epd-norway
Global Program Operator
Publisher: The Norwegian EPD Foundation
Registration number: NEPD-1-2-MRA

EPD®

ENGINEERING TOMORROW

Environmental **Product Declaration**

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021 for:

DEVI & EC Safe and Flex heating cables

Programme	The International EPD® System, www.environdec.com
Programme operator	EPD international
EPD issued	10.10.2023
EPD expires	10.10.2028
EPD registration number	S-P-09378
EPD author	Danfoss Climate Solutions
EPD type	Cradle-to-gate with options (A4, A5, C1-C4 & D)
Declared unit	1 m of cable with packaging
Products included	DEVI & EC Safe and Flex heating cables (sales codes present in Annex 1)
Manufacturing Location	Grodzisk, Poland
Use Location	Norway
Application	Multiple indoor floor constructions and pipe tracing applications
Mass	54,6 g without packaging 74,6 g with packaging
Dimensions (H×W×D)	1 m
Verification	[X] External [] Internal [ ] None
Produced to	PCR 1.25 Construction Products & NPCR 027 2022 Part B Electrical cables and wires A2
External verifier	Odyssefs Papagiannidis, EPD Lead verifier under Bureau Veritas Certification Sweden, accredited by SWEDAC accr. no. 1236.

Introduction

Programme information

Programme:	The International EPD® System
Address:	EPD International AB Box 210 60 SE-100 31 Stockholm Sweden
Website:	www.environdec.com
E-mail:	info@environdec.com

Accountabilities for PCR, LCA and independent, third-party verification
Product Category Rules (PCR)
CEN standard EN 15804 serves as the Core Product Category Rules (PCR)
Product Category Rules (PCR): Construction products PCR 2019:14 v. 1.25, CPC code 46122 SubPCR: NPCR 027 2022 Part B Electrical cables and wires A2
PCR review was conducted by: The Technical Committee of the International EPD® System. Chair: Claudia Peña. Contact via info@environdec.com
Life Cycle Assessment (LCA)
LCA accountability: *Jaka Jelenc, Danfoss Climate Solutions A/S*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by accredited certification body Third-party verification: Odyssefs Papagiannidis, EPD Lead verifier on behalf of the *Bureau Veritas Certification Sweden,* an approved certification body accountable for the third-party verification. The certification body is accredited by: *SWEDAC with accreditation number 1236.*

Introduction

This Environmental Product Declaration (EPD) follows the following Product Category Rules (PCR): Construction products PCR 2019:14 v 1.2.5. & NPC 027 Part B for electrical cables and wires, version 2.0. These rules provide a consistent framework for calculating and reporting the environmental performance of Danfoss' heating cables and is aligned with relevant international standards, particularly ISO 14025:2006 and EN 15804+A2:2019.

What is an EPD?

An EPD is a document used to communicate transparently, the quantified environmental impacts of a product over its lifecycle stages. This quantification is done by performing a Life Cycle Assessment (LCA) in line with a consistent set of rules known as a PCR (Product Category Rules).

An EPD provides:

- A product's carbon footprint together with other relevant environmental indicators, including air pollution, water use, energy consumption and waste, over its own life cycle (Modules A-C), as well as the expected benefits of reuse and recycling in reducing the impact of future products (Module D). See Table 1 for module descriptions.
- Environmental data allowing customers to calculate LCAs and produce EPDs for their own products.

Type of EPD

This EPD is of the type 'cradle-to-gate with options' and includes all relevant modules: production (A1-A3), shipping (A4), deconstruction (C1), waste collection and transport (C2), treatment (C3) and disposal (C4). It also includes potential net benefits to future products from recycling or reusing post-consumer waste (D). The codes in brackets are the module labels from EN 15804+A2. Modules concerning use, maintenance, repair, replacement, refurbishment (B1-B5) and operational water use (B7) are excluded, following the cut-off rules from EN 15804.

Introduction

Table 1: Modules of the product's life cycle included in the EPD

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery-Recycling-potential
Module	**A1**	**A2**	**A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Modules declared	X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X
Geography	EU-28		PL	NO	NO	-	-	-	-	-	-	-	NO	NO	NO	NO	NO
Specific data used	90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	0 %			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	Manufactured in one site			-	-	-	-	-	-	-	-	-	-	-	-	-	-

(X = declared module; MNR = module not relevant)

NO = Norway, PL = Poland

Product Description

DEVIflex™ & DEVIsafe™ are an extremely high-quality, 360° fully screened twin conductor cables with a tough outer sheath (DEVIflex™ non-UV stable & DEVIsafe™ UV stable). Its round profile and robust construction ensure a fast, simple, and safe installation in multiple indoor floor constructions and pipe tracing applications.

Heating cable must be used together with an appropriate thermostat to secure against overheating and reduce energy consumption.

To ensure a long lifetime, all cables are minutely inspected including tests for Ohmic resistance, high voltage, and material controls to ensure the quality. This means that we are proud to supply our extended DEVIwarranty™

See more information about DEVIsafe™ on Danfoss product store.

See more information about DEVIflex™ on Danfoss product store.

Figure 1: DEVIsafe™ heating cables.

Figure 2: DEVIflex™ heating cables.

Product Description

Intended market.

The intended market of this study is Norway, and the baseline scenario involves the distribution, installation, and end-of-life in Norway.

Table 2: Product composition

Object description	Net weight	Unit	%
Resin PVC	25,1	g	36%
Masterbatch XLPE	0,729	g	1%
Resin PEX LDPE	13,45	g	19%
Aluminum foil	1,7	g	2%
Copper	13,636	g	20%
Glass fiber	15,0	g	22%
Total product	69,615	g	100%
Packaging cardboard	19,43	g	97%
Packaging PS	0,57	g	3%
Total packaging	20,00	g	100%
Total product	69,615	g	78%
Total packaging	20,00	g	22%
Total product & packaging	89,62	g	100%

The EPD values were calculated for this composition, this composition represents the highest environmental values for all the product codes in DEVI & EC Flex and Safe heating cables, therefor it represents all the products in both product groups. All sales codes covered by this EPD are shown in table 14 & 15. Freeze cables are also included within the sales codes covered. The Devi & EC cables are the same products. DEVI and EC are two different brands of the same products and EC freeze is a product designed only for French market.

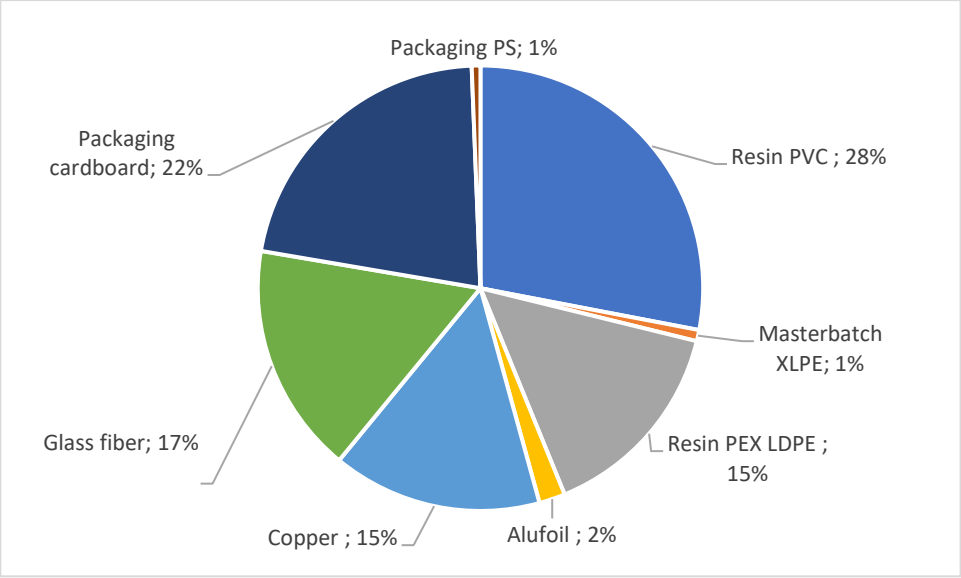

Figure 3: Material Composition Overview with packaging

Product Description

This EPD covers multiple sales codes for Safe & Flex heating cables. The outer insulation of the heating cables is made from the same material for all sales coded. Within these sales codes, there are also 5 material combinations for the heating part (metal wire) of the Safe & Flex cables. Tables 3 & 4 show the material compositions for all 5 combinations with their min and max values.

Table 3: Product composition for other Safe cable codes

Cable type	Safe cable combinations
a	Copper
b	Copper
	Stainless steel
c	Stainless steel
d	Copper
	Stainless steel
	Kevlar
e	Copper
	Kevlar

Table 4: Product composition for other Flex cable codes

Cable type	Flex cable combinations
a	Copper
b	Cooper
	Stainless steel
c	Stainless steel
d	Cooper
	Stainless steel
	Kevlar
e	Cooper
	NICR
	Kevlar

The declared unit is 1 m of cable with packaging. Mass of the declared unit is 74,62 g.

Due to their low mass Kevlar and NICR are excluded from the study. Glass was used to represent glass fiber in the LCA study.

The sales codes of all cabels covered in this EPD, are presented in annex 1

Data quality

Data quality of the selected datasets is generally assessed as good and very good in terms of geographical, time and technology representativeness and applicability. Background data is from LCA for Experts database version 2023. Data for this LCA, collected durring the period 1.1.2022 – 31.12.2022.

Allocation and cut-off criteria

The allocation is made in accordance with the provisions of EN 15804+A2. All major raw materials and all the essential energy are included. All hazardous materials and substances are considered in the inventory. Data sets within the system boundary are complete and fulfil the criteria for the exclusion of inputs and output criteria. No known material or energy flows were ignored, including those which fell below the limit of 1%. Accordingly, the total sum of input flows ignored is certainly less than 5% of the energy and mass applied.

Due to their low mass Kevlar and NICR are excluded from the study. Glass was used to represent glass fiber in the LCA study.

System boundaries

The results in this EPD are split into life cycle modules following EN 15804 (Figure 1): production (A1-A3), distribution (A4) and the end of the product's life (C1-C4). Module D represents environmental benefits and loads that occur beyond the system boundary (i.e., in future products).

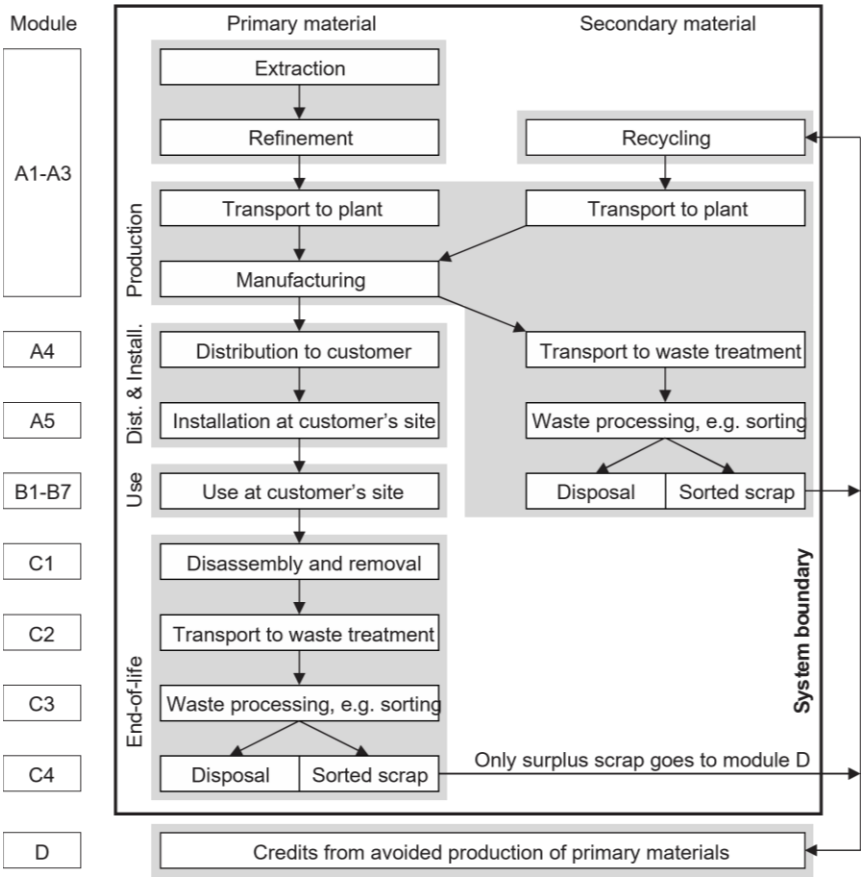

Figure 4: Modular structure used in this EPD (following EN 15804+A2)

Product and packaging manufacture (A1-A3)

Final manufacturing occurs in the Grodzisk plant, Poland. The raw material is mainly sourced from Europe. Electricity is used to press the heating metal core together with the outside shell. The product is then cut to desired length, packed, and shipped to the costumer. The facility is certified according to ISO 9001 & ISO 14001. Where waste generated on-site is recyclable, it is separated and recycled. For further information, see here. The manufacturing plant also uses GOs, for its electricity consumption (Wind powered electricity).

Table 5: Biogenic carbon content in product & packaging

	Total (excluding recycling)
Biogenic carbon content in packaging [kg]	0,00857

Note: 1 kg biogenic carbon is equivalent to 44/12 kg of CO_2.

Shipping and installation (A4-A5)

The intended market for Safe and Flex heating cables is Norway. The assembly factory is in Poland, so 1162 km by truck and 163 km by container ship (representing a ferry) was used to represent the distance between the factory and the final customer.

Module A5 includes disposal of packaging materials only, the benefits from e.g., energy recovered after plastic incineration are allocated to module D. The product is assumed to be installed by hand and there is no loss of product during installation. Energy use in handheld tools during installation is not included as it falls under the cut-off criteria.

End-of-life (C1-C4)

The following end-of-life procedure has been applied:

- Manual dismantling is used to separate recyclable bulk materials, e.g. bulk metals and plastics.
- Shredding is used for the remaining parts, such as printed circuit board assemblies.
- Ferrous metals, non-ferrous metals and bulk plastics are recovered through recycling.
- The remaining materials go to either energy recovery or landfill.

In line with EN 15804+A2, only the 'net scrap' (i.e., the leftover recyclable materials remaining after inputs of recycled content required in the manufacturing phase are first satisfied) is used to calculate the benefits and loads beyond the system boundary (Module D).

For this EPD an average scenario with 50% of the product sent to recycling % 50% of the product sent to landfill (C3, C4, D) was used.

This scenario is designed to represent an average end-of-life scenario.

For the EPD this average scenario was chosen as it is assumed that it represents the majority of cases on average.

1. Recycling scenario with 100% of the product sent to recycling at the end-of-life, excluding fractions that cannot be recycled or incinerated (e.g., glass reinforcing in glass-filled plastics) and are sent to landfill.

This scenario illustrates best case performance. It assumes a 100% collection rate and best available recycling technologies. Under this scenario electrical cables, and all metals, flat glass and unreinforced plastics found within the body and chassis of the product are recycled. Printed circuit board assemblies are incinerated, and the copper and precious metals (gold, silver, palladium, and platinum) are recycled.

2. Landfill scenario with 100% of the product sent to landfill.

This scenario assumes that the whole product, including its packaging, is landfilled. It is designed to represent a poor end of-life-route where valuable resources are lost.

Benefits and loads beyond the system boundary (D)

Module D considers the net benefit of recycling (including energy recovery) of materials in the product and packaging, taking account of losses in the recycling process and the recycled material used in the production of the product. Module D covers the two end-of-life scenarios, as described above.

Environmental performance

This section presents the environmental performance of 1 m of Flex heating cable without packaging. Figure 5 presents the environmental impact of 1m of Flex heating cable without packaging across a number of environmental impact categories (following EN 15804+A2:2019) per life cycle stage, over its full life cycle, including Global Warming Potential.

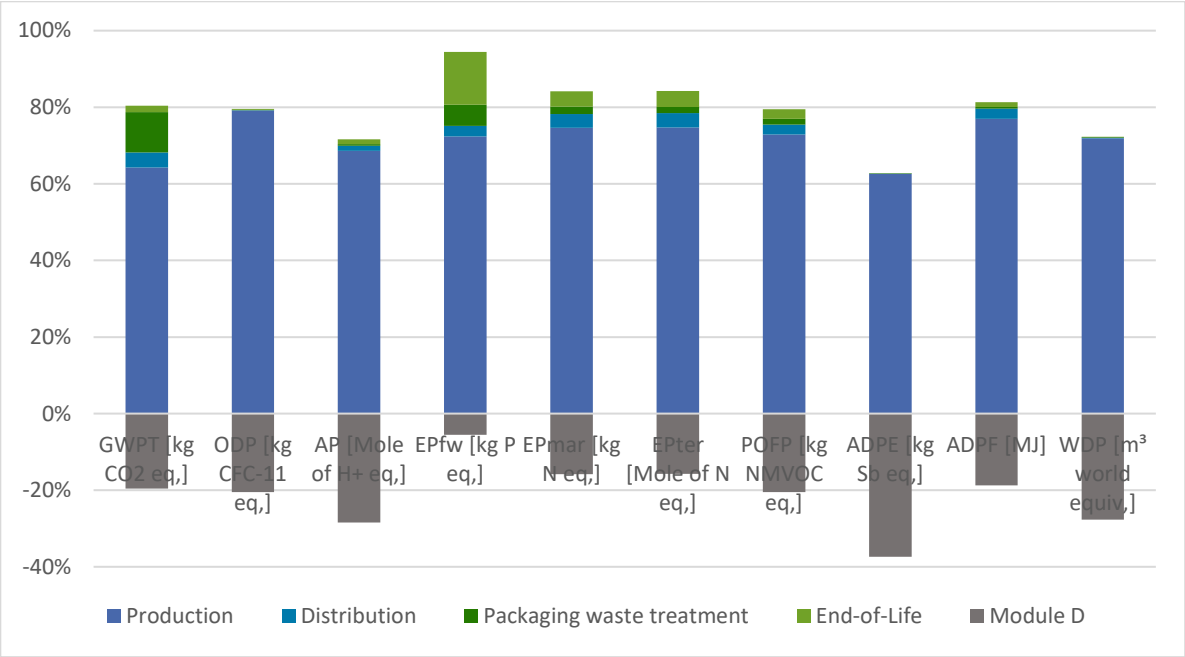

Figure 5: Breakdown of environmental impacts by life cycle stages (see Table 6 for descriptions of environmental impact indicators).

Table 6: Environmental impact indicators per declared unit

	Production	Distribution	Packaging waste treatment	End-of-Life				
Life cycle stages based on EN 15804+A2	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Description / **Environmental Impact Indicators**	Manufacture of the product from 'cradle-to-gate'	Transport of the product to the customer	Installation of the product and disposal of used packaging	Deinstallation of the product from the site	Transport of the product to waste treatment	Processing waste for recycling	Disposal of waste that cannot be recycled (through landfill and incineration)	Potential benefits and loads beyond the system boundary due to reuse, recycling, and energy recovery
GWPT [kg CO2 eq.]	2,04E-01	1,24E-02	3,35E-02	0,00E00	7,11E-04	2,91E-03	1,80E-03	-6,21E-02
GWPF [kg CO2 eq.]	2,35E-01	1,23E-02	1,93E-03	0,00E00	7,11E-04	2,89E-03	1,80E-03	-6,20E-02
GWPB [kg CO2 eq.]	-3,15E-02	0,00E+00	3,15E-02	0,00E00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
GWPLULUC [kg CO2 eq.]	4,21E-04	1,11E-04	1,95E-06	0,00E00	1,72E-08	2,64E-05	1,79E-06	-1,31E-04
ODP [kg CFC-11 eq.]	1,23E-12	1,58E-15	1,28E-15	0,00E00	8,30E-20	3,71E-16	2,55E-15	-3,18E-13
AP [Mole of H+ eq.]	1,51E-03	2,85E-05	1,02E-05	0,00E00	9,75E-07	1,80E-05	7,65E-06	-6,25E-04
EPfw [kg P eq.]	1,15E-06	4,40E-08	8,74E-08	0,00E00	1,54E-10	1,05E-08	2,10E-07	-8,80E-08
EPmar [kg N eq.]	2,14E-04	1,01E-05	5,51E-06	0,00E00	3,88E-07	8,75E-06	2,44E-06	-4,55E-05
EPter [Mole of N eq.]	2,29E-03	1,15E-04	5,03E-05	0,00E00	4,27E-06	9,70E-05	2,68E-05	-4,82E-04
POFP [kg NMVOC eq.]	6,75E-04	2,40E-05	1,38E-05	0,00E00	9,23E-07	1,67E-05	6,15E-06	-1,90E-04
ADPE [kg Sb eq.]	4,29E-05	7,95E-10	9,85E-11	0,00E00	2,53E-11	1,88E-10	5,60E-11	-2,56E-05
ADPF [MJ]	4,77E+00	1,67E-01	2,61E-02	0,00E00	1,03E-02	3,89E-02	2,57E-02	-1,16E+00
WDP [m^3 world equiv.]	5,42E-02	1,46E-04	1,17E-04	0,00E00	1,20E-06	3,45E-05	1,68E-05	-2,09E-02

Table 7: GWP-GHG indicator

	Production	Distribution	Packaging waste treatment	End-of-Life				
Life cycle stages based on EN 15804+A2	**A1-A3**	**A4**	**A5**	**C1**	**C2**	**C3**	**C4**	**D**
Description / **Environmental Impact Indicators**	Manufacture of the product from 'cradle-to-gate'	Transport of the product to the customer	Installation of the product and disposal of used packaging	Deinstallation of the product from the site	Transport of the product to waste treatment	Processing waste for recycling	Disposal of waste that cannot be recycled (through landfill and incineration)	Potential benefits and loads beyond the system boundary due to reuse, recycling, and energy recovery
GWP-GHG [kg CO2 eq.]	2,35E-01	1,24E-02	1,93E-03	0,00E+00	0,00E+00	7,11E-04	2,91E-03	1,80E-03

How to read scientific numbers:

e.g. 2,05E02 = 2,05 x 10^{2} = 205

2,04E-01 = 2,04 x 10^{-1} = 0,204

Table 7: Environmental impact indicator descriptions

Acronym	Unit	Indicator
GWPT	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – total
GWPF	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – fossil
GWPB	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – biogenic
GWPLULUC	kg CO_2 eq.	Carbon footprint (Global Warming Potential) – land use and land use change
ODP	kg CFC-11 eq.	Depletion potential of the stratospheric ozone layer
AP	Mole H+ eq.	Acidification potential
EPfw	kg P eq.	Eutrophication potential – aquatic freshwater
EPmar	kg N eq.	Eutrophication potential – aquatic marine
EPter	Mole of N eq.	Eutrophication potential – terrestrial
POFP	kg NMVOC eq.	Summer smog (photochemical ozone formation potential)
ADPE*	kg Sb eq.	Depletion of abiotic resources – minerals and metals
ADPF*	MJ	Depletion of abiotic resources – fossil fuels
WDP*	m^3 world eq.	Water deprivation potential (deprivation-weighted water consumption)

Results for module A1-A3 are specific to the product. All results from module A4 onwards should be considered as scenarios that represent one possible outcome. The true environmental performance of the product will depend on actual use.

The results in this section are relative expressions only and do not predict actual impacts, the exceeding of thresholds, safety margins, or risks. EPDs from others may not be comparable.

Carbon footprint

The total carbon footprint (GWPT), cradle-to-grave, of the product is 2,54E-01 kg CO2-eq (A1-C4). The carbon footprint (GWPT) of production of this product, cradle-to-gate, is 2,04E-01 kg CO2-eq (A1-A3).

Table 8: Resource use per declared unit

	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE [MJ]	1,79E+00	1,19E-02	1,59E-03	0,00E00	3,38E-05	2,83E-03	2,10E-03	-1,94E-01
PERM [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
PERT [MJ]	1,79E+00	1,19E-02	1,59E-03	0,00E00	3,38E-05	2,83E-03	2,10E-03	-1,94E-01
PENRE [MJ]	4,35E+00	1,67E-01	2,73E-02	0,00E00	1,03E-02	3,90E-02	2,57E-02	-1,16E+00
PENRM [MJ]	4,22E-01	0,00E+00	0,00E+00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
PENRT [MJ]	4,78E+00	1,67E-01	2,73E-02	0,00E00	1,03E-02	3,90E-02	2,57E-02	-1,16E+00
SM [kg]	1,39E-02	0,00E+00	0,00E+00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
RSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
NRSF [MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
FW [m3]	1,83E-03	1,31E-05	3,73E-06	0,00E00	5,43E-08	3,10E-06	1,15E-06	-5,10E-04

Table 9: Resource use indicator descriptions

Acronym	Unit	Indicator
PERE	MJ	Use of renewable primary energy excluding renewable primary energy resources used as raw materials
PERM	MJ	Use of renewable primary energy resources used as raw materials
PERT	MJ	Total use of renewable primary energy resources (primary energy and primary energy resources used as raw materials)
PENRE	MJ	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials
PENRM	MJ	Use of non-renewable primary energy resources used as raw materials
PENRT	MJ	Total use of non-renewable primary energy resources (primary energy and primary energy resources used as raw materials)
SM	kg	Use of secondary material
RSF	MJ	Use of renewable secondary fuels
NRSF	MJ	Use of non-renewable secondary fuels
FW	m^3	Net use of fresh water

Table 10: Waste categories and output flows per declared unit

	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD [kg]	3,67E-08	5,18E-13	9,16E-13	0,00E00	7,06E-14	1,21E-13	1,49E-12	-1,50E-08
NHWD [kg]	3,05E-02	2,53E-05	7,45E-03	0,00E00	1,03E-06	5,95E-06	3,48E-02	-1,23E-02
RWD [kg]	1,46E-04	3,11E-07	1,64E-07	0,00E00	1,10E-08	7,30E-08	2,41E-07	-1,13E-05
CRU [kg]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
MFR [kg]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	2,54E-02	0,00E+00
MER [kg]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
EEE [MJ]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00
EET [MJ]	0,00E00	0,00E00	0,00E00	0,00E00	0,00E00	0,00E+00	0,00E+00	0,00E+00

Table 11: Waste category and output flow descriptions

Acronym	Unit	Indicator
HWD	kg	Hazardous waste disposed
NHWD	kg	Non-hazardous waste disposed
RWD	kg	Radioactive waste disposed
CRU	kg	Components for reuse
MFR	kg	Materials for recycling
MER	kg	Materials for energy recovery
EEE	kg	Exported energy (electrical)
EET	kg	Exported energy (thermal)

Table 12: Additional indicators*

	A1-A3	A4	A5	C1	C2	C3	C4	D
PM [Disease incidences]	1,27E-08	2,81E-10	7,58E-11	0,00E00	1,35E-11	1,16E-10	7,10E-11	-5,30E-09
IRP [kBq U235 eq.]	2,34E-02	4,64E-05	2,15E-05	0,00E00	1,56E-06	1,09E-05	3,42E-05	-1,75E-03
ETPfw [CTUe]	2,92E+00	1,18E-01	2,27E-02	0,00E00	7,43E-03	2,76E-02	5,50E-02	-7,60E-01
HTPc [CTUh]	1,14E-10	2,42E-12	6,49E-13	0,00E00	1,38E-13	5,65E-13	1,11E-12	-3,60E-11
HTPnc [CTUh]	5,95E-09	1,35E-10	6,24E-11	0,00E00	6,04E-12	3,55E-11	9,80E-11	-2,57E-09
SQP [Pt]	2,70E+00	6,85E-02	3,88E-03	0,00E00	2,62E-05	1,63E-02	2,34E-03	-4,28E-01

Table 13: Optional indicator descriptions

Acronym	Unit	Indicator
PM	Disease incidence	Potential incidence of disease due to particulate matter emissions
IRP**	kBq U235 eq.	Potential human exposure efficiency relative to U235
ETPfw*	CTUe	Potential Comparative Toxic Unit for ecosystems (fresh water)
HTPc*	CTUh	Potential Comparative Toxic Unit for humans (cancer)
HTPnc*	CTUh	Potential Comparative Toxic Unit for humans (non-cancer)
SQP*	Dimensionless	Potential soil quality index

**Disclaimer for ADPE, ADPF, WDP, ETPfw, HTPc, HTPnc, SQP:* The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

***Disclaimer for ionizing radiation:* 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.

Annex 1

Annex 1: The sales codes of all cables covered in this EPD

To calculate the actual environmental impacts of purchased products, just multiply the environmental impacts from this EPD with the length [m] of the purchased product sales code.

Example:

Sales code: 088L6021

Length: 2 m

GPWT: 0,254 kgCO2eq/m

Greenhouse gases from the cable 2 m x 0,254 kgCO2eq/m = 0,508 kgCO2eq

The sales codes of all EC & DeviFLEX cables covered in this EPD, are presented in table 14.

Table 14: Flex sales codes, covered by this EPD

Devi FLEX			
Sales code	Product description	Lengt [m]	Combination
088L6021	ECflex 10T 2m 230V 20W	2,0	e
088L6022	ECflex 10T 4m 230V 40W	4,0	e
088L6023	ECflex 10T 6m 230V 60W	6,0	d
088L6024	ECflex 10T 8m 230V 80W	8,0	d
088L6025	ECflex 10T 10m 230V 100W	10,0	d
088L6026	ECflex 10T 20m 230V 205W	20,0	c
088L6027	ECflex 10T 30m 230V 290W	30,0	b
088L6028	ECflex 10T 40m 230V 390W	40,0	b
088L6029	ECflex 10T 50m 230V 505W	50,0	b
088L6030	ECflex 10T 60m 230V 600W	60,0	a
088L6031	ECflex 10T 70m 230V 695W	70,0	a
088L6032	ECflex 10T 80m 230V 795W	80,0	a
088L6034	ECflex 10T 100m 230V 990W	100,0	a
088L6035	ECflex 10T 120m 230V 1220W	120,0	a
088L6036	ECflex 10T 140m 230V 1410W	140,0	a
088L6037	ECflex 18T 7,3m 230V 130W	7,3	d
088L6038	ECflex 18T 10m 230V 180W	10,0	d
088L6039	ECflex 18T 15m 230V 270W	15,0	c
088L6040	ECflex 18T 22m 230V 395W	22,0	b
088L6041	ECflex 18T 29m 230V 535W	29,0	b
088L6042	ECflex 18T 34m 230V 615W	34,0	b
088L6043	ECflex 18T 37m 230V 680W	37,0	b
088L6044	ECflex 18T 44m 230V 820W	44,0	a
088L6045	ECflex 18T 52m 230V 935W	52,0	a
088L6046	ECflex 18T 59m 230V 1075W	59,0	a
088L6047	ECflex 18T 68m 230V 1220W	68,0	a

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088L6048	ECflex 18T 74m 230V 1340W	74,0	a
088L6049	ECflex 18T 82m 230V 1485W	82,0	a
088L6050	ECflex 18T 90m 230V 1625W	90,0	a
088L6051	ECflex 18T 105m 230V 1880W	105,0	a
088L6052	ECflex 18T 118m 230V 2135W	118,0	a
088L6053	ECflex 18T 131m 230V 2420W	131,0	a
088L6054	ECflex 18T 155m 230V 2775W	155,0	a
088L6055	ECflex 20T 7,1m 230V 140W	7,1	d
088L6056	ECflex 20T 10m 230V 195W	10,0	d
088L6057	ECflex 20T 16,5m 230V 330W	16,5	c
088L6058	ECflex 20T 21m 230V 415W	21,0	b
088L6059	ECflex 20T 28m 230V 555W	28,0	b
088L6060	ECflex 20T 32m 230V 650W	32,0	b
088L6061	ECflex 20T 36m 230V 700W	36,0	b
088L6062	ECflex 20T 43m 230V 835W	43,0	a
088L6063	ECflex 20T 50m 230V 970W	50,0	a
088L6064	ECflex 20T 56m 230V 1130W	56,0	a
088L6065	ECflex 20T 65m 230V 1275W	65,0	a
088L6066	ECflex 20T 70m 230V 1415W	70,0	a
088L6067	ECflex 20T 78m 230V 1565W	78,0	a
088L6068	ECflex 20T 86m 230V 1700W	86,0	a
088L6069	ECflex 20T 100m 230V 1975W	100,0	a
088L6070	ECflex 20T 112m 230V 2250W	112,0	a
088L6071	ECflex 20T 125m 230V 2530W	125,0	a
088L6072	ECflex 20T 148m 230V 2905W	148,0	a
088L6073	ECflex 10T 90m 230V 920W	90,0	a
088L6074	ECflex 10T 15m 230V 135W	15,0	d
088L6075	ECflex 10T 25m 230V 240W	25,0	c
088L6076	ECflex 10T 35m 230V 365W	35,0	b
088L6077	ECflex 10T 160m 230V 1575W	160,0	a
088L6078	ECflex 10T 180m 230V 1760W	180,0	a
088L6079	ECflex 10T 200m 230V 1990W	200,0	a
088L6080	ECflex 10T 210m 230V 2050W	210,0	a
088L6081	ECflex 18T 12,8m 230V 230W	12,8	d
088L6082	ECflex 18T 17,5m 230V 310W	17,5	c
088L6083	ECflex 18T 54m 230V 1005W	54,0	a
088L6084	ECflex 18T 170m 230V 3050W	170,0	a
088L6100	ECflex 10T 205W 230V 20m ECtemp Touch	20,0	c
088L6101	ECflex 10T 290W 230V 30m ECtemp Touch	30,0	b
088L6102	ECflex 10T 390W 230V 40m ECtemp Touch	40,0	b
088L6103	ECflex 10T 505W 230V 50m ECtemp Touch	50,0	b

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088L6104	ECflex 10T 600W 230V 60m ECtemp Touch	60,0	a
088L6105	ECflex 10T 795W 230V 80m ECtemp Touch	80,0	a
088L6106	ECflex 10T 990W 230V 100m ECtemp Touch	100,0	a
088L6107	ECflex 10T 1220W 230V 120m ECtemp Touch	120,0	a
088L6108	ECflex 10T 1410W 230V 140m ECtemp Touch	140,0	a
088L6353	ECflex 100T 1,1m² 230V 120W	7,9	d
088L6354	ECflex 100T 1,6m² 230V 165W	10,9	d
088L6355	ECflex 100T 2,5m² 230V 240W	16,9	c
088L6356	ECflex 100T 3,6m² 230V 355W	24,4	b
088L6357	ECflex 100T 4,3m² 230V 445W	28,9	b
088L6358	ECflex 100T 5,6m² 230V 550W	37,9	b
088L6359	ECflex 100T 6,5m² 230V 660W	43,9	a
088L6360	ECflex 100T 7,7m² 230V 780W	51,4	a
088L6361	ECflex 100T 9,0m² 230V 900W	60,4	a
088L6362	ECflex 100T 11,0m² 230V 1120W	73,9	a
088L6363	ECflex 100T 13,5m² 230V 1350W	90,4	a
088L6364	ECflex 100T 14,9m² 230V 1470W	99,4	a
088L6365	ECflex 100T 16,2m² 230V 1630W	108,4	a
088L6366	ECflex 100T 18,2m² 230V 1810W	121,9	a
088L6367	ECflex 100T 21,8m² 230V 2170W	145,9	a
088L6368	ECflex 100T 24,3m² 230V 2450W	162,4	a
088L6370	ECflex 75T 1,1m² 230V 80W	7,9	d
088L6371	ECflex 75T 2,0m² 230V 140W	13,9	d
088L6372	ECflex 75T 3,2m² 230V 255W	21,4	c
088L6373	ECflex 75T 4,5m² 230V 330W	30,4	c
088L6374	ECflex 75T 6,5m² 230V 475W	43,9	b
088L6375	ECflex 75T 8,6m² 230V 630W	57,4	a
088L6376	ECflex 75T 9,9m² 230V 730W	66,4	a
088L6377	ECflex 75T 11,3m² 230V 840W	75,4	a
088L6378	ECflex 75T 14,0m² 230V 1060W	93,4	a
088L6379	ECflex 75T 16,2m² 230V 1200W	108,4	a
088L6380	ECflex 75T 18,7m² 230V 1415W	124,9	a
088L6381	ECflex 75T 20,9m² 230V 1575W	139,9	a
088L6382	ECflex 75T 25,2m² 230V 1880W	168,4	a
088L6383	ECflex 75T 29,3m² 230V 2200W	195,4	a
088L6385	ECflex 50T 2,3m² 230V 117W	15,4	d
088L6386	ECflex 50T 3,4m² 230V 178W	22,9	c
088L6387	ECflex 50T 5,2m² 230V 250W	34,9	b
088L6388	ECflex 50T 6,8m² 230V 340W	45,4	b
088L6389	ECflex 50T 8,8m² 230V 430W	58,9	b
088L6390	ECflex 50T 10,4m² 230V 520W	69,4	a

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088L6391	ECflex 50T 11,9m² 230V 610W	79,9	a
088L6392	ECflex 50T 13,7m² 230V 690W	91,9	a
088L6393	ECflex 50T 17,1m² 230V 865W	114,4	a
088L6394	ECflex 50T 19,8m² 230V 985W	132,4	a
088L6395	ECflex 50T 23,0m² 230V 1190W	153,4	a
088L6396	ECflex 50T 25,7m² 230V 1285W	171,4	a
140F1200	DEVIflex 6T 30m 230V 180W	30,0	c
140F1201	DEVIflex 6T 40m 230V 250W	40,0	c
140F1202	DEVIflex 6T 50m 230V 310W	50,0	b
140F1203	DEVIflex 6T 60m 230V 345W	60,0	b
140F1204	DEVIflex 6T 70m 230V 415W	70,0	a
140F1205	DEVIflex 6T 80m 230V 500W	80,0	a
140F1206	DEVIflex 6T 90m 230V 540W	90,0	a
140F1207	DEVIflex 6T 100m 230V 635W	100,0	a
140F1208	DEVIflex 6T 115m 230V 720W	115,0	a
140F1209	DEVIflex 6T 129m 230V 770W	129,0	a
140F1210	DEVIflex 6T 140m 230V 870W	140,0	a
140F1211	DEVIflex 6T 160m 230V 915W	160,0	a
140F1212	DEVIflex 6T 180m 230V 1095W	180,0	a
140F1213	DEVIflex 6T 190m 230V 1160W	190,0	a
140F1214	DEVIflex 6T 200m 230V 1260W	200,0	a
140F1215	DEVIflex 10T 2m 230V 20W	2,0	e
140F1216	DEVIflex 10T 4m 230V 40W	4,0	e
140F1217	DEVIflex 10T 6m 230V 60W	6,0	d
140F1218	DEVIflex 10T 8m 230V 80W	8,0	d
140F1219	DEVIflex 10T 10m 230V 100W	10,0	d
140F1220	DEVIflex 10T 20m 230V 205W	20,0	c
140F1221	DEVIflex 10T 30m 230V 290W	30,0	b
140F1222	DEVIflex 10T 40m 230V 390W	40,0	b
140F1223	DEVIflex 10T 50m 230V 505W	50,0	b
140F1224	DEVIflex 10T 60m 230V 600W	60,0	a
140F1225	DEVIflex 10T 70m 230V 695W	70,0	a
140F1226	DEVIflex 10T 80m 230V 790W	80,0	a
140F1227	DEVIflex 10T 90m 230V 920W	90,0	a
140F1228	DEVIflex 10T 100m 230V 990W	100,0	a
140F1229	DEVIflex 10T 120m 230V 1220W	120,0	a
140F1230	DEVIflex 10T 140m 230V 1410W	140,0	a
140F1231	DEVIflex 10T 160m 230V 1575W	160,0	a
140F1232	DEVIflex 10T 180m 230V 1760W	180,0	a
140F1233	DEVIflex 10T 200m 230V 1990W	200,0	a
140F1234	DEVIflex 10T 210m 230V 2050W	210,0	a

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140F1235	DEVIflex 18T 7,3m 230V 130W	7,3	d
140F1236	DEVIflex 18T 10m 230V 180W	10,0	d
140F1237	DEVIflex 18T 15m 230V 270W	15,0	c
140F1238	DEVIflex 18T 22m 230V 395W	22,0	b
140F1239	DEVIflex 18T 29m 230V 535W	29,0	b
140F1240	DEVIflex 18T 34m 230V 615W	34,0	b
140F1241	DEVIflex 18T 37m 230V 680W	37,0	b
140F1242	DEVIflex 18T 44m 230V 820W	44,0	a
140F1243	DEVIflex 18T 52m 230V 935W	52,0	a
140F1244	DEVIflex 18T 59m 230V 1075W	59,0	a
140F1245	DEVIflex 18T 68m 230V 1220W	68,0	a
140F1246	DEVIflex 18T 74m 230V 1340W	74,0	a
140F1247	DEVIflex 18T 82m 230V 1485W	82,0	a
140F1248	DEVIflex 18T 90m 230V 1625W	90,0	a
140F1249	DEVIflex 18T 105m 230V 1880W	105,0	a
140F1250	DEVIflex 18T 118m 230V 2135W	118,0	a
140F1251	DEVIflex 18T 131m 230V 2420W	131,0	a
140F1252	DEVIflex 18T 155m 230V 2775W	155,0	a
140F1271	DEVIflex 30T 45m 230V 1405W	45,0	a
140F1272	DEVIflex 30T 90m 230V 2800W	90,0	a
140F1400	DEVIflex 18T 12,8m 230V 230W	12,8	d
140F1401	DEVIflex 18T 17,5m 230V 310W	17,5	c
140F1402	DEVIflex 18T 170m 230V 3050W	170,0	a
140F1407	DEVIflex 10T 15m 230V 135W	15,0	d
140F1408	DEVIflex 10T 25m 230V 240W	25,0	c
140F1409	DEVIflex 10T 35m 230V 365W	35,0	b
140F1410	DEVIflex 18T 54m 230V 1005W	54,0	a
140F9999	DEVIflex/DEVIsafe Cable Special Order	1,0	a

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The sales codes of all EC & DeviSAFE cables covered in this EPD, are presented in table 15.

Table 15: Safe sales codes, covered by this EPD

DeviSAFE			
Sales code	Product description	Lengt [m]	Combination
088L2170	ECsafe 20T 6m 230V 125W	6,0	d
088L2171	ECsafe 20T 12m 230V 250W	12,0	e
088L2172	ECsafe 20T 17m 230V 335W	17,0	c
088L2173	ECsafe 20T 25m 230V 505W	25,0	b
088L2174	ECsafe 20T 33m 230V 675W	33,0	b
088L2175	ECsafe 20T 42m 230V 830W	42,0	a
088L2177	ECsafe 20T 60m 230V 1200W	60,0	a
088L2178	ECsafe 20T 68m 230V 1370W	68,0	a
088L2179	ECsafe 20T 85m 230V 1700W	85,0	a
088L2180	ECsafe 20T 101m 230V 2040W	101,0	a
088L2181	ECsafe 20T 118m 230V 2360W	118,0	a
088L2182	ECsafe 20T 135m 230V 2685W	135,0	a
088L2183	ECsafe 20T 152m 230V 3025W	152,0	a
088L2184	ECsafe 20T 170m 230V 3385W	170,0	a
088L6300	ECfreeze 7.5T 35m 400V 260W	35,0	e
088L6301	ECfreeze 7.5T 48m 400V 355W	48,0	c
088L6302	ECfreeze 7.5T 71m 400V 540W	71,0	b
088L6303	ECfreeze 7.5T 118m 400V 890W	118,0	a
088L6305	ECfreeze 7.5T 170m 400V 1280W	170,0	a
088L6306	ECfreeze 7.5T 217m 400V 1635W	217,0	a
088L6307	ECfreeze 7.5T 241m 400V 1810W	241,0	a
088L6308	ECfreeze 7.5T 288m 400V 2160W	288,0	a
088L6309	ECfreeze 7.5T 382m 400V 2870W	382,0	a
088L6310	ECfreeze 7.5T 431m 400V 3230W	431,0	a
088L6311	ECfreeze 7.5T 482m 400V 3610W	482,0	a
088L6451	ECsafe 100T 4,2m² 230V 445W	28,4	b
088L6452	ECsafe 100T 5,7m² 230V 580W	38,4	b
088L6453	ECsafe 100T 7,2m² 230V 720W	48,4	a

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088L6455	ECsafe 100T 10,5m² 230V 1020W	70,4	a
088L6456	ECsafe 100T 11,7m² 230V 1190W	78,4	a
088L6457	ECsafe 100T 13,2m² 230V 1330W	88,4	a
088L6458	ECsafe 100T 14,7m² 230V 1465W	98,4	a
088L6459	ECsafe 100T 17,4m² 230V 1770W	116,4	a
088L6460	ECsafe 100T 20,4m² 230V 2040W	136,4	a
088L6461	ECsafe 100T 23,4m² 230V 2320W	156,4	a
088L6462	ECsafe 100T 26,1m² 230V 2670W	174,4	a
088L6463	ECsafe 100T 29,4m² 230V 2930W	196,4	a
088L6466	ECsafe 100T 5,1m² 400V 500W	34,8	c
088L6467	ECsafe 100T 7,5m² 400V 760W	50,8	b
088L6468	ECsafe 100T 9,9m² 400V 1020W	66,8	b
088L6469	ECsafe 100T 12,6m² 400V 1250W	84,8	a
088L6471	ECsafe 100T 18,0m² 400V 1810W	120,8	a
088L6472	ECsafe 100T 20,4m² 400V 2070W	136,8	a
088L6473	ECsafe 100T 23,1m² 400V 2300W	154,8	a
088L6474	ECsafe 100T 25,5m² 400V 2560W	170,8	a
088L6475	ECsafe 100T 30,6m² 400V 3050W	204,8	a
140F1199	DEVIsafe 20T 76m 230V 1545W	76,0	a
140F1273	DEVIsafe 20T 6m 230V 125W	6,0	d
140F1274	DEVIsafe 20T 12m 230V 250W	12,0	e
140F1275	DEVIsafe 20T 17m 230V 335W	17,0	c
140F1276	DEVIsafe 20T 25m 230V 505W	25,0	b
140F1277	DEVIsafe 20T 33m 230V 675W	33,0	b
140F1278	DEVIsafe 20T 42m 230V 830W	42,0	a
140F1280	DEVIsafe 20T 60m 230V 1200W	60,0	a
140F1281	DEVIsafe 20T 68m 230V 1370W	68,0	a
140F1282	DEVIsafe 20T 85m 230V 1700W	85,0	a
140F1283	DEVIsafe 20T 101m 230V 2040W	101,0	a
140F1284	DEVIsafe 20T 118m 230V 2360W	118,0	a
140F1285	DEVIsafe 20T 135m 230V 2685W	135,0	a
140F1286	DEVIsafe 20T 152m 230V 3025W	152,0	a

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140F1287	DEVIsafe 20T 170m 230V 3385W	170,0	a
088L2185	ECsafe 20T 194m 230V 3895W	194,0	a
088L6312	ECfreeze 7.5T 552m 400V 4140W	552,0	a
140F1288	DEVIsafe 20T 194m 230V 3895W	194,0	a

References

CEN (2019). *EN 15804:2012+A2:2019: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.* Brussels, Belgium: European Committee for Standardization.

Product Category Rules (PCR): Construction products PCR 2019:14 v. 1.25

NPCR 027 Part B for electrical cables and wires, version 2.0, issue date 01.03.2022

Danfoss (2022). *Danfoss Product Category Rules: Environmental Product Declarations for Danfoss Products.* Nordborg, Denmark: Danfoss A/S.

ISO (2006a). *ISO 14025:2006: Environmental labels and declarations – Type III environmental declarations – Principles and procedures.* Geneva, Switzerland: International Organization for Standardization.

ISO (2006b). *ISO 14040:2006: Environmental management – Life cycle assessment – Principles and framework.* Geneva, Switzerland: International Organization for Standardization.

ISO (2006c). *ISO 14044:2006: Environmental management – Life cycle assessment – Requirements and guidelines.* Geneva, Switzerland: International Organization for Standardization.

ANNEX 1

ANNEX 1: Self declaration from EPD owner

Specific requirements

1 Applied electricity data set used in the manufacturing phase

The electricity mix for the electricity used in manufacturing (A3) is the electricity from Windpower based on PPAs. Dataset is from LCA for Experts, My professional database 2023.2, the tile of the process is EU-27 Electicity from Windpower GWPT= 0,0138 kgCO2eq/kWh (EN 15804 + A2 based on EF 3.1.)

2 Transport from the place of manufacture to a central warehouse

Transport distance, and CO_2-eqv./DU from transport of the product from factory gate to central warehouse in Oslo shall be given. The following table shall be included in the EPD:

Type	Capacity utilisation (incl. return) %	Type of vehicle	Distance km	Fuel/Energy use	Unit	Value (l/t)	Kg CO2-eqv./DU
Boat	70	LCA for Experts data name: Container ship (heavy-fuel-oil-driven; 5 000 to 200 000 dead weight tonnes):	163	Heavy fuel oil			
Truck	53	LCA for Experts data name: Truck (diesel-driven; Euro 0-6 mix; 14-20 tonne gross vehicle weight; 11,4 tonne payload capacity):	1162	Diesel	l/tkm	<xxxx>	
Railway							

Rail							
Air							
Total							

3 Impact on the indoor environment

- ☐ Indoor air emission testing has been performed; specify test method and reference; M1, _____
- ☐ No test has being performed
- ☐ Not relevant; specify. Dette er ikke relevant da varmekablene er en lukket sløyfe og avgir ingen avgasser. _____