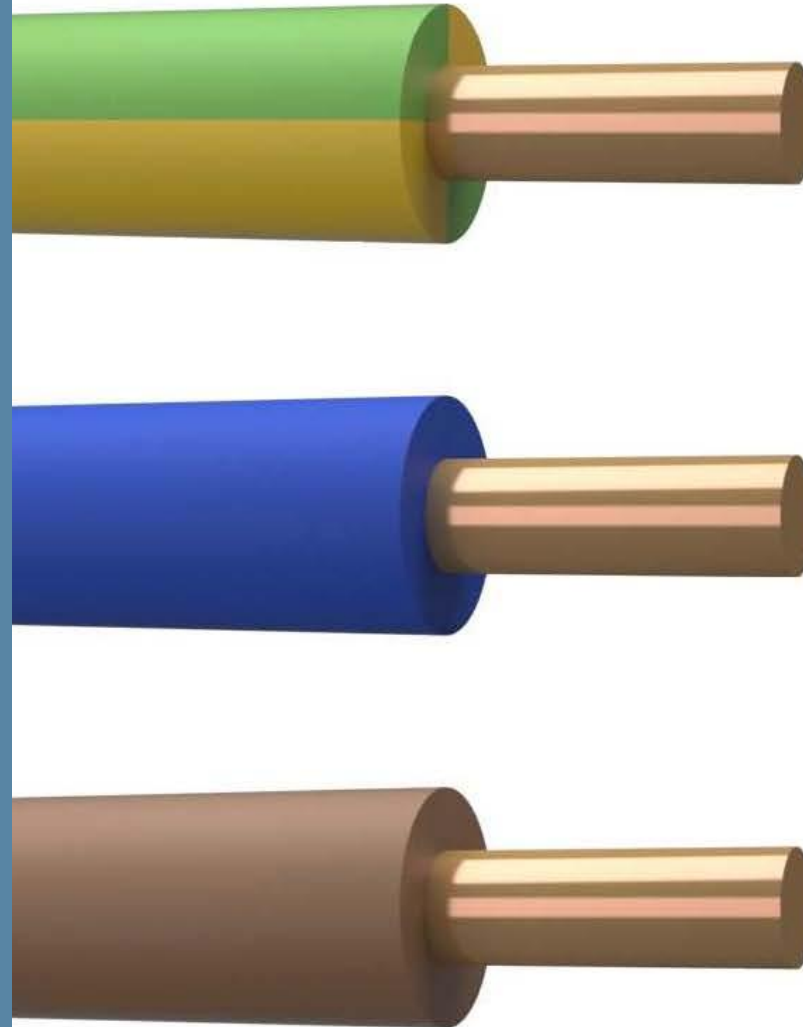
Environmental Product Declaration

Draka VD Eca 2,5 mm² (H07V-U)

Prysmian Netherlands B.V.

Publisher:	Prysmian Netherlands B.V.
Program operator:	Prysmian Netherlands B.V.
Calculation number:	ReTHiNK-57268
Generation on:	08-12-2023
Issue date:	08-12-2023
Valid until:	08-12-2028
Status:	verified

R<THiNK



1 General information

1.1 PRODUCT

Draka VD Eca 2,5 mm2 (H07V-U)

1.2 VALIDITY

Issue date: 08-12-2023

Valid until: 08-12-2028

1.3 OWNER OF THE DECLARATION

**Prysmian
Group**

Manufacturer: Prysmian Netherlands B.V.

Address: Schieweg 9, 2627 AN Delft

E-mail: info.nl@prysmiangroup.com

Website: <https://nl.prysmiangroup.com/>

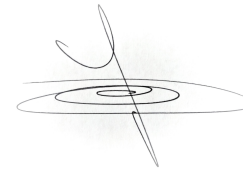
Production location: Prysmian Emmen

Address production location: Abel Tasmanstraat 1, 7821 AN Emmen

1.4 VERIFICATION OF THE DECLARATION

The independent verification is in accordance with the ISO 14025:2011. The LCA is in compliance with ISO 14040:2006 and ISO 14044:2006. The EN 15804:2012+A2:2019 serves as the core PCR.

☐ Internal ☒ External



Anne Kees Jeeninga, Advieslab

1.5 PRODUCT CATEGORY RULES

NMD Determination method Environmental performance Construction works v1.1 March 2022

1.6 COMPARABILITY

In principle, a comparison or assessment of the environmental impacts of different products is only possible if they have been prepared in accordance with EN 15804. For the evaluation of the comparability, the following aspects have to be considered in particular: PCR used, functional or declared unit, geographical reference, the definition of the system boundary, declared modules, data selection (primary or secondary data, background database, data quality), scenarios used for use and disposal phases, and the life cycle inventory (data collection, calculation methods, allocations, validity period). PCRs and general program instructions of different EPDs programs may differ. Comparability needs to be evaluated. For further guidance, see EN 15804+A2 (5.3 Comparability of EPD for construction products) and ISO 14025 (6.7.2 Requirements for comparability).

1.7 CALCULATION BASIS

LCA method R<THiNK: NMD Determination method v 1.1 | set1+2

LCA software*: Simapro 9.1.1

Characterization method: Bepalingsmethode 'set 1', 'set2' & param (NMD 3.4) v1.00

LCA database profiles: EcolInvent version 3.6

Version database: v3.15 (2023-07-12)

** Used for calculating the characterized results of the Environmental profiles within R<THiNK.*

1 General information

1.8 LCA BACKGROUND REPORT

This EPD is generated on the basis of the LCA background report 'Draka VD Eca 2,5 mm2 (H07V-U)' with the calculation identifier ReTHiNK-57268.

2 Product

2.1 PRODUCT DESCRIPTION

Draka VD is low voltage vinyl installation wire (220 V) with copper core (H07V-U). These wires are used for low voltage installation in buildings in tubes.

The product consist of a solid copper conductor of specified size with an insulating layer of PVC.

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

low power electricity distribution in buildings.

2.3 REFERENCE SERVICE LIFE

RSL PRODUCT

The RSL of 30 years is provided in the Europe Cable report in Annex 2. The tabel with default product RSL's is included in the project dossier.

USED RSL (YR) IN THIS LCA CALCULATION:

30

RSL PARTS

Equal to product.

2.4 DESCRIPTION PRODUCTION PROCESS

The VD installation wires are produced in two steps. First the copper conductor is drawn to the right dimension in a copper drawing step. Subsequently an insulating vinyl layer in different colours is applied in an extrusion step using a PVC compound produced in-house in Emmen.

2.5 CONSTRUCTION DESCRIPTION

The low voltage installation wires are installed manually in cover tubes during construction.

3 Calculation rules

3.1 FUNCTIONAL UNIT

1.000 m low voltage installation wire with 2,5 mm2 core

1.000 m low voltage installation wire with 2,5 mm2 core

reference_unit: kilometer (km)

3.2 CONVERSION FACTORS

Description	Value	Unit
reference_unit	1	km
weight_per_reference_unit	30.273	kg
Conversion factor to 1 kg	0.033033	km

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options, modules C1-C4 and module D LCA. The life cycle stages included are as shown below:

(X = module included, ND = module not declared)

A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	X	X	X	ND	ND	ND	ND	X	X	X	X	X

The modules of the EN15804 contain the following:

Module A1 = Raw material supply	Module B5 = Refurbishment
Module A2 = Transport	Module B6 = Operational energy use
Module A3 = Manufacturing	Module B7 = Operational water use
Module A4 = Transport	Module C1 = De-construction / Demolition
Module A5 = Construction - Installation process	Module C2 = Transport
Module B1 = Use	Module C3 = Waste Processing
Module B2 = Maintenance	Module C4 = Disposal

Module B3 = Repair	Module D = Benefits and loads beyond the product system boundaries
Module B4 = Replacement	

3.4 REPRESENTATIVENESS

This EPD is representative for Draka VD Eca 2,5 mm2 (H07V-U), a product of Prysmian Netherlands B.V.. The results of this EPD are representative for Netherlands.

3.5 CUT-OFF CRITERIA

In the Life cycle assessment the following cut-off criteria are applied:

PRODUCT STAGE (A1-A3)

All input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. production waste) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass or 5% on impact per environmental effect.

CONSTRUCTION PROCESS STAGE (A4-A5)

All input flows (e.g. transportation to the construction site, additional raw material use for construction, installation energy (use) of energy use for assembly, etc.) and output flows (e.g. construction waste, packaging waste, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass or 5% on impact per environmental effect.

USE STAGE (B1-B3)

All (known) input flows (e.g. raw materials, transportation, energy use, packaging, etc.) and output flows (e.g. emissions to soil, air and water, construction waste, packaging waste, end-of-life waste, etc.) related to the building fabric are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass or 5% on impact per environmental effect.

END OF LIFE STAGE (C1-C4)

All input flows (e.g. energy use for demolition or disassembly, transport to waste processing, etc.) and output flows (e.g. end-of-life waste processing of the product, etc.) are considered in this LCA. The total neglected input flows do therefore not exceed the limit of 5% of energy use and mass or 5% on impact per environmental effect.

3 Calculation rules

BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

All benefits and loads beyond the system boundary resulting from reusable products, recyclable materials and/or useful energy carriers leaving the product system are considered in this LCA.

3.6 ALLOCATION

Allocation has not been applied in this LCA.

3.7 DATA COLLECTION & REFERENCE TIME PERIOD

All data are collected in 2023 and represents year 2022. The Energie analysis report for the location Emmen dates from 2020 and uses data representing 2019, this report is used for allocation of energy over unit processes in combination with energy use data from 2022.

3.8 GUARANTEES OF ORIGIN

All electricity is purchased with GoO for renewable energy production. GoO are included in the project file.

4 Scenarios and additional technical information

4.1 TRANSPORT TO CONSTRUCTION SITE (A4)

For the transport from production place to assembly/user, the following scenario is assumed for module A4 of this EPD.

	Value and unit
Vehicle type used for transport	Lorry (Truck), unspecified (default) market group for (GLO)
Fuel type and consumption of vehicle	not available
Distance	150 km
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4.2 ASSEMBLY (A5)

The following information describes the scenarios for flows entering the system and flows leaving the system at module A5.

FLOWS ENTERING THE SYSTEM

There are no significant environment impacts as a result of materials or energy used in the construction stage (A5).

FLOWS LEAVING THE SYSTEM

The following output flows leaving the system at module A5 are assumed.

Description	Value	Unit
Output materials as result of loss during construction	3	%
Output materials as result of waste processing of materials used for installation/assembly at the building site	0.000	kg
Output materials as result of waste processing of used packaging	4.000	kg

4.3 USE STAGE (B1)

No significant environment impact in the use stage modules, because there is no (significant) emission to air, soil or water.

4.4 MAINTENANCE (B2)

For maintenance no input or output flows are modeled.

4 Scenarios and additional technical information

4.5 REPAIR (B3)

Repairs are not applicable within the functional unit and to achieve the reference service life.

4.6 DE-CONSTRUCTION, DEMOLITION (C1)

No inputs are needed for the product at the de-construction / demolition phase

4.7 TRANSPORT END-OF-LIFE (C2)

The following distances and transport conveyance are assumed for transportation during end of life for the different types of waste processing.

Waste Scenario	Transport conveyance	Not removed (stays in work) [km]	Landfill [km]	Incineration [km]	Recycling [km]	Re-use [km]
PVC, foils (i.a. coverings, films) (NMD ID 62)	Lorry (Truck), unspecified (default) market group for (GLO)	0	100	150	50	0
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	Lorry (Truck), unspecified (default) market group for (GLO)	0	100	150	50	0
finishes (adhered to wood, plastic, metal) (NMD ID 2)	Lorry (Truck), unspecified (default) market group for (GLO)	0	100	150	50	0

The transport conveyance(s) used in the scenario(s) for transport during end of life has the following characteristics.

	Value and unit
Vehicle type used for transport	Lorry (Truck), unspecified (default) market group for (GLO)
Fuel type and consumption of vehicle	not available
Capacity utilisation (including empty returns)	50 % (loaded up and return empty)
Bulk density of transported products	inapplicable
Volume capacity utilisation factor	1

4 Scenarios and additional technical information

4.8 END OF LIFE (C3, C4)

The scenario(s) assumed for end of life of the product are given in the following tables. First the assumed percentages per type of waste processing are displayed, followed by the assumed amounts.

Waste Scenario	Region	Not removed (stays in work) [%]	Landfill [%]	Incineration [%]	Recycling [%]	Re-use [%]
PVC, foils (i.a. coverings, films) (NMD ID 62)	NL	0	10	85	5	0
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	NL	0	10	5	85	0
finishes (adhered to wood, plastic, metal) (NMD ID 2)	NL	0	0	100	0	0

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
PVC, foils (i.a. coverings, films) (NMD ID 62)	0.000	0.964	8.196	0.482	0.000
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	0.000	2.063	1.032	17.536	0.000
Total	0.000	3.027	9.227	18.018	0.000

4.9 BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARY (D)

The presented Benefits and loads beyond the system boundary in this EPD are based on the following calculated Net output flows in kilograms and Energy recovery displayed in MJ Lower Heating Value.

Waste Scenario	Net output flow [kg]	Energy recovery [MJ]
PVC, foils (i.a. coverings, films) (NMD ID 62)	0.482	176.290
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	10.109	0.000
finishes (adhered to wood, plastic, metal) (NMD ID 2)	0.000	0.000
Total	10.591	176.290

5 Results

For the impact assessment, the characterization factors of the LCIA method Bepalingsmethode 'set 1', 'set2' & param (NMD 3.4) v1.00 are used. Long-term emissions (>100 years) are not considered in the impact assessment. The results of the impact assessment are only relative statements that do not make any statements about end-points of the impact categories, exceedance of threshold values, safety margins or risks. The following tables show the results of the indicators of the impact assessment, of the use of resources as well as of waste and other output flows.

5.1 ENVIRONMENTAL IMPACT INDICATORS PER KILOMETER

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
AP	mol H+ eqv.	1.23E+0	4.53E-3	2.44E-2	4.02E-3	4.07E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.03E-3	3.36E-2	2.51E-4	-3.14E-1
GWP-total	kg CO2 eqv.	5.85E+1	7.82E-1	-6.30E-1	6.94E-1	9.36E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.50E-1	1.93E+1	1.01E-1	3.50E+0
GWP-b	kg CO2 eqv.	1.46E-1	3.61E-4	-6.66E+0	3.20E-4	6.54E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.61E-4	1.48E-2	9.65E-4	8.48E-2
GWP-f	kg CO2 eqv.	5.84E+1	7.81E-1	5.99E+0	6.94E-1	2.83E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.49E-1	1.92E+1	9.97E-2	3.41E+0
GWP-luluc	kg CO2 eqv.	3.58E-2	2.86E-4	3.73E-2	2.54E-4	2.54E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.28E-4	7.96E-3	1.01E-5	9.56E-3
EP-m	kg N eqv.	1.27E-1	1.60E-3	7.41E-3	1.42E-3	4.97E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.14E-4	6.94E-3	1.09E-4	-1.06E-2
EP-fw	kg P eqv.	1.41E-2	7.88E-6	2.98E-4	7.00E-6	4.48E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.52E-6	2.96E-4	4.17E-7	9.50E-3
EP-T	mol N eqv.	1.87E+0	1.76E-2	6.16E-2	1.56E-2	6.84E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.87E-3	7.72E-2	9.87E-4	-2.81E-1
ODP	kg CFC 11 eqv.	2.99E-6	1.72E-7	5.97E-7	1.53E-7	2.57E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.71E-8	3.11E-6	9.82E-9	-8.42E-7
POCP		4.45E-1	5.03E-3	1.58E-2	4.46E-3	1.69E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.25E-3	2.08E-2	2.99E-4	-5.51E-2

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

5 Results

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
	kg NMVOC eqv.													
ADP-f	MJ	7.55E+2	1.18E+1	7.96E+1	1.05E+1	3.09E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.27E+0	7.00E+1	7.37E-1	2.16E+1
ADP-mm	kg Sb- eqv.	1.82E-2	1.98E-5	6.07E-5	1.76E-5	5.61E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.85E-6	1.22E-4	2.72E-7	-9.38E-3
WDP	m3 world eqv.	1.03E+2	4.22E-2	1.34E+0	3.74E-2	3.30E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.88E-2	5.06E+0	1.27E-2	-5.13E+0

AP=Acidification (AP) | **GWP-total**=Global warming potential (GWP-total) | **GWP-b**=Global warming potential - Biogenic (GWP-b) | **GWP-f**=Global warming potential - Fossil (GWP-f) | **GWP-luluc**=Global warming potential - Land use and land use change (GWP-luluc) | **EP-m**=Eutrophication marine (EP-m) | **EP-fw**=Eutrophication, freshwater (EP-fw) | **EP-T**=Eutrophication, terrestrial (EP-T) | **ODP**=Ozone depletion (ODP) | **POCP**=Photochemical ozone formation - human health (POCP) | **ADP-f**=Resource use, fossils (ADP-f) | **ADP-mm**=Resource use, minerals and metals (ADP-mm) | **WDP**=Water use (WDP)

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15084+A2

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
ETP-fw	CTUe	2.19E+4	1.05E+1	3.09E+2	9.33E+0	7.16E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.70E+0	1.29E+3	6.12E+0	-3.81E+3
PM	disease incidence	4.86E-6	7.03E-8	2.23E-7	6.24E-8	1.91E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.14E-8	2.60E-7	5.00E-9	-4.91E-7
HTP-c	CTUh	4.47E-7	3.41E-10	3.91E-9	3.03E-10	1.43E-8	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.52E-10	6.82E-9	3.01E-11	-1.87E-7
HTP-nc	CTUh	3.20E-5	1.15E-8	1.34E-7	1.02E-8	9.83E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.14E-9	3.17E-7	2.61E-9	-1.33E-5
IR	kBq U235 eqv.	2.26E+0	4.94E-2	1.40E-1	4.38E-2	9.74E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.21E-2	3.01E-1	3.42E-3	8.14E-1
SQP	Pt	4.60E+2	1.02E+1	1.70E+2	9.07E+0	2.17E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.57E+0	2.23E+1	1.79E+0	-1.78E+2

ETP-fw=Ecotoxicity, freshwater (ETP-fw) | **PM**=Particulate Matter (PM) | **HTP-c**=Human toxicity, cancer (HTP-c) | **HTP-nc**=Human toxicity, non-cancer (HTP-nc) | **IR**=Ionising radiation, human health (IR) | **SQP**=Land use (SQP)

5 Results

CLASSIFICATION OF DISCLAIMERS TO THE DECLARATION OF CORE AND ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS

ILCD classification	Indicator	Disclaimer
ILCD type / level 1	Global warming potential (GWP)	None
	Depletion potential of the stratospheric ozone layer (ODP)	None
	Potential incidence of disease due to PM emissions (PM)	None
ILCD type / level 2	AAcidification potential, Accumulated Exceedance (AP)	None
	Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater)	None
	Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine)	None
	Eutrophication potential, Accumulated Exceedance (EP-terrestrial)	None
	Formation potential of tropospheric ozone (POCP)	None
	Potential Human exposure efficiency relative to U235 (IRP)	1
ILCD type / level 3	Abiotic depletion potential for non-fossil resources (ADP-minerals&metals)	2
	Abiotic depletion potential for fossil resources (ADP-fossil)	2
	Water (user) deprivation potential, deprivation-weighted water consumption (WDP)	2
	Potential Comparative Toxic Unit for ecosystems (ETP-fw)	2
	Potential Comparative Toxic Unit for humans (HTP-c)	2
	Potential Comparative Toxic Unit for humans (HTP-nc)	2
	Potential Soil quality index (SQP)	2

Disclaimer 1 – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

Disclaimer 2 – 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 experienced with the indicator.

5 Results

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A1

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
ADPE	Kg Sb	1.82E-2	1.98E-5	6.08E-5	1.76E-5	5.61E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.85E-6	1.22E-4	2.72E-7	-9.38E-3
GWP	Kg CO2 Equiv.	5.82E+1	7.75E-1	5.95E+0	6.88E-1	2.84E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.46E-1	1.91E+1	8.83E-2	3.46E+0
ODP	Kg CFC-11 Equiv.	2.97E-6	1.37E-7	5.21E-7	1.22E-7	2.45E-7	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.14E-8	3.13E-6	7.94E-9	-6.73E-7
POCP	Kg Ethene Equiv.	7.28E-2	4.68E-4	2.17E-3	4.15E-4	2.64E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.09E-4	2.09E-3	3.72E-5	-1.54E-2
AP	Kg SO2 Equiv.	1.02E+0	3.41E-3	1.85E-2	3.02E-3	3.36E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.52E-3	2.74E-2	1.88E-4	-2.68E-1
EP	Kg PO43- Equiv.	1.02E-1	6.69E-4	4.57E-3	5.94E-4	3.63E-3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.99E-4	3.60E-3	4.83E-5	2.12E-2

ADPE=Depletion of abiotic resources-elements | **GWP**=Global warming | **ODP**=Ozone layer depletion | **POCP**=Photochemical oxidants creation | **AP**=Acidification of soil and water | **EP**=Eutrophication

NATIONAL ANNEX NMD

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
ADPF	Kg Sb	3.52E-1	5.70E-3	4.25E-2	5.06E-3	1.48E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.55E-3	3.77E-2	3.42E-4	6.95E-3
HTP	kg 1.4 DB	1.58E+2	3.26E-1	1.87E+0	2.90E-1	5.20E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.46E-1	3.56E+0	2.30E-2	-4.81E+1
FAETP	kg 1.4 DB	6.57E+0	9.52E-3	1.48E-1	8.46E-3	2.11E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.26E-3	8.66E-2	6.84E-3	-7.37E-1
MAETP	kg 1.4 DB	2.37E+4	3.43E+1	2.95E+2	3.04E+1	7.70E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.53E+1	3.83E+2	3.56E+0	-5.89E+3
TETP	kg 1.4 DB	4.16E-1	1.15E-3	5.59E-2	1.02E-3	1.52E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.15E-4	1.61E-2	6.31E-5	-2.25E-2

ADPF=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity, fresh water | **MAETP**=Ecotoxicity, marine water (MAETP) | **TETP**=Ecotoxicity, terrestrial

5 Results

5.2 INDICATORS DESCRIBING RESOURCE USE AND ENVIRONMENTAL INFORMATION BASED ON LIFE CYCLE INVENTORY (LCI)

PARAMETERS DESCRIBING RESOURCE USE

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
PERE	MJ	1.30E+2	1.48E-1	1.01E+1	1.31E-1	4.55E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.59E-2	7.72E+0	3.21E-2	-5.35E+1
PERM	MJ	0.00E+0	0.00E+0	6.37E+1	0.00E+0	1.91E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
PERT	MJ	1.30E+2	1.48E-1	7.38E+1	1.31E-1	6.46E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.59E-2	7.72E+0	3.21E-2	-5.35E+1
PENRE	MJ	8.04E+2	1.25E+1	8.66E+1	1.11E+1	3.30E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.59E+0	7.44E+1	7.82E-1	2.15E+1
PENRM	MJ	0.00E+0	0.00E+0	-4.17E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-7.16E+0
PENRT	MJ	8.04E+2	1.25E+1	8.66E+1	1.11E+1	3.30E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.59E+0	7.44E+1	7.82E-1	1.44E+1
SM	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
RSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
NRSF	MJ	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
FW	M3	2.49E+0	1.44E-3	4.27E-2	1.27E-3	8.16E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.42E-4	1.37E-1	8.70E-4	2.22E-2

PERE=renewable primary energy ex. raw materials | **PERM**=renewable primary energy used as raw materials | **PERT**=renewable primary energy total | **PENRE**=non-renewable primary energy ex. raw materials | **PENRM**=non-renewable primary energy used as raw materials | **PENRT**=non-renewable primary energy total | **SM**=use of secondary material | **RSF**=use of renewable secondary fuels | **NRSF**=use of non-renewable secondary fuels | **FW**=use of net fresh water

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
HWD	Kg	7.25E-3	2.99E-5	1.43E-4	2.65E-5	2.35E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.33E-5	1.15E-4	9.76E-7	-1.46E-4
NHWD	Kg	2.04E+1	7.48E-1	1.04E+0	6.64E-1	9.22E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.34E-1	1.15E+0	3.03E+0	-8.26E+0
RWD	Kg	2.08E-3	7.74E-5	1.51E-4	6.87E-5	9.82E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.46E-5	2.53E-4	4.71E-6	7.18E-4

HWD=hazardous waste disposed | **NHWD**=non hazardous waste disposed | **RWD**=radioactive waste disposed

5 Results

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbreviation	Unit	A1	A2	A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
CRU	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	1.08E-1	0.00E+0	3.63E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.80E+1	0.00E+0	0.00E+0
MER	Kg	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0
EE	MJ	0.00E+0	0.00E+0	5.18E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.70E+1
EET	MJ	0.00E+0	0.00E+0	3.28E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.14E+1
EEE	MJ	0.00E+0	0.00E+0	1.90E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.56E+1

CRU=Components for re-use | **MFR**=Materials for recycling | **MER**=Materials for energy recovery | **EE**=Exported energy | **EET**=Exported Energy Thermic | **EEE**=Exported Energy Electric

5 Results

5.3 INFORMATION ON BIOGENIC CARBON CONTENT PER KILOMETER

BIOGENIC CARBON CONTENT

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

Biogenic carbon content	Amount	Unit
Biogenic carbon content in the product	0	kg C
Biogenic carbon content in accompanying packaging	1.818	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of uptake of carbon dioxide is account in module A1 by the main parts of the product. Related uptake and release of carbon dioxide in downstream processes are not taken into account in this number although they do appear in the presented results.

Uptake Biogenic Carbon dioxide	Amount	Unit
Packaging	6.667	kg CO2 (biogenic)

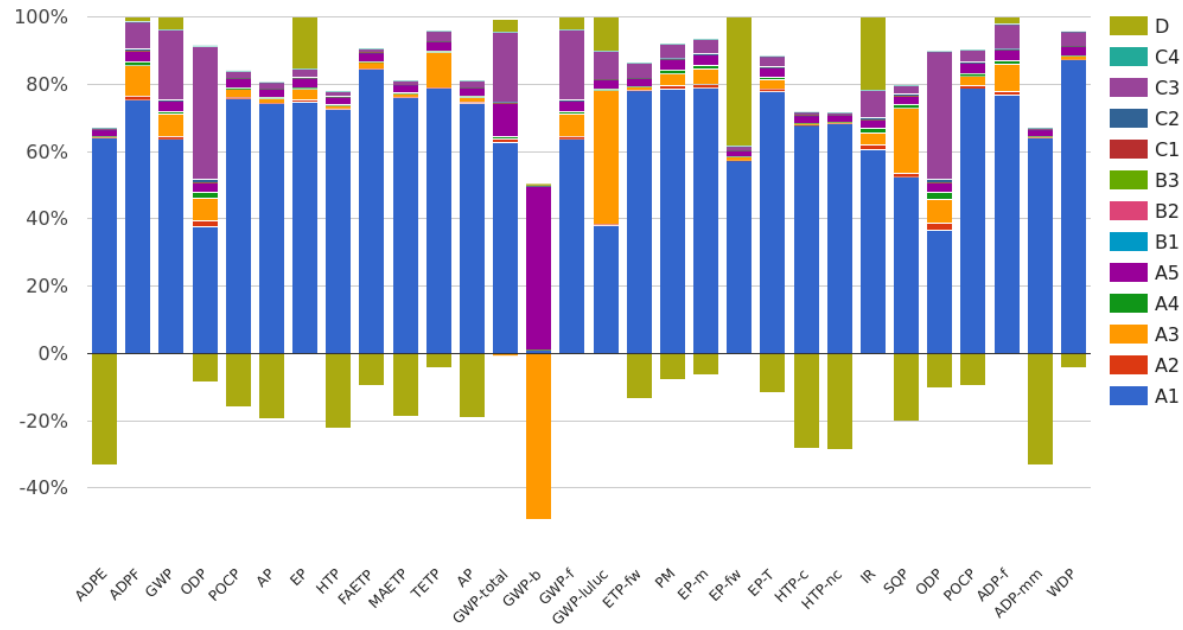
5 Results

5.4 ENVIRONMENTAL COST INDICATOR NL PER KILOMETER

Using the environmental cost indicator (ECI) method, which is presented in the NMD Determination Method (2020), the results are aggregated to the single-point score. The ECI is a relevant valuation method, especially in the Dutch construction sector. In the Netherlands, it is a prerequisite for public tenders. The aim of the indicator is to show the shadow price for environmental impacts of a product or project. The application of single-point scores is an additional assessment tool for eco-balance results. However, it must be pointed out that weightings are always based on a value maintenance and not on a scientific basis (EN 14040). The ECI results are shown in the following table.

Module EN15804	ECI NL	Share in total (%)
A1 Raw Materials Supply	€ 24.92	111,1 %
A2 Transport	€ 0.09	0,4 %
A3 Manufacturing	€ 0.63	2,8 %
A4 Transport from the gate to the site	€ 0.08	0,4 %
A5 Construction - Installation process	€ 0.87	3,9 %
B1 Use	€ 0.00	0,0 %
B2 Maintenance	€ 0.00	0,0 %
B3 Repair	€ 0.00	0,0 %
C1 De-construction / demolition	€ 0.00	0,0 %
C2 Transport	€ 0.04	0,2 %
C3 Waste processing	€ 1.47	6,6 %
C4 Disposal	€ 0.01	0,0 %
D Benefits and loads beyond the product system boundary	€ -5.68	-25,3 %
ECI NL per functional unit	€ 22.44	

6 Interpretation of results



Most significant impact comes from the raw materials (A1) and module D.

The impact in module D is negative (benefit) for the normal VD line product, however it is positive (burden) for the E-line. This has to do with the fact that the copper in the VD E-line is 100% recycled content and the end of life scenario for electrical wires does have 10% landfill and 5% incineration. These are loss factors and due to a negative net output flow that results in a burden in module D.

GWP_biogenic has a negative impact in A3 and positive in A5, this comes from the packaging (carton board).

7 References

ISO 14040

ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework; EN ISO 14040:2006

ISO 14044

ISO 14044:2006-10, Environmental management - Life cycle assessment - Requirements and guidelines; EN ISO 14040:2006

ISO 14025

ISO 14025:2011-10: Environmental labels and declarations — Type III environmental declarations — Principles and procedures

EN 15804+A1

EN 15804+A1: 2013: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

EN 15804+A2

EN 15804+A2: 2019: Sustainability of construction works — Environmental Product Declarations — Core rules for the product category of construction products

NMD-verification protocol

NMD-verification protocol version 1.0, July 2020, foundation NMD

NMD Determination method

NMD Determination method Environmental performance Construction works v1.1 March 2022, foundation NMD

CARBON PERFORMANCE IN THE CABLE INDUSTRY

Methodologies to assess the Carbon Footprint of organizations and products Guidance for Europacable Members, Annex 2

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