Environmental Product Declaration

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

Multi-product EPD based on a representative product

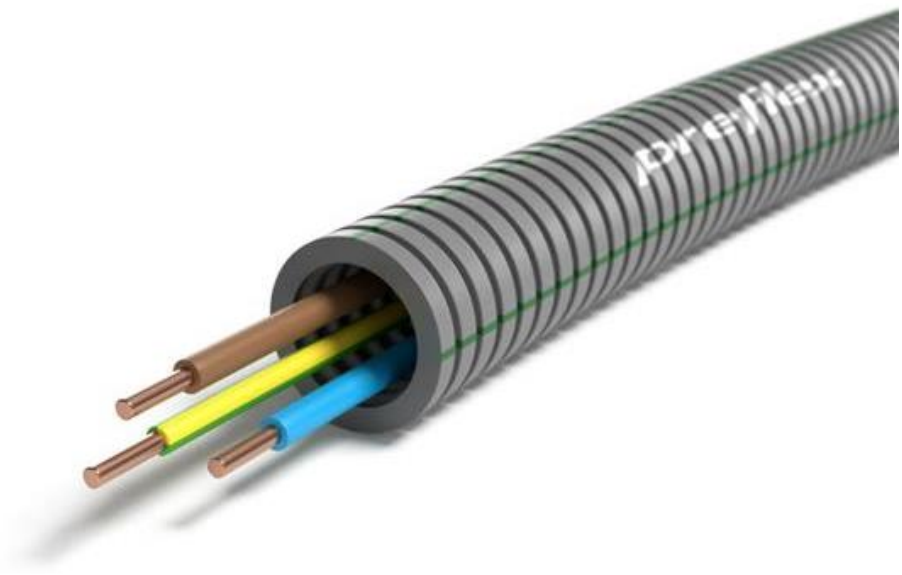
Corrugated pre-wired conduits with standard, low-friction, halogen-free or UV-resistant formulation & with the diameters of 16, 20, 25mm.

from

Preflexibel NV

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0005146
Publication date:	2024-12-11
Valid until:	2029-12-11

An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at www.environdec.com



General information

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)
EN 15804:2012+A2:2019. CEN TC 350. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products, Construction Products PCR 2019:14 version 1.3.4
Life Cycle Assessment (LCA)
LCA accountability: info@enperas.com, *Enperas, Belgium*
Third-party verification
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☒ EPD verification by individual verifier Third-party verifier: *Marcel Gomez, info@marcelgomez.com* Approved by: The International EPD® System
Procedure for follow-up of data during EPD validity involves third party verifier: ☐ Yes ☒ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner of the EPD: Preflexibel NV
Contact: Pieterjan Poelaert, pieterjan.poelaert@conduitlife.com
Description of the organisation: Preflexibel, which is part of the Wienerberger group, is a leading manufacturer of pre-wired and empty corrugated flexible conduits for cable management.
Product-related or management system-related certifications: EN 61386-1/EN 61386-22, certificate number 23102.
Name and location of production site(s): Ninove, Belgium

Product information

Product name: Corrugated PP pre-wired conduit, Standard or Low-Smoke (halogen free), with optional Low Friction, UV resistant additives with a diameter of 16, 20, 25 mm.
Product identification: ICTA 3422, CPC/HS code: 39173100
Product description: Corrugated PP pre-wired conduit in diameter 16/20/25 mm with standard or halogen-free flame retardant, optional low-friction inner layer & optional UV-resistant compound.
More information on the company website.

% cable weight/total conduit weight	<30%	30-45%	45-60%	60-75%	>75%
Combinations cable/conduit	- 16 mm with 1 x 1.5 mm^2 cable - 20 mm with 1 x 1.5 mm^2 cable - 25 mm with 1 x 1.5 mm^2 cable - 25 mm with 1 x 2.5 mm^2 cable	- **20 mm with 2 x 1.5 mm^2 cable*** - 25 mm with 2 x 1.5 mm^2 cable - 25 mm with 3 x 1.5 mm^2 cable - 16 mm with 1 x 2.5 mm^2 cable - 20 mm with 1 x 2.5 mm^2 cable - 25 mm with 2 x 2.5 mm^2 cable	- 16 mm with 2 x 1.5 mm^2 cable - 16 mm with 3 x 1.5 mm^2 cable - 20 mm with 3 x 1.5 mm^2 cable - 20 mm with 4 x 1.5 mm^2 cable - 25 mm with 4 x 1.5 mm^2 cable - 25 mm with 5 x 1.5 mm^2 cable - 16 mm with 2 x 2.5 mm^2 cable - 20 mm with 2 x 2.5 mm^2 cable - 20 mm with 3 x 2.5 mm^2 cable - 25 mm with 3 x 2.5 mm^2 cable - 25 mm with 4 x 2.5 mm^2 cable	- 16 mm with 4 x 1.5 mm^2 cable - 16 mm with 5 x 1.5 mm^2 cable - 20 mm with 5 x 1.5 mm^2 cable - 16 mm with 3 x 2.5 mm^2 cable - 16 mm with 4 x 2.5 mm^2 cable - 20 mm with 4 x 2.5 mm^2 cable - 20 mm with 5 x 2.5 mm^2 cable - 25 mm with 5 x 2.5 mm^2 cable	- 16 mm with 5 x 2.5 mm^2 cable

*20 mm PP conduit with 2 cables of 1.5mm^2 is a representative product which was used to calculate results of this EPD. Chosen representative product in its composition and environmental impacts is the closest to the mathematical average of the product range covered by this EPD.

%cable weight/total weight	Outside diameter, mm	Average weight of pre-wired product, kg/100 m
>75%	16	20.31
	20	-
	25	-
60-75%	16	14.7
	20	19.27
	25	24.4
45-60%	16	10.21
	20	14.02
	25	18.82
30-45%	16	7.91
	20	11.01
	25	14.3
<30%	16	6.81
	20	8.64
	25	11.45

LCA information

Declared unit: 1 kg of pre-wired corrugated wire conduit
Reference service life: Not applicable
Time representativeness: collected data is representative of the year 2023
Database(s) and LCA software used: SimaPro 9.5.1, Ecoinvent 3.9.1 database
Description of system boundaries: Cradle-to-gate with modules C1–C4, module D and optional module A5 (A1–A3, A5, + C + D)
Geographical scope: Europe
Included processes and scenarios used:
A1 – A3:
This module includes:

- production (extraction, pre-treatment, production steps) and transport of raw materials
- production of packaging, ancillary materials and transport of it
- Input of energy consumed during manufacturing and output of scrap.
- Treatment of raw materials' packaging waste.

Electricity mix used for modelling:

Electricity, medium voltage {BE}| electricity, medium voltage, residual mix | Cut-off, U with 0.1996 kg CO_2 eq/kWh.

Preflex purchases electricity from the grid, without GOO certificates, therefore, residual mix for Belgium has been used for modelling.

Manufacturing process:
Production is done completely in the plant located in Ninove.
The production consists of following steps:

1. Dosing (weight) of the raw materials (PP, colour, flame retardant, compound, release agent, …)
2. Extrusion: materials are mixed and melted
3. Corrugation: the melted materials are pushed through a mould. Wires are pulled through.
4. Cooling using city water (closed circuit)
5. Marking & diameter control
6. Wrapping: the rolls are measured and wrapped in plastic foil. After this, they are put on a pallet which on its turn is wrapped.

A5:
This module is out of scope of this study. However, packaging of conduits becomes waste at this stage. Therefore, treatment of packaging waste has been included in A5.
End-of-life scenarios based on Eurostat packaging waste statistics for Europe were used for modelling. That has been done in order to balance biogenic carbon in packaging, which is entering the system in module A3.

Table 1:Packaging waste treatment scenarios in A5

Packaging type	**Transport distance to treatment**	**To sorting**	**To landfill**	**To recycling**	**To incineration**
		0 km	50 km	200 km	150 km
Plastic foils		100% (0.0258 kg)	39% (0.01 kg)	29% (0.01 kg)	32% (0.008 kg)
Wooden pallets		100% (0.095 kg)	38% (0.036 kg)	30% (0.029 kg)	32% (0.03 kg)

C1 – C4, D:
End-of-life scenario for the corrugated conduits was taken from PlasticsEurope report of 2022[1] for building & Construction materials and is the following:

- 25% goes to recycling
- 45% goes to energy recovery/incineration
- 30% goes to landfill

Table 2: End-Of-Life scenario for corrugated conduits

	To sorting (C3-C4)	**To recycling (C3)**	**To landfill (C4)**	**To incineration (C4)**
Polypropylene conduits	100% 0.624 kg	25% 0.156 kg	30% 0.187 kg	45% 0.281 kg
Transport to treatment (C2), 16-32 t EURO6 truck	30 km	200 km	50 km	150 km

The following end-of-life scenario for the electrical cables was assumed:

- Copper part is 100% recycled
- 50% of PVC (plastic) part is landfilled & 50% is incinerated.

According to the literature, on average, there is 45 w% of PVC and 55 w% of copper in the electrical cables.

C1:
Deconstruction is assumed to be manual process in most of the applications.
In the cases where machines are involved (complete demolition), wire conduits are mostly part of a larger construction being demolished. In this case, impacts attributed to profiles are negligible. As a consequence, no inputs were modelled in this step.
C2:
Discarded wire conduits are first transported to sorting for 30 km and then to either recycling for 200 km, to incineration for 150 km or landfill for 50 km.
C3:

[1] https://plasticseurope.org/knowledge-hub/the-circular-economy-for-plastics-a-european-overview-2/

Impacts of sorting & preparation recycling of 0.250 kg of PP conduits have been considered in this module, as well as sorting for recycling of copper parts (0.21 kg) of the cable conduits.

C4:

For the cable parts, sorting of 0.16 kg of cable casing and consequent low efficiency incineration of 0.085 kg and landfill of 0.085 kg was considered.

Parameter	Value/Description
Collection process, per type	0.468 kg (75%) collected and sorted as polyolefin waste. 0.170 kg (100%) of cable casing collected and sorted as polyolefin waste
Recovery, per type	0.281 kg (45%) incinerated with efficiency <60% 0.085 kg (50%) of cable casing incinerated with efficiency <60%
Disposal, per type	0.187 kg (30%) landfilled 0.085 kg (50%) of cable casing landfilled
Assumptions for scenario development	Transported for 30 km to sorting, 150 km to landfill and for 50 km to incineration with the 16-32t, EURO6 truck.

D:
Module D consists of:

- burdens & benefits related to the recycling of PP conduits.
- burdens & benefits related to the recycling of packaging in A5.
- benefits of potential energy recuperation from incineration of packaging in A5 and incineration of PP conduits in C4.
- burdens & benefits related to the recycling of copper from cables.
- benefits of potential energy recuperation from incineration of plastic cable casing in C4.

Table 3: Modelling of module D

Material exiting the system boundary	Process at the system boundary	Material/energy recovered/substituted	Related quantity
PP	Recycling	Polypropylene	0.156 kg
	Incineration	Energy recovered	0.281 kg
Plastic packaging	Recycling	Plastic (PE)	0.0075 kg
	Incineration	Energy recovered	0.008 kg
Wood (packaging)	Recycling	Wood chips	0.057 kg
	Incineration	Energy recovered	0.06 kg
PVC cable casing	Incineration	Energy recovered	0.085 kg
Copper from cables	Recycled	Copper	0.21 kg

Cut-off rules, allocation & other relevant information:
Cut-off criteria:
Cut-off criteria described in EN15804+A2 has been followed: 5% of energy and materials by module and 1% of total energy and raw materials. With these cut-off criteria, the importance of omitted flows is minor and the risk that omitted flows will influence the final conclusions is negligible.
The following processes are considered below cut-off and represent less than 5% of material and energy per module and less than 1% of the total material and energy use:

- All activities and energy use related to the offices and personnel.

- Treatment of waste coming from ancillary materials.
- Some of the ancillary materials.
- Water used for cooling, as it is in a closed circuit.
- Transport of ancillary materials to the production site.
- Potential inputs needed for demolition.

Long term emissions are excluded.
Infrastructure processes are included.

Allocation:

For processes, where allocation is necessary (multiple input or output processes), the allocation procedure described by the European standard EN 15804+A2 has been followed. Wherever possible, allocation was avoided by dividing the unit process to be allocated into two or more sub-processes and collecting the input and output data related to these sub-processes. Where allocation cannot be avoided, the inputs and outputs of the system were partitioned between its different products or functions in a way that reflects the underlying physical relationships between them. Co-production or allocation of secondary fuels are not applicable for this study.
Internal scrap (secondary material) generated during manufacturing process is re-used in the same process, after regrinding (closed-loop recycling).

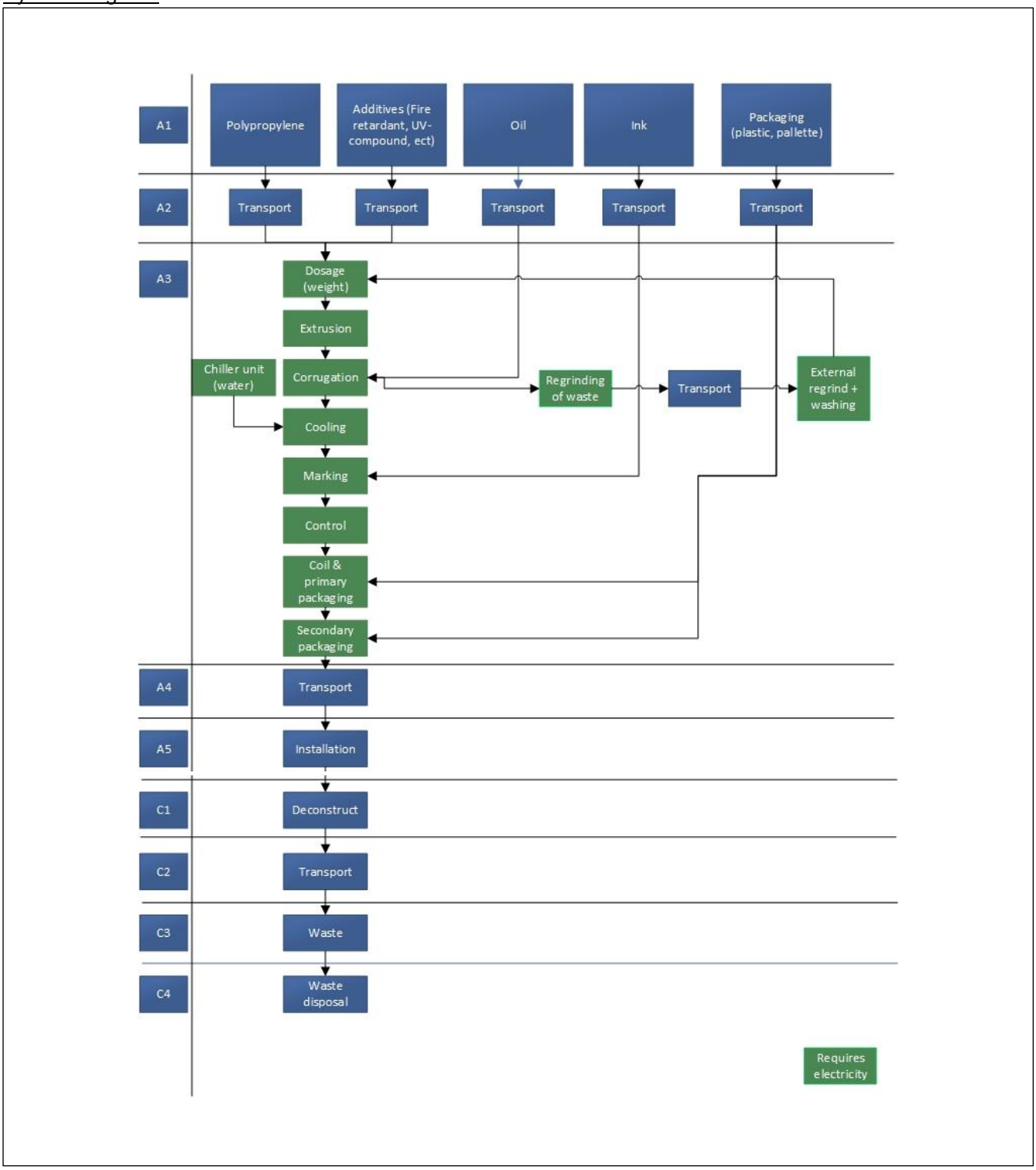
Variability:
This EPD covers a range of empty wire conduits. Environmental impacts in this EPD are representative of a reference product (20 mm with standard flame retardants pre-wired with 2 x 1.5mm^2 electrical cable). Reference product has been selected in a way to ensure minimal deviations of results compared to other products covered by this EPD. Variability study has been performed. Results for GWP of other products deviate between -25% and +30%. Details on other impact categories can be found in the 'Additional Information' chapter.

Data quality:
The data quality is assessed according to the EN15804+A2 and General Programme instructions of International EPD System (version 5, Annex A).
All the amounts, distances, material types, transportation types, energy inputs, etc. are data specific to and provided by Preflex.

Process	Source type	Source	Reference year	Data category	Share of primary data, of GWP results for A1-A3
Production of PP	Database	Ecoinvent 3.9.1	2023	Representative general data	0%
Production of cables	Impact Assessment	LCA from the supplier	2023	Primary data	12%
Total share of primary data contributing to GWP in A1-A3:					**12%**

The reported share of primary data is associated with uncertainty, as one or several EPDs that are used as data source lack information on the share of primary data used.

System diagram:



More information: https://preflex.be/en

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	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	ND	x	ND	ND	ND	ND	ND	ND	ND	x	x	x	x	x
Geography	GLO	GLO	EU	-	-	-	-	-	-	-	-	-	EU	EU	EU	EU	EU
Specific data used	24%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-25% / +33% of GWP			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

*The reported share of primary data is associated with uncertainty, as one or several EPDs that are used as data source lack information on the share of primary data used.

Content information

The table below provides composition of representative product (20 mm with standard flame retardants pre-wired with 2 x 1.5mm^2 electrical cable).

Product components	Weight %	Post-consumer material, weight-%	Biogenic material, weight-% and kg C/kg
Polypropylene	57.3	0	0
Additives & compounds	3.1	0	0
Re-granulate	1.9	0	0
Electrical cable	37.6%	0	0
TOTAL	100%	0	0
Packaging materials	**Weight, g/kg**	**Weight-% (versus the product)**	**Weight biogenic carbon, kg C/kg**
Plastic foil	22	2.2	0
Wooden pallet	95	9.5	0.048
Plastic foil around pallet	3.5	0.035	0
TOTAL	120.5	12.05 %	0.048

Dangerous substances from the candidate list of SVHC for Authorisation	EC No.	CAS No.	Weight-% per functional or declared unit
Not applicable	-	-	-

According to the Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) Regulation, the product does not contain any substance included in the Candidate List of Substances of Very High Concern (SVHCs) for authorization with concentrations higher than 0,1% weight by weight (w/w).

Results of the environmental performance indicators

The results presented below correspond to 1 kg of representative product (20 mm with standard flame retardants pre-wired with 2 x 1.5mm^2 electrical cable).
Calculations have been done using following EN15804+A2 method and EF 3.1 characterization factors.
The results of the LCA are relative expressions and do not predict the final impacts of any impact category, the exceeding of thresholds, safety margins or risks.

Mandatory impact category indicators according to EN 15804

Results per declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-fossil	kg CO_2 eq.	4,67E+00	ND	2,85E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,82E-02	1,21E-03	9,07E-01	-1,60E+00
GWP-biogenic	kg CO_2 eq.	-6,73E-02	ND	1,43E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,09E-06	5,33E-06	1,41E-04	2,71E-02
GWP-luluc	kg CO_2 eq.	5,72E-03	ND	2,08E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,39E-05	2,45E-06	9,99E-05	-2,60E-03
GWP-total	kg CO_2 eq.	4,61E+00	ND	7,39E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,82E-02	1,22E-03	9,07E-01	-1,57E+00
ODP	kg CFC 11 eq.	2,43E-07	ND	1,40E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,14E-10	2,23E-11	2,95E-08	-1,52E-08
AP	mol H^+ eq.	2,38E-01	ND	2,24E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,17E-05	7,72E-06	4,15E-04	-1,07E-01
EP-freshwater	kg P eq.	7,93E-04	ND	5,18E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,29E-07	9,72E-08	2,98E-06	-3,04E-04
EP-marine	kg N eq.	1,01E-02	ND	8,70E-06	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,52E-05	1,68E-06	1,11E-04	-3,98E-03
EP-terrestrial	mol N eq.	1,42E-01	ND	9,73E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,58E-04	1,88E-05	1,25E-03	-5,71E-02
POCP	kg NMVOC eq.	4,62E-02	ND	3,18E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,57E-05	5,81E-06	3,60E-04	-1,84E-02
ADP-minerals&metals*	kg Sb eq.	5,14E-03	ND	1,29E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	9,22E-08	1,20E-08	4,81E-07	-1,51E-03
ADP-fossil*	MJ	1,00E+02	ND	5,27E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,01E-01	2,50E-02	7,31E-01	-2,80E+01
WDP*	m^3	4,81E+00	ND	3,39E-04	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,65E-03	2,55E-04	4,89E-02	-1,87E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption															

** Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

Additional mandatory and voluntary impact category indicators

Results per declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[2]	kg CO2 eq.	4,68E+00	ND	2,85E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,82E-02	1,21E-03	9,07E-01	-1,60E+00
Particulate matter	diseas e inc.	3,58E-07	ND	5,74E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,09E-09	7,70E-11	3,62E-09	-2,11E-07
Ionising radiation*	kBq U-235 eq	2,71E-01	ND	6,59E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,03E-04	1,95E-04	2,62E-03	-6,87E-02
Ecotoxicity	CTUe	2,13E+02	ND	3,11E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,98E-01	5,22E-03	1,24E+01	-8,64E+01
Human toxicity, cancer	CTUh	2,05E-08	ND	1,71E-11	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,29E-11	8,41E-13	1,63E-10	-1,77E-08
Human toxicity, non-cancer	CTUh	1,68E-06	ND	1,10E-10	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,84E-10	1,90E-11	1,77E-09	-1,59E-06
Land use	Pt	1,05E+01	ND	3,03E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,42E-01	1,53E-02	2,06E-01	-3,32E+01

** Disclaimer: The results of these environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.*

*** Disclaimer: This impact category deals mainly with the eventual impact on human health of low dose ionising radiation 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 ionising radiation from the soil, from radon and from some construction materials is also not measured by this indicator.*

**** When using the results of the production stage (modules A1-A3), the results of the end-of-life stage (module C) must be considered.*

Resource use indicators

Results per declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	1,23E+01	ND	8,29E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,20E-03	3,74E-03	8,64E-02	0,00E+00
PERM	MJ	4,17E-01	ND	-8,24E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	6,24E-21
PERT	MJ	1,27E+01	ND	5,03E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	6,20E-03	3,74E-03	8,64E-02	6,24E-21
PENRE	MJ	8,46E+01	ND	5,97E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,01E-01	6,62E+00	1,54E+01	0,00E+00
PENRM	MJ	2,65E+01	ND	-5,15E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	-6,60E+00	-1,47E+01	-6,24E-21
PENRT	MJ	1,11E+02	ND	8,21E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	4,01E-01	1,88E-02	7,31E-01	-6,24E-21
SM	kg	1,93E-02	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00

[2] This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO_2 is set to zero.

RSF	MJ	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
NRSF	MJ	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
FW	m^3	2,57E-02	ND	2,73E-05	ND	ND	ND	ND	ND	ND	ND	0,00E+00	5,41E-05	1,75E-05	1,38E-03	0,00E+00
Acronyms	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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water															

Waste indicators

Results per declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	7,95E-04	ND	3,16E-07	ND	ND	ND	ND	ND	ND	ND	0,00E+00	2,55E-06	5,97E-08	2,48E-06	-5,36E-05
Non-hazardous waste disposed	kg	1,25E-01	ND	2,63E-03	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,99E-02	9,90E-05	2,11E-01	-5,30E-01
Radioactive waste disposed	kg	5,10E-05	ND	4,89E-08	ND	ND	ND	ND	ND	ND	ND	0,00E+00	1,32E-07	1,57E-07	1,84E-06	-4,37E-05

Output flow indicators

Results per declared unit																
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Components for re-use	kg	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Material for recycling	kg	1,51E-04	ND	3,59E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	3,63E-01	0,00E+00	0,00E+00
Materials for energy recovery	kg	0,00E+00	ND	0,00E+00	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	0,00E+00	0,00E+00
Exported energy, electricity	MJ	3,16E-03	ND	1,39E-01	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	2,93E+00	0,00E+00
Exported energy, thermal	MJ	1,58E-03	ND	6,93E-02	ND	ND	ND	ND	ND	ND	ND	0,00E+00	0,00E+00	0,00E+00	1,47E+00	0,00E+00

Additional Environmental Information

Variability of all impact categories between the reference product and products with the highest/lowest impacts is presented below.
Chosen representative product in its composition and environmental impacts is the closest to the mathematical average of the range covered by this EPD.

Impact category	Unit	Product with the lowest impact	Reference product	Product with the highest impact
Climate change	kg CO2 eq	-25%	0%	33%
Climate change - fossil	kg CO2 eq	-24%	0%	32%
Climate change - biogenic	kg CO2 eq	-162%	0%	50%
Climate ch. - lu and transform.	kg CO2 eq	-78%	0%	49%
Ozone depletion	kg CFC11 eq	-57%	0%	46%
Acidification	mol H+ eq	-98%	0%	51%
Eutrophication, freshwater	kg P eq	-57%	0%	48%
Eutrophication, marine	kg N eq	-75%	0%	48%
Eutrophication, terrestrial	mol N eq	-82%	0%	48%
Photochemical ozone formation	kg NMVOC eq	-70%	0%	47%
Resource use, mineral, metals	kg Sb eq	-228%	0%	40%
Resource use, fossils	MJ	-6%	0%	26%
Water use	m3 depriv.	-46%	0%	44%
Particulate matter	disease inc.	-60%	0%	46%
Ionising radiation	kBq U-235 eq	-27%	0%	34%
Ecotoxicity, freshwater	CTUe	-80%	0%	50%
Human toxicity, cancer	CTUh	-98%	0%	48%
Human toxicity, non-cancer	CTUh	-113%	0%	49%
Land use	Pt	26%	0%	-79%

The following resource use, waste & output flow indicators have variability greater than 10%:

Indicator	Unit	Product with the lowest impact	Reference product	Product with the highest impact
PENRE	MJ	-21%	0%	28%
PENRM	MJ	-144%	0%	62%
PENRT	MJ	-23%	0%	31%
Use of secondary materials	kg	21%	0%	-3%
Use of net fresh water	m^3	23%	0%	3%
Hazardous waste disposed	kg	-88%	0%	23%
Non-hazardous waste disposed	kg	-103%	0%	-33%
Materials for recycling	kg	-17%	0%	23%
Exported energy	MJ	-13%	0%	-42%

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