

Owner: Primo Danmark A/S
No.: MD-25019-EN
Issued: 12-02-2025
Valid to: 12-02-2030

3rd PARTY VERIFIED

EPD

VERIFIED ENVIRONMENTAL PRODUCT DECLARATION | ISO 14025 & EN 15804



Owner of declaration
 Primo Danmark A/S
 Jernbanegade 11
 6862 Tistrup, Denmark
 DK 1023 8935



Issued:
 12-02-2025

Valid to:
 12-02-2030

Programme
 EPD Danmark
www.epddanmark.dk



- Industry EPD
- Product EPD

Basis of calculation

This EPD is developed and verified in accordance with the European standard EN 15804+A2.

Comparability

EPDs of construction products may not be comparable if they do not comply with the requirements in EN 15804. EPD data may not be comparable if the datasets used are not developed in accordance with EN 15804 and if the background systems are not based on the same database.

Validity

This EPD has been verified in accordance with ISO 14025 and is valid for 5 years from the date of issue.

Use

The intended use of an EPD is to communicate scientifically based environmental information for construction products, for the purpose of assessing the environmental performance of buildings.

Declared product(s)
 PVC plastic profiles (foamed/rigid/soft)

Number of declared datasets/product variations: 3

Production site
 Jernbanegade 11
 DK-6862 Tistrup

Use of Guarantees of Origin

- No certificates used
- Electricity covered by GoO
- Biogas covered by GoO

EPD type

- Cradle-to-gate with modules C1-C4 and D
- Cradle-to-gate with options, modules C1-C4 and D
- Cradle-to-grave and module D
- Cradle-to-gate
- Cradle-to-gate with options

Declared/ functional unit

The declared unit is 1 kg PVC plastic profile, at the production site.

Year of production site data (A3)

2023

EPD version


No. 1

CEN standard EN 15804 serves as the core PCR

Independent verification of the declaration and data, according to EN ISO 14025

internal external

Third party verifier:



David Althoff Palm, Dalemarken AB


 Martha Katrine Sørensen
 EPD Danmark

Life cycle stages and modules (MND = module not declared)

Product			Construction process		Use							End of life				Beyond the system boundary
Raw material supply	Transport	Manufacturing	Transport	Installation process	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction demolition	Transport	Waste processing	Disposal	Re-use, recovery and recycling potential
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
X	X	X	X	X	MND	MND	MND	MND	MND	MND	MND	X	X	X	X	X

Product information

Product description

This EPD covers product variants across three types of PVC plastic profiles:

- Foamed (PVC-F)
- Rigid (PVC-U)
- Soft (PVC-P)

The main product components are shown in the table below. Due to confidentiality within the industry, the material composition is provided as ranges that encompass the actual formula for the respective product.

	PVC-F	PVC-U	PVC-P
Material	Weight-% of declared product		
S-PVC	80-90	80-90	50-60
Additives	10-20	10-20	40-50

The PVC plastic profiles are primarily manufactured in white but are also available in various colors and with decorative foil. Additionally, some profiles feature self-adhesive tape for quick and easy installation. To adequately account for these variants, the product variants within each PVC type have been grouped and declared as a worst-case product.

Product packaging

The composition of the sales- and transport packaging of the product is shown in the table below, given in kg/DU and as a weight-%.

	PVC-F	PVC-U	PVC-P
Material	Weight of product packaging [kg]		
Cardboard	0,17	0,17	0,17
Plastic	0,002	0,002	0,002
Material	Weight-% of product packaging		
Cardboard	98,8	98,8	98,8
Plastic	1,2	1,2	1,2

Representativity

This declaration, including data collection and the modeled foreground system including results, represents the production of PVC plastic profiles at the production site of Primo Danmark A/S located in Tistrup, Denmark. Product specific data are based on average values collected in the period 2023. Background data are based on LCA

for Experts database 2024.1 and Ecoinvent database 3.10, are less than 10 years old. Generally, the used background datasets are of high quality, and the majority of the datasets are only a couple of years old.

Hazardous substances

The products declared within this EPD do not contain substances listed on the "Candidate List of Substances of Very High Concern for authorisation".

(<http://echa.europa.eu/candidate-list-table>)

Product(s) use

PVC plastic profiles for any transition in homes/ office buildings/hospitals. They are suitable for application on floors, walls, ceilings, doors, windows, worktops, cabinets, and similar surfaces. The profiles provide a functional and neat finish and are available in various sizes, colors, and designs to match specific requirements.

Essential characteristics

Information about the PVC plastic profiles by Primo can be obtained by contacting the manufacturer or on the manufacturer's website:

<https://da.primo.com/>

Reference Service Life (RSL)

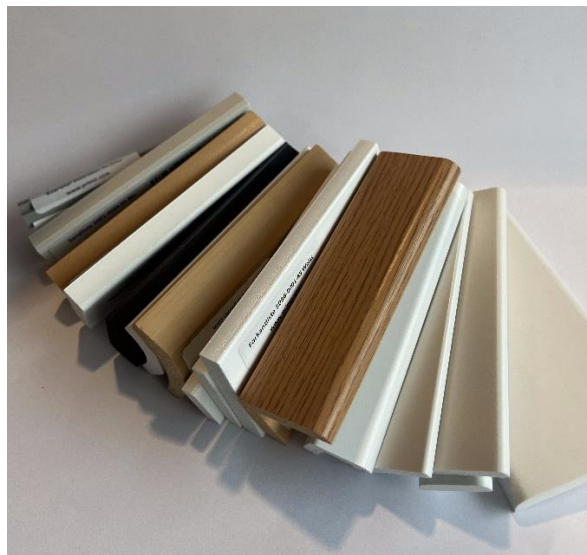
No RSL is declared. This EPD is based on a cradle to gate with modules A4 - A5, C1 - C4 and D and does not include the use stage.

List of product(s)

This EPD includes various product variants of foamed, rigid and soft PVC plastic profiles. The product IDs for the respective variants covered by the EPD are listed in the table below. For an overview of the products, please consult the product catalogue available on the company’s website at <https://da.primo.com/>, or contact Primo Danmark directly via phone at +45 7529 9177 or by email at stdsalg@primo.dk.

Products by Primo Danmark declared in this EPD										
PVC plastic profile	Product ID									
Foamed PVC profiles (PVC-F)	1331	1454	1511	5000	5001	5002	5004	5005	5050	5065
	5074	5075	5078	5096	5097	5098	5099	5100	5101	5103
	5104	5105	5108	5115	7314					
Rigid PVC profiles (PVC-U)	554	566	567	781	919	921	1033	1052	1119	1182
	1218	1273	1286	1288	1331	1354	1400	1402	1454	2038
	2068	2069	2114	2169	2191	2598	2837	2881	3150	3240
	3587	3714	3733	3798	4104	4105	4126	4197	4199	4434
	4435	4436	4437	4438	4472	4478	4493	4544	4545	4559
	4560	4561	4562	4580	4592	5004	5005	5008	5075	5088
	5096	5097	5098	5100	5101	5102	5103	5104	5105	5115
Soft PVC profile (PVC-P)	509	526	528	529	546	559	560	578	582	583
	584	585	586	587	597	598	600	603	619	630
	641	647	688	700	703	710	727	728	730	765
	807	825	887	904	922	925	927	929	931	932
	933	1052	1119	1244	1354	1567	1614	2169	2189	2191
	2192	2614	3134	3616	3876	3881	4104	4105	4301	4611
	4650	5118	5119	5120						

Picture of product(s)



LCA background

Declared unit

The LCI and LCIA results in this EPD relate to 1 kg plastic profile of PVC-F, PVC-U, and PVC-P respectively. The results presented in this EPD are based on a worst-case PVC profile for each respective PVC type.

Name	Value	Unit
Declared unit (DU)	1	kg
Conversion factor to 1 kg.	1	-

Functional unit

Not defined.

PCR

This EPD is developed according to the core rules for the product category of construction products in EN 15804:2012+A2:2019.

Flowdiagram

The flow diagram below presents the main processes included in the product system of the declared products. Note that the diagram covers all products declared in this study, and therefore, not all processes are necessarily relevant for each declared product.

Energy modelling principles

Foreground system:

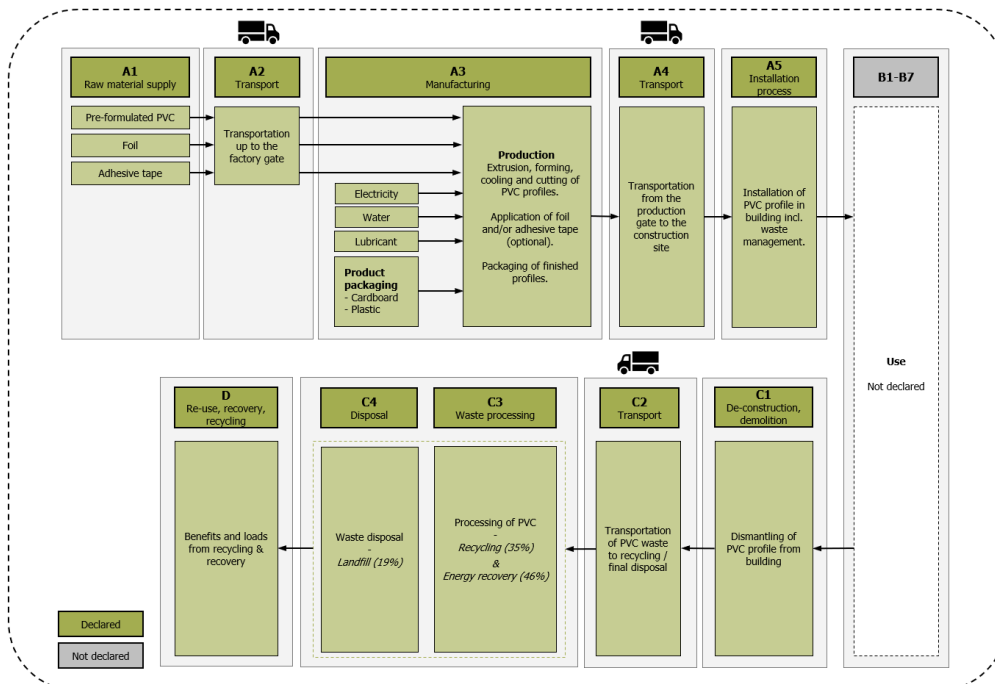
No Guarantee of Origin (GoO) certificates are used in this EPD. Consumption of electricity at the production site of Primo is modelled with the Danish residual grid mix.

Information about the energy mix in the foreground system:

Dataset	EF	Unit
Residual grid mix, DK, ref. year 2021	0,578	kg CO ₂ e/kWh

Background system:

Processes in the background system are modelled with average data from the LCA for Experts and Ecoinvent database. Specific energy inputs upstream the production are modelled using the national or regional residual mix. The grid mix is used for specific energy inputs downstream production.



System boundary

This EPD is based on a cradle-to-gate study with options, modules C1-C4, and module D. The optional modules included are A4 and A5. 100 weight-% has been accounted for in this study.

The general rules for the exclusion of inputs and outputs follows the requirements in EN 15804+A2, 6.3.5, where the total of neglected input flows per module shall be a maximum of 5 % of energy usage and mass and 1 % of energy usage and mass for unit processes.

Product stage (A1-A3) includes:

A1 – Extraction and processing of raw materials

A2 – Transport to the production site

A3 – Manufacturing processes

The product stage comprises the acquisition of all raw materials, products and energy, transport to the production site, packaging and waste processing up to the “end-of-waste” state or final disposal. The LCA results are declared in aggregated form for the product stage, which means, that the sub-modules A1, A2 and A3 are declared as one module A1-A3.

The manufacturing of PVC plastic profiles takes place at the production site of Primo Danmark A/S in Tistrup, Denmark.

PVC is received from suppliers in big bags. Formulation of the respective PVC types (soft, rigid and foamed), including the mixing of color, is done by the supplier of the PVC. An automated system transfers PVC to the extrusion machine. A rotating screw mechanism within the extruder heats and melts the PVC, transforming it into a molten state. This molten PVC is forced through a die, a metal block with a precisely designed opening, shaping it into a continuous profile with the desired cross-sectional shape and dimensions. After extrusion, the profile is cooled in a water bath with recirculated water in a closed-loop system. Any residual water on the profile is removed by air drying.

Once the extrusion, forming, and cooling processes are complete, the PVC profiles are automatically cut to length. After cutting, the profiles are packaged in cardboard tubes sealed

with plastic lids for shipment to customers. Some profiles undergo additional processes, such as foiling or taping, before packaging. In this process, foil (thin film)/tape is attached to the profile surface. The packaged PVC profiles are stored in a warehouse until delivery.

Any production waste, including start-up and testing scraps or profiles not meeting product standards, is collected and granulated. These granules are reused internally to manufacture other Primo products, and therefore no PVC waste is generated during production of the declared products.

Construction process stage (A4-A5) includes:

A4 – Transport to building site

A5 – Installation into the building

Primo supplies PVC profiles to the European market, with its main customer base in Denmark, Sweden, Germany, and Austria. An average distance of 500 km from the factory gate to the building site is assumed.

PVC profiles are manufactured in standard dimensions. It is assumed that the entire profile is installed and subsequently managed at the end-of-life stage. Installation of the profiles into the building is a manual process and does not require consumption of electricity. Fasteners (e.g. nails) and other additional materials are not included in this study, as they are expected to be included at the building level assessment.

Waste processing of the product packaging up to the end-of-waste state or final disposal is therefore included as the only impact in module A5. Any loads or benefits from cardboard recycling and energy recovery from plastic waste incineration is declared in module D.

Use stage (B1-B7) includes:

Not declared.

End of Life (C1-C4) includes:

C1 – Dismantling

C2 – Transport to recycling or disposal

C3 – Waste processing

C4 – Landfilling

The selected EoL scenario represents an average mix for Europe, based on statistical data on PVC waste management published by VinylPlus (VinylPlus 2024 Progress Report¹). This scenario reflects current waste management practices and is assumed to be representative of PVC waste management in the geographical area where the PVC profiles are used.

The end-of-life stage begins with dismantling of the PVC profile from the building. It is assumed that the removal of the profile is performed manually or with handheld power tools, with any associated electricity consumption deemed negligible.

From the building site, the PVC waste is transported to a recycling or disposal site. In this EPD, a transport distance of 100 km is assumed.

Management of PVC waste at end-of-life is modelled as an average European scenario, based on 2024 statistics published by VinylPlus - the European PVC industry's sustainability program. It is assumed that 35% of the PVC waste is recycled, 46% is assumed treated by waste incineration with energy recovery, and 19% is assumed disposed of as landfill waste.

The most conventional method for PVC recycling is mechanical recycling. This involves sorting, shredding, and washing of the PVC waste. After reprocessing, the PVC can be remelted into new products. Recycled PVC is declared in module D.

Incineration of PVC waste is assumed at a waste incineration plant with energy recovery. The

energy produced from plastic waste is declared in module D.

Re-use, recovery and recycling potential (D) includes:

Module D represents benefits or loads beyond the system boundary. In accordance with the guidelines of EN15804+A2, only virgin materials are credited in module D.

The cardboard fraction of the product packaging is sent for recycling and assumed to displace the use of pulpwood (virgin softwood) in cardboard production. The fraction of recycled PVC is assumed to displace the use of virgin S-PVC in production.

Energy recovered from waste incineration is modeled as avoided production of European electricity and heat.

¹ VinylPlus Progress Report 2024, p. 67:

<https://www.vinylplus.eu/resources/progress-report-2024/>

LCA results

Results, PVC-F profile

ENVIRONMENTAL IMPACTS PER 1 KG PVC-F PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2,47E+00	6,20E-02	2,76E-01	0,00E+00	1,06E-02	9,76E-01	5,60E-03	-9,44E-01
GWP-fossil	[kg CO ₂ eq.]	2,73E+00	6,08E-02	8,05E-03	0,00E+00	1,04E-02	9,58E-01	5,58E-03	-9,28E-01
GWP-biogenic	[kg CO ₂ eq.]	-2,64E-01	1,46E-04	2,68E-01	0,00E+00	2,49E-05	1,78E-02	0,00E+00	-1,53E-02
GWP-luluc	[kg CO ₂ eq.]	3,77E-03	1,03E-03	3,01E-05	0,00E+00	1,75E-04	2,10E-04	2,06E-05	-5,69E-04
ODP	[kg CFC 11 eq.]	1,32E-06	9,00E-15	5,96E-16	0,00E+00	1,54E-15	1,24E-12	1,84E-14	-5,28E-07
AP	[mol H ⁺ eq.]	1,45E-02	9,96E-05	3,55E-06	0,00E+00	1,70E-05	2,57E-04	3,34E-05	-3,56E-03
EP-freshwater	[kg P eq.]	5,61E-04	2,61E-07	7,73E-09	0,00E+00	4,45E-08	4,58E-07	3,20E-06	-1,72E-04
EP-marine	[kg N eq.]	2,69E-03	3,86E-05	1,27E-06	0,00E+00	6,59E-06	8,17E-05	7,19E-06	-5,36E-04
EP-terrestrial	[mol N eq.]	2,37E-02	4,53E-04	1,62E-05	0,00E+00	7,72E-05	1,04E-03	7,90E-05	-5,66E-03
POCP	[kg NMVOC eq.]	7,86E-03	9,88E-05	3,30E-06	0,00E+00	1,69E-05	2,31E-04	2,30E-05	-2,19E-03
ADPm ¹	[kg Sb eq.]	2,96E-03	5,32E-09	1,60E-10	0,00E+00	9,08E-10	1,20E-08	3,71E-10	-1,61E-06
ADPf ¹	[MJ]	7,58E+01	8,05E-01	2,43E-02	0,00E+00	1,37E-01	2,07E+00	9,43E-02	-2,25E+01
WDP ¹	[m ³ world eq. deprived]	1,86E+00	9,46E-04	6,06E-04	0,00E+00	1,61E-04	9,85E-02	7,21E-04	-6,38E-01
Caption	GWP-total = Global Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG PVC-F PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	9,58E-08	1,05E-09	3,46E-11	0,00E+00	1,80E-10	5,08E-09	3,46E-10	-2,19E-08
IRP ²	[kBq U235 eq.]	2,86E-01	2,13E-04	1,29E-05	0,00E+00	3,63E-05	1,73E-02	1,82E-04	-1,40E-01
ETP-fw ¹	[CTUe]	3,98E+01	5,97E-01	1,78E-02	0,00E+00	1,02E-01	1,24E+00	2,04E-01	-6,78E+00
HTP-c ¹	[CTUh]	7,69E-09	1,21E-11	3,95E-13	0,00E+00	2,06E-12	4,57E-11	3,03E-12	-1,74E-09
HTP-nc ¹	[CTUh]	3,56E-08	5,41E-10	1,62E-11	0,00E+00	9,24E-11	3,10E-09	6,35E-11	-5,46E-09
SQP ¹	-	4,07E+01	3,96E-01	1,19E-02	0,00E+00	6,75E-02	5,59E-01	1,60E-02	-1,78E+01
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								
	² This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.								

RESOURCE USE PER 1 KG PVC-F PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	9,58E+00	6,93E-02	2,24E-03	0,00E+00	1,18E-02	1,04E+00	1,43E-02	-5,60E+00
PERM	[MJ]	3,61E+00	0,00E+00	-2,93E+00	0,00E+00	0,00E+00	-5,55E-01	0,00E+00	0,00E+00
PERT	[MJ]	1,32E+01	6,93E-02	-2,92E+00	0,00E+00	1,18E-02	4,83E-01	1,43E-02	-5,60E+00
PENRE	[MJ]	6,05E+01	8,05E-01	1,13E-01	0,00E+00	1,37E-01	9,06E+00	9,43E-02	-2,25E+01
PENRM	[MJ]	1,53E+01	0,00E+00	-8,84E-02	0,00E+00	0,00E+00	-1,23E+01	0,00E+00	0,00E+00
PENRT	[MJ]	7,58E+01	8,05E-01	2,43E-02	0,00E+00	1,37E-01	-3,24E+00	9,43E-02	-2,25E+01
SM	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m ³]	4,47E-02	7,72E-05	1,58E-05	0,00E+00	1,32E-05	2,58E-03	2,16E-05	-1,54E-02
Caption	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG PVC-F PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	6,90E-02	3,08E-11	1,34E-12	0,00E+00	5,26E-12	1,52E-09	2,33E-11	-1,46E-04
NHWD	[kg]	1,70E-02	1,31E-04	2,87E-05	0,00E+00	2,24E-05	3,96E-01	1,89E-01	-2,37E-03
RWD	[kg]	4,02E-04	1,47E-06	8,46E-08	0,00E+00	2,50E-07	1,15E-04	1,33E-06	-3,38E-04
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	2,90E-04	0,00E+00	1,70E-01	0,00E+00	0,00E+00	3,50E-01	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	1,92E-02	0,00E+00	1,34E-02	0,00E+00	0,00E+00	1,20E+00	0,00E+00	0,00E+00
EET	[MJ]	7,46E-02	0,00E+00	2,38E-02	0,00E+00	0,00E+00	2,17E+00	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

BIOGENIC CARBON CONTENT PER 1 KG PVC-F PROFILE		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	1,37E-02
Biogenic carbon content in accompanying packaging	[kg C]	7,31E-02
Note: 1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂		

Results, PVC-U profile

ENVIRONMENTAL IMPACTS PER 1 KG PVC-U PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2,33E+00	6,20E-02	2,76E-01	0,00E+00	1,06E-02	9,76E-01	5,61E-03	-9,44E-01
GWP-fossil	[kg CO ₂ eq.]	2,59E+00	6,09E-02	8,05E-03	0,00E+00	1,04E-02	9,58E-01	5,58E-03	-9,28E-01
GWP-biogenic	[kg CO ₂ eq.]	-2,65E-01	1,46E-04	2,68E-01	0,00E+00	2,49E-05	1,78E-02	0,00E+00	-1,53E-02
GWP-luluc	[kg CO ₂ eq.]	4,08E-03	1,03E-03	3,02E-05	0,00E+00	1,75E-04	2,10E-04	2,06E-05	-5,69E-04
ODP	[kg CFC 11 eq.]	1,28E-06	9,00E-15	5,96E-16	0,00E+00	1,54E-15	1,24E-12	1,84E-14	-5,28E-07
AP	[mol H ⁺ eq.]	1,36E-02	9,96E-05	3,55E-06	0,00E+00	1,70E-05	2,57E-04	3,34E-05	-3,57E-03
EP-freshwater	[kg P eq.]	5,02E-04	2,61E-07	7,73E-09	0,00E+00	4,45E-08	4,59E-07	3,20E-06	-1,72E-04
EP-marine	[kg N eq.]	2,02E-03	3,87E-05	1,27E-06	0,00E+00	6,60E-06	8,17E-05	7,19E-06	-5,36E-04
EP-terrestrial	[mol N eq.]	2,23E-02	4,53E-04	1,63E-05	0,00E+00	7,73E-05	1,04E-03	7,90E-05	-5,66E-03
POCP	[kg NMVOC eq.]	7,39E-03	9,88E-05	3,30E-06	0,00E+00	1,69E-05	2,31E-04	2,30E-05	-2,19E-03
ADPm ¹	[kg Sb eq.]	2,96E-03	5,32E-09	1,60E-10	0,00E+00	9,08E-10	1,20E-08	3,71E-10	-1,61E-06
ADPf ¹	[MJ]	7,28E+01	8,05E-01	2,43E-02	0,00E+00	1,37E-01	2,07E+00	9,43E-02	-2,25E+01
WDP ¹	[m ³ world eq. deprived]	1,73E+00	9,46E-04	6,06E-04	0,00E+00	1,61E-04	9,85E-02	7,22E-04	-6,38E-01
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG PVC-U PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	8,83E-08	1,06E-09	3,46E-11	0,00E+00	1,80E-10	5,09E-09	3,46E-10	-2,19E-08
IRP ²	[kBq U235 eq.]	2,71E-01	2,13E-04	1,29E-05	0,00E+00	3,63E-05	1,73E-02	1,83E-04	-1,40E-01
ETP-fw ¹	[CTUe]	2,35E+01	5,98E-01	1,78E-02	0,00E+00	1,02E-01	1,24E+00	2,04E-01	-6,79E+00
HTP-c ¹	[CTUh]	5,84E-09	1,21E-11	3,95E-13	0,00E+00	2,06E-12	4,57E-11	3,03E-12	-1,74E-09
HTP-nc ¹	[CTUh]	3,34E-08	5,42E-10	1,62E-11	0,00E+00	9,24E-11	3,10E-09	6,35E-11	-5,46E-09
SQP ¹	-	4,04E+01	3,96E-01	1,19E-02	0,00E+00	6,76E-02	5,59E-01	1,60E-02	-1,78E+01
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								
	² This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.								

RESOURCE USE PER 1 KG PVC-U PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	9,44E+00	6,93E-02	2,24E-03	0,00E+00	1,18E-02	1,04E+00	1,43E-02	-5,60E+00
PERM	[MJ]	3,61E+00	0,00E+00	-2,93E+00	0,00E+00	0,00E+00	-5,55E-01	0,00E+00	0,00E+00
PERT	[MJ]	1,30E+01	6,93E-02	-2,92E+00	0,00E+00	1,18E-02	4,83E-01	1,43E-02	-5,60E+00
PENRE	[MJ]	5,79E+01	8,05E-01	1,13E-01	0,00E+00	1,37E-01	8,86E+00	9,43E-02	-2,25E+01
PENRM	[MJ]	1,48E+01	0,00E+00	-8,84E-02	0,00E+00	0,00E+00	-1,20E+01	0,00E+00	0,00E+00
PENRT	[MJ]	7,28E+01	8,05E-01	2,43E-02	0,00E+00	1,37E-01	-3,09E+00	9,43E-02	-2,25E+01
SM	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m ³]	4,18E-02	7,72E-05	1,58E-05	0,00E+00	1,32E-05	2,58E-03	2,16E-05	-1,54E-02
Caption	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG PVC-U PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	6,17E-02	3,08E-11	1,34E-12	0,00E+00	5,26E-12	1,52E-09	2,33E-11	-1,46E-04
NHWD	[kg]	1,71E-02	1,31E-04	2,87E-05	0,00E+00	2,24E-05	3,97E-01	1,89E-01	-2,37E-03
RWD	[kg]	4,03E-04	1,47E-06	8,46E-08	0,00E+00	2,50E-07	1,15E-04	1,33E-06	-3,38E-04
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	2,90E-04	0,00E+00	1,70E-01	0,00E+00	0,00E+00	3,50E-01	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	1,92E-02	0,00E+00	1,34E-02	0,00E+00	0,00E+00	1,20E+00	0,00E+00	0,00E+00
EET	[MJ]	7,46E-02	0,00E+00	2,38E-02	0,00E+00	0,00E+00	2,17E+00	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

BIOGENIC CARBON CONTENT PER 1 KG PVC-U PROFILE		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	1,37E-02
Biogenic carbon content in accompanying packaging	[kg C]	7,31E-02
Note: 1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂		

Results, PVC-P profile

ENVIRONMENTAL IMPACTS PER 1 KG PVC-P PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-total	[kg CO ₂ eq.]	2,51E+00	6,20E-02	2,76E-01	0,00E+00	1,06E-02	9,76E-01	5,61E-03	-9,44E-01
GWP-fossil	[kg CO ₂ eq.]	2,77E+00	6,09E-02	8,05E-03	0,00E+00	1,04E-02	9,58E-01	5,59E-03	-9,28E-01
GWP-biogenic	[kg CO ₂ eq.]	-2,73E-01	1,46E-04	2,68E-01	0,00E+00	2,49E-05	1,78E-02	0,00E+00	-1,53E-02
GWP-luluc	[kg CO ₂ eq.]	3,86E-03	1,03E-03	3,02E-05	0,00E+00	1,75E-04	2,10E-04	2,06E-05	-5,69E-04
ODP	[kg CFC 11 eq.]	8,57E-07	9,00E-15	5,97E-16	0,00E+00	1,54E-15	1,24E-12	1,84E-14	-5,28E-07
AP	[mol H ⁺ eq.]	1,28E-02	9,96E-05	3,55E-06	0,00E+00	1,70E-05	2,57E-04	3,34E-05	-3,57E-03
EP-freshwater	[kg P eq.]	3,69E-04	2,61E-07	7,73E-09	0,00E+00	4,45E-08	4,59E-07	3,20E-06	-1,72E-04
EP-marine	[kg N eq.]	1,99E-03	3,87E-05	1,27E-06	0,00E+00	6,60E-06	8,17E-05	7,19E-06	-5,36E-04
EP-terrestrial	[mol N eq.]	2,19E-02	4,53E-04	1,63E-05	0,00E+00	7,73E-05	1,04E-03	7,90E-05	-5,66E-03
POCP	[kg NMVOC eq.]	7,71E-03	9,88E-05	3,30E-06	0,00E+00	1,69E-05	2,31E-04	2,30E-05	-2,19E-03
ADPm ¹	[kg Sb eq.]	2,96E-03	5,32E-09	1,60E-10	0,00E+00	9,08E-10	1,20E-08	3,71E-10	-1,61E-06
ADPf ¹	[MJ]	8,86E+01	8,05E-01	2,43E-02	0,00E+00	1,37E-01	2,07E+00	9,44E-02	-2,25E+01
WDP ¹	[m ³ world eq. deprived]	1,42E+00	9,46E-04	6,06E-04	0,00E+00	1,61E-04	9,85E-02	7,22E-04	-6,38E-01
Caption	GWP-total = Globale Warming Potential - total; GWP-fossil = Global Warming Potential - fossil fuels; GWP-biogenic = Global Warming Potential - biogenic; GWP-luluc = Global Warming Potential - land use and land use change; ODP = Ozone Depletion; AP = Acidification; EP-freshwater = Eutrophication – aquatic freshwater; EP-marine = Eutrophication – aquatic marine; EP-terrestrial = Eutrophication – terrestrial; POCP = Photochemical zone formation; ADPm = Abiotic Depletion Potential – minerals and metals; ADPf = Abiotic Depletion Potential – fossil fuels; WDP = water depletion potential								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimer	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								

ADDITIONAL ENVIRONMENTAL IMPACTS PER 1 KG PVC-P PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PM	[Disease incidence]	8,49E-08	1,06E-09	3,46E-11	0,00E+00	1,80E-10	5,09E-09	3,46E-10	-2,19E-08
IRP ²	[kBq U235 eq.]	3,33E-01	2,13E-04	1,29E-05	0,00E+00	3,63E-05	1,73E-02	1,83E-04	-1,40E-01
ETP-fw ¹	[CTUe]	2,67E+01	5,98E-01	1,78E-02	0,00E+00	1,02E-01	1,24E+00	2,04E-01	-6,79E+00
HTP-c ¹	[CTUh]	4,65E-09	1,21E-11	3,95E-13	0,00E+00	2,06E-12	4,57E-11	3,03E-12	-1,74E-09
HTP-nc ¹	[CTUh]	3,30E-08	5,42E-10	1,62E-11	0,00E+00	9,24E-11	3,10E-09	6,35E-11	-5,46E-09
SQP ¹	-	3,90E+01	3,96E-01	1,19E-02	0,00E+00	6,76E-02	5,59E-01	1,60E-02	-1,78E+01
Caption	PM = Particulate Matter emissions; IRP = Ionizing radiation – human health; ETP-fw = Eco toxicity – freshwater; HTP-c = Human toxicity – cancer effects; HTP-nc = Human toxicity – non cancer effects; SQP = Soil Quality (dimensionless)								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								
Disclaimers	¹ The results of this environmental indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.								
	² This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.								

RESOURCE USE PER 1 KG PVC-P PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	[MJ]	9,20E+00	6,93E-02	2,24E-03	0,00E+00	1,18E-02	1,04E+00	1,43E-02	-5,60E+00
PERM	[MJ]	3,61E+00	0,00E+00	-2,93E+00	0,00E+00	0,00E+00	-5,55E-01	0,00E+00	0,00E+00
PERT	[MJ]	1,28E+01	6,93E-02	-2,92E+00	0,00E+00	1,18E-02	4,83E-01	1,43E-02	-5,60E+00
PENRE	[MJ]	6,71E+01	8,05E-01	1,13E-01	0,00E+00	1,37E-01	1,19E+01	9,44E-02	-2,25E+01
PENRM	[MJ]	2,15E+01	0,00E+00	-8,84E-02	0,00E+00	0,00E+00	-1,73E+01	0,00E+00	0,00E+00
PENRT	[MJ]	8,86E+01	8,05E-01	2,43E-02	0,00E+00	1,37E-01	-5,41E+00	9,44E-02	-2,25E+01
SM	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
RSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	[MJ]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	[m ³]	3,43E-02	7,72E-05	1,58E-05	0,00E+00	1,32E-05	2,58E-03	2,16E-05	-1,54E-02
Caption	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								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

WASTE CATEGORIES AND OUTPUT FLOWS PER 1 KG PVC-P PROFILE									
Parameter	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
HWD	[kg]	6,20E-02	3,08E-11	1,34E-12	0,00E+00	5,26E-12	1,52E-09	2,33E-11	-1,46E-04
NHWD	[kg]	2,08E-02	1,31E-04	2,87E-05	0,00E+00	2,24E-05	3,97E-01	1,89E-01	-2,37E-03
RWD	[kg]	5,38E-04	1,47E-06	8,46E-08	0,00E+00	2,50E-07	1,15E-04	1,33E-06	-3,38E-04
CRU	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
MFR	[kg]	2,90E-04	0,00E+00	1,70E-01	0,00E+00	3,50E-01	0,00E+00	0,00E+00	0,00E+00
MER	[kg]	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
EEE	[MJ]	1,93E-02	0,00E+00	1,34E-02	0,00E+00	1,20E+00	0,00E+00	0,00E+00	0,00E+00
EET	[MJ]	7,46E-02	0,00E+00	2,38E-02	0,00E+00	2,17E+00	0,00E+00	0,00E+00	0,00E+00
Caption	HWD = Hazardous waste disposed; NHWD = Non hazardous waste disposed; RWD = Radioactive waste disposed; CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported electrical energy; EET = Exported thermal energy								
	The numbers are declared in scientific notation, fx 1,95E+02. This number can also be written as: 1,95*10 ² or 195, while 1,12E-11 is the same as 1,12*10 ⁻¹¹ or 0,0000000000112.								

BIOGENIC CARBON CONTENT PER 1 KG PVC-P PROFILE		
Parameter	Unit	At the factory gate
Biogenic carbon content in product	[kg C]	1,37E-02
Biogenic carbon content in accompanying packaging	[kg C]	7,31E-02
Note: 1 kg biogenic carbon is equivalent to 44/12 kg of CO ₂		

Additional information

LCA interpretation

A contribution analysis has been conducted with the aim of identifying which processes and materials contribute the most to the core environmental impacts. Overall, the results show that the greatest environmental impacts take place in the life cycle modules A1 – A3. From the contribution analysis, it appears that the production of S-PVC in A1 has the largest contribution to the overall results in most impact categories.

The product variants within each PVC type have been grouped and declared as a worst-case product. This approach was chosen as deviations exceeded 10% for some core environmental impact categories, making grouping by average unsuitable. The deviation above 10% was identified for ADP-mm and AP (specific to PVC-P), primarily due to the environmental impact of using different pigments.

Technical information on scenarios

Transport to the building site (A4)

Scenario information	Value	Unit
Fuel type	Diesel	-
Vehicle type	Truck, Euro 6, 28 - 32t gross weight / 22t payload capacity	-
Transport distance	500	km
Capacity utilisation (including empty runs)	55	%
Gross density of products transported	-	kg/m ³
Capacity utilisation volume factor	1	-

Installation of the product in the building (A5)

Scenario information	Value	Unit
Ancillary materials	0	kg
Water use	0	m ³
Other resource use	0	kg
Energy type and consumption	0	kWh
Waste materials	0,172	kg
Output materials	1	kg
Direct emissions to air, soil or water	0	kg

End of life (C1-C4)

Scenario information	Value	Unit
Collected separately	1	kg
Collected with mixed waste	0	kg
For reuse	0	kg
For recycling	0,35	kg
For energy recovery	0,46	kg
For final disposal	0,19	kg
Assumptions for scenario development	European average	-

Re-use, recovery and recycling potential (D)

Scenario information/Materiel	Value	Unit
Displaced material, cardboard	0,17	kg
Displaced material, PVC	0,336*	kg
Energy recovery from waste incineration	3,41	MJ
<i>*Accounting for material losses from recycling</i>		


Indoor air

The EPD does not give information on release of dangerous substances to indoor air because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.1.

Soil and water

The EPD does not give information on release of dangerous substances to soil and water because the horizontal standards on the relevant measurements are not available. Read more in EN15804+A1 chapter 7.4.2.

References

Publisher	 epddanmark www.epddanmark.dk <small>Template version 2024.1</small>
Programme operator	Danish Technological Institute Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA-practitioner	Line Granheim Danish Technological Institute Gregersensvej DK-2630 Taastrup www.teknologisk.dk
LCA software / background data	LCA for Experts version 10.8, databases 2024.1 https://sphera.com/ EcoInvent 3.10 database <i>EN 15804 reference package 3.1</i>
3rd party verifier	David Althoff Palm Dalemarken AB www.dalemarken.dk

General programme instructions

General Programme Instructions, version 2.0, spring 2020
www.epddanmark.dk

EN 15804

DS/EN 15804 + A2:2019 - "Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products"

EN 15942

DS/EN 15942:2011 – " Sustainability of construction works – Environmental product declarations – Communication format business-to-business"

ISO 14025

DS/EN ISO 14025:2010 – " Environmental labels and declarations – Type III environmental declarations – Principles and procedures"

ISO 14040

DS/EN ISO 14040:2008 – " Environmental management – Life cycle assessment – Principles and framework"

ISO 14044

DS/EN ISO 14044:2008 – " Environmental management – Life cycle assessment – Requirements and guidelines"