Environmental Product Declaration

VULTFLEX Dca 0,6/1kV gy# 4G95 mm2

Prysmian Netherlands B.V.

Publisher:	Prysmian Netherlands B.V.
Programme operator:	Stichting NMD
Calculation number:	ReTHiNK-76397
Generation on:	31-03-2025
Issue date:	30-03-2025
Valid until:	30-03-2030
Status:	verified

R<THiNK

1 General information

1.1 PRODUCT

VULTFLEX Dca 0,6/1kV gy# 4G95 mm2

1.2 VALIDITY

Issue date: 30-03-2025

Valid until: 30-03-2030

1.3 OWNER OF THE DECLARATION

Manufacturer: Prysmian Netherlands B.V.

Address: Schieweg 9, 2627 AN Delft

E-mail: info.nl@prysmian.com

Website: nl.prysmian.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+A2. 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 EPD program operators 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 1.2 | set1+2

LCA software*: Simapro 9.1.1

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

LCA database profiles: EcoInvent version 3.6

Version database: v3.19 (20250306)

1 General information

** Simapro is used for calculating the characterized results of the Environmental profiles within R<THINK.*

1.8 LCA BACKGROUND REPORT

This EPD is generated on the basis of the LCA background report 'VULTFLEX Dca 0,6/1kV gy# 4G95 mm2' with the calculation identifier ReTHiNK-76397.

2 Product

2.1 PRODUCT DESCRIPTION

VULTFLEX Dca (YMvK) is a flexible power cable for low-voltage installations from 0.6 to 1 kV with PVC outer sheath. VULTFLEX is available from ≥ 35 mm2. Construction cores are round and stranded copper for flexible cables.

VULTFLEX Dca complies with fire class Dca-s2,d2,a3 according to NEN-EN 50575 for use in buildings and according to NEN 8012.

2.2 APPLICATION (INTENDED USE OF THE PRODUCT)

VULTFLEX Dca is used in situations where a great degree of flexibility of the cable is needed, such as in small and difficult to reach installation spaces and installations with a lot of bends. The cable can also be used in humid spaces, in situations with a high ambient temperature, and in cable bundles. The cable is suitable for building installations, residential construction, and industrial installations. The cable is easy to strip and flexible, which makes it easy to use.

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

Cable production starts with copper drawing and stranding for the flexible construction followed by an extrusion process to insulate the individual conductors. The insulated wires are stranded followed by another extrusion process to apply PVC or HFFR bedding and sheathing, depending on the exact cable type. Armoring and braiding are applied underneath the cable sheath for the armored and braided constructions.

2.5 CONSTRUCTION DESCRIPTION

The low voltage cables are installed manually. The armored products are intended for use in the ground. These are protected.

3 Calculation rules

3.1 FUNCTIONAL UNIT

1.000 m Low voltage power cable

1.000 m Low voltage power cable

Reference unit: kilometer (km)

3.2 CONVERSION FACTORS

Description	Value	Unit
Reference unit	1	km
Weight per reference unit	4374.081	kg
Conversion factor to 1 kg	0.000229	km

3.3 SCOPE OF DECLARATION AND SYSTEM BOUNDARIES

This is a Cradle to gate with options, modules C1-C4 and module D EPD. 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 VULTFLEX Dca 0,6/1kV gy# 4G95 mm2, 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:

3 Calculation rules

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.

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.

USE STAGE (B1-B7)

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.

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.

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 PERIOD

All data are collected in 2023 and represents year 2022. The Energie analysis report for then 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 ESTIMATES AND ASSUMPTIONS

Transmission losses are not allocated to the cables but instead to electricity consumption which is in line with what Ecoinvent does.

3.9 POWER MIX

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	(ei3.6) 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	5.050	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 moddeled.

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]
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	(ei3.6) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	0
(ei3.6) PVC, foils (i.a. coverings, films) (NMD ID 62)	(ei3.6) Lorry (Truck), unspecified (default) | market group for (GLO)	0	100	150	50	0
(ei3.6) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45)	(ei3.6) 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	(ei3.6) 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 [%]
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	NL	0	10	5	85	0
(ei3.6) PVC, foils (i.a. coverings, films) (NMD ID 62)	NL	0	10	85	5	0
(ei3.6) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45)	NL	0	0	90	10	0

Waste Scenario	Not removed (stays in work) [kg]	Landfill [kg]	Incineration [kg]	Recycling [kg]	Re-use [kg]
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	0.000	325.896	162.948	2770.113	0.000
(ei3.6) PVC, foils (i.a. coverings, films) (NMD ID 62)	0.000	111.460	947.407	55.730	0.000
(ei3.6) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45)	0.000	0.000	0.475	0.053	0.000
Total	**0.000**	**437.355**	**1110.830**	**2825.896**	**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]
copper, mixed (electricity cables) (NMD ID 42) with electrolytic refining after EOW	1596.889	0.000
(ei3.6) PVC, foils (i.a. coverings, films) (NMD ID 62)	55.730	23542.727
(ei3.6) plastics, other (i.a. profiles, sheets, pipes) (NMD ID 45)	0.053	20.182
Total	**1652.672**	**23562.908**

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

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
GWP-total	kg CO_2 eq.	9.53E+3	1.56E+2	2.40E+2	9.93E+3	8.87E+1	3.79E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.75E+1	2.23E+3	1.23E+1	6.69E+2
GWP-f	kg CO_2 eq.	9.52E+3	1.56E+2	2.48E+2	9.93E+3	8.86E+1	3.70E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.75E+1	2.23E+3	1.23E+1	6.61E+2
GWP-b	kg CO_2 eq.	-4.78E+1	6.27E-2	-8.55E+0	-5.63E+1	3.57E-2	6.92E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.91E-2	2.04E+0	1.38E-2	5.78E+0
GWP-luluc	kg CO_2 eq.	1.07E+1	5.71E-2	1.23E-1	1.09E+1	3.25E-2	3.57E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.74E-2	9.21E-1	1.39E-3	1.92E+0
ODP	kg CFC 11 eq.	8.44E-4	3.44E-5	2.85E-5	9.07E-4	1.96E-5	3.91E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.05E-5	3.60E-4	1.42E-6	-8.57E-5
AP	mol H+ eq.	3.18E+2	9.03E-1	1.67E+0	3.21E+2	5.14E-1	9.79E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.75E-1	3.89E+0	3.58E-2	-4.60E+1
EP-fw	kg P eq.	1.87E+1	1.57E-3	1.11E-1	1.88E+1	8.93E-4	5.64E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.78E-4	3.43E-2	5.83E-5	1.49E+0
EP-m	kg N eq.	5.13E+1	3.18E-1	3.26E-1	5.19E+1	1.81E-1	1.59E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	9.71E-2	8.03E-1	1.51E-2	-1.28E+0
EP-T	mol N eq.	7.45E+2	3.51E+0	4.41E+0	7.53E+2	2.00E+0	2.30E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.07E+0	8.94E+0	1.42E-1	-3.82E+1

GWP-total=Global Warming Potential total (GWP-total) | **GWP-f**=Global Warming Potential fossil fuels (GWP-fossil) | **GWP-b**=Global Warming Potential biogenic (GWP-biogenic) | **GWP-luluc**=Global Warming Potential land use and land use change (GWP-luluc) | **ODP**=Depletion potential of the stratosperic ozon layer (ODP) | **AP**=Acidification potential, Accumulated Exceedance (AP) | **EP-fw**=Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater) | **EP-m**=Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine) | **EP-T**=Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | **POCP**=Formation potential of tropospheric ozone (POCP) | **ADP-mm**=Abiotic depletion potential for non fossil resources (ADP minerals&metals) | **ADP-f**=Abiotic depletion for fossil resources potential (ADP fossil) | **WDP**=Water (user) deprication potential, deprivation-weighted water consumption (WDP)

5 Results

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
POCP	kg NMVOC eq.	1.57E+2	1.00E+0	1.00E+0	1.59E+2	5.70E-1	4.88E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.05E-1	2.41E+0	4.26E-2	-7.32E+0
ADP-mm	kg Sb-eq.	3.93E+0	3.94E-3	1.45E-2	3.95E+0	2.25E-3	1.19E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.20E-3	1.41E-2	3.83E-5	-1.42E+0
ADP-f	MJ	1.98E+5	2.35E+3	3.87E+3	2.04E+5	1.34E+3	6.43E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.16E+2	8.11E+3	1.06E+2	7.49E+3
WDP	m3 world eq.	2.39E+4	8.40E+0	1.41E+2	2.40E+4	4.78E+0	7.39E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.56E+0	5.85E+2	1.57E+0	-6.97E+2

GWP-total=Global Warming Potential total (GWP-total) | **GWP-f**=Global Warming Potential fossil fuels (GWP-fossil) | **GWP-b**=Global Warming Potential biogenic (GWP-biogenic) | **GWP-luluc**=Global Warming Potential land use and land use change (GWP-luluc) | **ODP**=Depletion potential of the stratosperic ozon layer (ODP) | **AP**=Acidification potential, Accumulated Exceedance (AP) | **EP-fw**=Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP-freshwater) | **EP-m**=Eutrophication potential, fraction of nutrients reaching marine end compartment (EP-marine) | **EP-T**=Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | **POCP**=Formation potential of tropospheric ozone (POCP) | **ADP-mm**=Abiotic depletion potential for non fossil resources (ADP minerals&metals) | **ADP-f**=Abiotic depletion for fossil resources potential (ADP fossil) | **WDP**=Water (user) deprication potential, deprivation-weighted water consumption (WDP)

ADDITIONAL ENVIRONMENTAL IMPACT INDICATORS EN15804+A2

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
PM	disease incidence	1.62E-3	1.39E-5	9.91E-6	1.64E-3	7.95E-6	5.06E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.26E-6	3.02E-5	7.19E-7	-6.28E-5
IR	kBq U235 eq.	4.56E+2	9.83E+0	4.45E+0	4.70E+2	5.60E+0	1.55E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.00E+0	3.49E+1	5.00E-1	1.32E+2
ETP-fw	CTUe	1.23E+7	2.09E+3	6.46E+4	1.23E+7	1.19E+3	3.75E+5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.38E+2	1.49E+5	8.09E+2	-5.52E+5
HTP-c	CTUh	8.35E-5	6.79E-8	3.45E-7	8.39E-5	3.87E-8	2.55E-6	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.07E-8	7.91E-7	4.46E-9	-2.81E-5
HTP-nc	CTUh	5.88E-3	2.29E-6	1.82E-5	5.90E-3	1.31E-6	1.79E-4	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.00E-7	3.67E-5	3.82E-7	-2.01E-3

PM=Potential incidence of disease due to PM emissions (PM) | **IR**=Potential Human exposure efficiency relative to U235 (IRP) | **ETP-fw**=Potential Comparative Toxic Unit for ecosystems (ETP-fw) | **HTP-c**=Potential Comparative Toxic Unit for humans (HTP-c) | **HTP-nc**=Potential Comparative Toxic Unit for humans (HTP-nc) | **SQP**=Potential soil quality idex (SQP)

5 Results

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
SQP	Pt	1.75E+5	2.04E+3	1.27E+3	1.78E+5	1.16E+3	5.49E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	6.21E+2	2.59E+3	2.58E+2	1.78E+4

PM=Potential incidence of disease due to PM emissions (PM) | **IR**=Potential Human exposure efficiency relative to U235 (IRP) | **ETP-fw**=Potential Comparative Toxic Unit for ecosystems (ETP-fw) | **HTP-c**=Potential Comparative Toxic Unit for humans (HTP-c) | **HTP-nc**=Potential Comparative Toxic Unit for humans (HTP-nc) | **SQP**=Potential soil quality idex (SQP)

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	Acidification 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

5 Results

ILCD classification	Indicator	Disclaimer
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.		

CORE ENVIRONMENTAL IMPACT INDICATORS EN15804+A1

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
ADPE	kg Sb eq.	3.93E+0	3.94E-3	1.45E-2	3.95E+0	2.25E-3	1.19E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.20E-3	1.41E-2	3.83E-5	-1.42E+0
GWP	kg CO_2 eq.	1.35E+4	1.54E+2	2.69E+2	1.39E+4	8.79E+1	4.89E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.71E+1	2.22E+3	1.10E+1	6.60E+2
ODP	kg CFC 11 eq.	7.82E-4	2.73E-5	2.56E-5	8.35E-4	1.56E-5	3.68E-5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.33E-6	3.62E-4	1.15E-6	-6.24E-5
POCP	kg ethene eq.	1.85E+1	9.30E-2	1.19E-1	1.87E+1	5.30E-2	5.72E-1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.84E-2	2.42E-1	5.06E-3	-2.19E+0
AP	kg SO_2 eq.	2.50E+2	6.78E-1	1.29E+0	2.52E+2	3.86E-1	7.70E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.07E-1	3.16E+0	2.68E-2	-3.94E+1
EP	Kg PO43- eq.	8.06E+1	1.34E-1	4.82E-1	8.12E+1	7.62E-2	2.45E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.08E-2	4.16E-1	6.63E-3	3.52E+0

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

5 Results

NATIONAL ANNEX NMD

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
ADPF	kg Sb eq.	1.05E+2	1.13E+0	2.11E+0	1.09E+2	6.46E-1	3.43E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	3.46E-1	4.36E+0	4.91E-2	3.22E+0
HTP	kg 1,4 DB eq.	3.73E+4	6.50E+1	1.83E+2	3.76E+4	3.70E+1	1.14E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.98E+1	4.12E+2	3.34E+0	-7.15E+3
FAETP	kg 1,4 DB eq.	3.43E+3	1.90E+0	1.82E+1	3.45E+3	1.08E+0	1.04E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	5.78E-1	1.02E+1	1.01E+0	-1.03E+2
MAETP	kg 1,4 DB eq.	8.87E+6	6.82E+3	4.34E+4	8.92E+6	3.89E+3	2.70E+5	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.08E+3	4.44E+4	4.69E+2	-8.71E+5
TETP	kg 1,4 DB eq.	8.81E+1	2.29E-1	4.87E+0	9.32E+1	1.31E-1	2.87E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.00E-2	1.86E+0	8.98E-3	-2.61E+0

ADPF=Depletion of abiotic resources-fossil fuels | **HTP**=Human toxicity | **FAETP**=Ecotoxicity. fresh water | **MAETP**=Ecotoxicity. marine water | **TETP**=Ecotoxicity. terrestric

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

PARAMETERS DESCRIBING RESOURCE USE

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
PERE	MJ	2.60E+4	2.94E+1	5.86E+3	3.19E+4	1.67E+1	9.87E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.96E+0	8.92E+2	4.89E+0	1.18E+2
PERM	MJ	0.00E+0	0.00E+0	8.04E+1	8.04E+1	0.00E+0	2.41E+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	2.60E+4	2.94E+1	5.94E+3	3.20E+4	1.67E+1	9.89E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.96E+0	8.92E+2	4.89E+0	1.18E+2
PENRE	MJ	2.03E+5	2.49E+3	4.18E+3	2.09E+5	1.42E+3	6.63E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.60E+2	8.61E+3	1.13E+2	7.59E+3
PENRM	MJ	8.37E+3	0.00E+0	4.54E+1	8.41E+3	0.00E+0	2.53E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	-8.29E+2

PERE=Use of renewable primary energy excluding renewable primary energy resources used as raw materials | **PERM**=Use of renewable primary energy resources used as raw materials | **PERT**=Total use of renewable primary energy resources | **PENRE**=Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | **PENRM**=Use of non-renewable primary energy resources used as raw materials | **PENRT**=Total use of non-renewable primary energy resources | **SM**=Use of secondary material | **RSF**=Use of renewable secondary fuels | **NRSF**=Use of non-renewable secondary fuels | **FW**=Net use of fresh water

5 Results

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
PENRT	MJ	2.11E+5	2.49E+3	4.23E+3	2.18E+5	1.42E+3	6.88E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	7.60E+2	8.61E+3	1.13E+2	6.76E+3
SM	Kg	1.17E+3	0.00E+0	7.04E+0	1.18E+3	0.00E+0	3.54E+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
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	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	0.00E+0
FW	m^3	5.67E+2	2.86E-1	3.62E+0	5.71E+2	1.63E-1	1.76E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	8.72E-2	1.58E+1	1.27E-1	5.06E+0

PERE=Use of renewable primary energy excluding renewable primary energy resources used as raw materials | **PERM**=Use of renewable primary energy resources used as raw materials | **PERT**=Total use of renewable primary energy resources | **PENRE**=Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | **PENRM**=Use of non-renewable primary energy resources used as raw materials | **PENRT**=Total use of non-renewable primary energy resources | **SM**=Use of secondary material | **RSF**=Use of renewable secondary fuels | **NRSF**=Use of non-renewable secondary fuels | **FW**=Net use of fresh water

OTHER ENVIRONMENTAL INFORMATION DESCRIBING WASTE CATEGORIES

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
HWD	Kg	3.58E+3	5.95E-3	2.15E+1	3.60E+3	3.39E-3	1.08E+2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	1.81E-3	1.33E-2	1.39E-4	-1.69E-2
NHWD	Kg	1.15E+5	1.49E+2	7.08E+2	1.16E+5	8.48E+1	3.54E+3	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.54E+1	1.24E+3	4.38E+2	-1.23E+3
RWD	Kg	4.53E-1	1.54E-2	5.02E-3	4.74E-1	8.80E-3	1.56E-2	0.00E+0	0.00E+0	0.00E+0	0.00E+0	4.71E-3	2.92E-2	6.83E-4	1.18E-1

HWD=Hazardous waste disposed | **NHWD**=Non-hazardous waste disposed | **RWD**=Radioactive waste disposed

ENVIRONMENTAL INFORMATION DESCRIBING OUTPUT FLOWS

Abbr.	Unit	A1	A2	A3	A1-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	0.00E+0
MFR	Kg	0.00E+0	0.00E+0	1.70E+1	1.70E+1	0.00E+0	8.92E+1	0.00E+0	0.00E+0	0.00E+0	0.00E+0	0.00E+0	2.83E+3	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	0.00E+0

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

Abbr.	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	C1	C2	C3	C4	D
EE	MJ	0.00E+0	0.00E+0	1.39E+2	1.39E+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	2.38E+4
EET	MJ	0.00E+0	0.00E+0	4.38E+1	4.38E+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	7.53E+3
EEE	MJ	0.00E+0	0.00E+0	2.54E+1	2.54E+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	4.37E+3

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	2.295	kg C

UPTAKE OF BIOGENIC CARBON DIOXIDE

The following amount of carbon dioxide uptake is taken into account. 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. One kilogram of biogenic Carbon content is equivalent to 44/12 kg of biogenic carbon dioxide uptake.

Uptake Biogenic Carbon dioxide	Amount	Unit
Packaging	8.417	kg CO2 (biogenic)

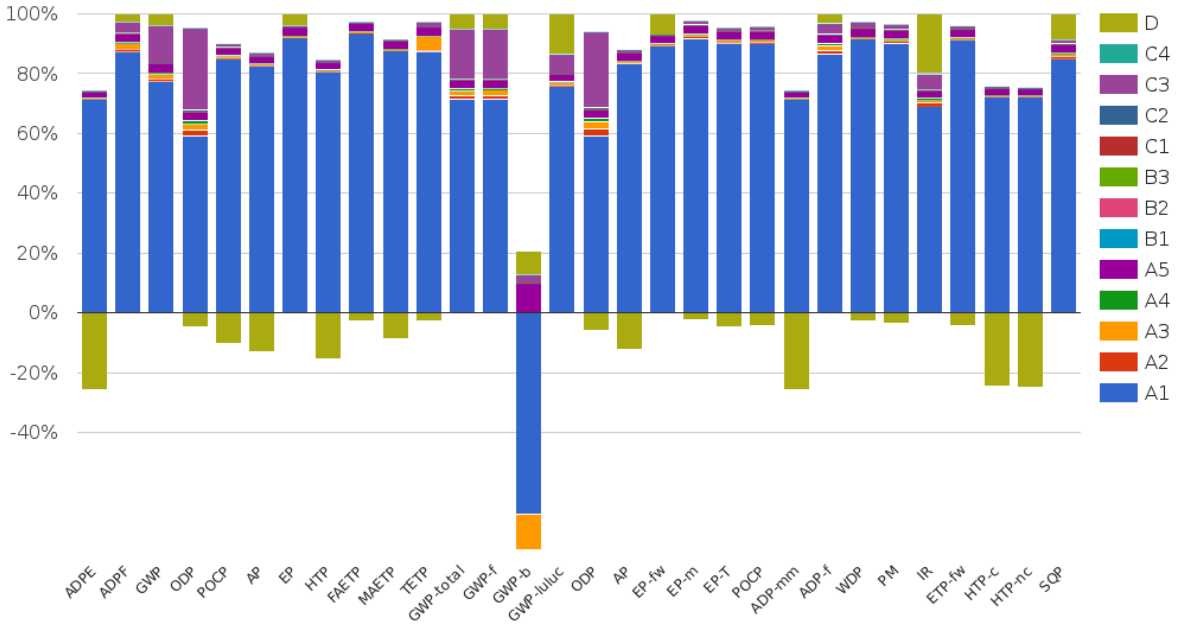
5 Results

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 2010	Share in total (%)
A1 Raw Materials Supply	€ 6,810.07	105,7 %
A2 Transport	€ 18.60	0,3 %
A3 Manufacturing	€ 45.14	0,7 %
A4 Transport from the gate to the site	€ 10.60	0,2 %
A5 Construction - Installation process	€ 212.32	3,3 %
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	€ 5.67	0,1 %
C3 Waste processing	€ 170.25	2,6 %
C4 Disposal	€ 1.11	0,0 %
D Benefits and loads beyond the product system boundary	€ -830.69	-12,9 %
ECI NL 2010 per functional unit	**€ 6,443.08**	

6 Interpretation of results



The most significant contribution is from the raw materials in A1. This is offset by the contribution (benefit) in module D. The metal (copper) is very well recyclable and because of its value it is always recovered. The plastics in the product are recovered from production waste, but not End-of-life. Because there is no return program for the product end-of-life the default EOL scenario's are used and these still consider mostly incineration as EOL process.

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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