Environmental Product Declaration

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

xReflex

16mm, 20mm, 25mm, 32mm, 40mm and 50mm

from

Pmflex Group Northern Europe AB

EPD of multiple products, based on a representative product

Programme:	The International EPD® System, www.environdec.com
Programme operator:	EPD International AB
EPD registration number:	EPD-IES-0026285:001
Version date:	2026-08-27
Validity date:	2031-08-27

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:	support@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, 2019:14, version 2.0.1*
PCR review was conducted by: *The Technical Committee of the International EPD System. A full list of members is available on www.environdec.com. The review panel may be contacted via support@environdec.com. Chairs of the PCR review: Rob Rouwette (chair), Noa Meron (co-chair)*
Life Cycle Assessment (LCA)
LCA accountability: *Annie Johansson, Sweco (annie.johansson@sweco.se)* *Jennifer Granström, Sweco (jennifer.granstrom@sweco.se)*
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: Pär Lindman, Miljögiraff Approved by: The International EPD® System
OR
Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: ☐ EPD verification by accredited certification body Third-party verification: <*name, organisation*> is an approved certification body accountable for the third-party verification The certification body is accredited by: <*name of accreditation body & accreditation number, where applicable*>
OR

Independent third-party verification of the declaration and data, according to ISO 14025:2006 via:

☐ EPD verification by EPD Process Certification*

Internal auditor: <*name, organisation*>

Third-party verification: <*name, organisation*> is an approved certification body accountable for third-party verification

Third-party verifier is accredited by: <*name of accreditation body & accreditation number, where applicable*>

*For EPD Process Certification, an accredited certification body certifies and reviews the management process and verifies EPDs published on a regular basis. For details about third-party verification procedure of the EPDs, see GPI.

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.

Information about EPD owner

Owner of the EPD:
Pmflex Group Northern Europe AB
Transportgatan 29, 422 46 Hisings Backa

Contact:
Emil Allered
emil.allered@pmflex.com

Description of the organisation:
Pmflex has a great commitment and desire to simplify the value for installers trough modern technology and innovative solutions. After almost 60 years of business, the company offers 12 quality brands, positioning it as a specialist and number one manufacturer in Europe of plastic insulating conduits for electrical systems. The product range includes a complete range of conduits and accessories.

PM Plastic Materials was set up in 1962, taking its name from the very original founder, Pietro Moscheni. In that year, the company began producing flexible plastic conduits and linked its name to the products. In 2020 the product brand was refreshed and rebranded as Pmflex, maintaining a focus on flexibility and innovation.

Pmflex offer a wide range of corrugated hollow pliable ICTA conduits (LSF0H and HF), corrugated pre-wired flexible conduits, corrugated flexible conduits in PP, smooth rigid conduits in PP and smooth LSZH and HF rigid conduits, industrial sheaths, and cable ducts. Additionally, Pmflex also offer all the relevant accessories for every product family.

The company’s mission centers on innovating to make installers’ work increasingly easier, faster, and safer, while committing to sustainability practices. Emphasis is placed on developing next-generation solutions, fostering an innovative corporate culture, and maintaining close customer relationships to enable unique product solutions.

At Pmflex polypropylene raw material and masterbatch are mixed, extruded and processed into cable conduits in different diameters. The pipes are packaged into different package solutions before transport to customers.

Name and location of production site(s):
Pmflex operates a factory for electrical installation conduits at Transportgatan 29, 422 46 Hisings Backa.

Product-related or management system-related certifications:
The products have a CE marking.

Product information

Product name: xReflex

Product identification:
The cable conduits are entirely plastic and classified as a component of an electrical system. They are installed in buildings and can be present for example in concrete constructions, other wood-based constructions or behind plaster in different settings.

Product description:
xReflex is a product variant within the xFlex product family, manufactured by Pmflex. The product is functionally equivalent to xFlex but is distinguished by the incorporation of recycled polymer content in the cable conduit, which affects the material composition while maintaining the same intended application and performance characteristics.

Pmflex low-friction conduit xReflex is an easy-to-work-with flexible conduit with a smooth, treated inner surface, which facilitates the pulling of conductors and protects against wear. The conduit is halogen-free. The flexible conduits are meter-marked.

The representative product (that stands for the largest share of sales volume) is: xReflex 16mm

The other products covered by this product group are: xReflex 20mm, xReflex 25mm, xReflex 32mm, xReflex 40mm and xReflex 50mm.

The material composition in % remains the same for the different products within the product group (94% polypropylene and 6% masterbatch), but the dimensions and hence weight per m differ between the products.

The production of cables with recycled content is increasing depending on the demand. For year 2025, there are currently only quantities sold for 16mm and 20mm, which is in line with where the majority of the sales for the corresponding cables with virgin raw material is (over 90% of the sales). Within a year Pmflex expects production of all dimensions in the xFlex product group having a corresponding xReflex production volume. There is no difference in the production methodology other than the raw material input. The raw material composition and the suppliers for the recycled raw material are already set.

Product name and dimension (mm)	**Weight (g/m)**	**Share of sales within the product group (%)**
xReflex 16mm	48	58%
xReflex 20mm	60	42%
xReflex 25mm	109	0%
xReflex 32mm	120	0%
xReflex 40mm	161	0%
xReflex 50mm	213	0%

Visual representation of product:



UN CPC code: 36320 - Tubes, pipes and hoses, and fittings therefor, of plastics

Content information

The content declaration per 1 m of conduits for the representative product xReflex 16mm.

Product components-xReflex	Weight, kg	Weight range in product group (kg/m)	Post-consumer material, weight-%	Biogenic material, kg C
Polypropylene granulates, recycled	0,034	0,034 – 0,149	70%	0
Polypropylene granulates, virgin	0,012	0,012 – 0,051	0%	0
Masterbatch with Flame retardant	0,0029	0,0029 – 0,013	0%	0
TOTAL	0,048*	0,048 – 0,213	0%	0

**Due to rounding of numbers, the total may differ slightly from the sum of raw materials.*

Packaging materials	Weight, kg	Weight-% (versus the product)	Weight biogenic carbon, kg C
Plastic bag	0,00055	1.1%	0
Pallet (wood)	0,00042	0,87%	0,00011
TOTAL	0,00097	2,0%	0,00011

1 kg biogenic carbon in the product/packaging is equivalent to the uptake of 44/12 kg of CO2.

No substances on the SVHC list have been reported.

LCA information

Declared unit: 1 m of cable conduit.

Conversion factor to mass: 1m of xReflex 16mm weighs 0,048kg.

Time representativeness: Primary data has been collected through relevant documentation from Pmflex Group Northern Europe AB 's own production and supplier production representing the production year 2025. Data was collected from January 2026 to June 2026. All data collected reflects the current actual production representative of Pmflex Group Northern Europe AB's product flows.

Geographical scope:
A1-A3: Europe, A4-A5: Sweden, B1-B7: Sweden, C1-C4: Sweden.

Database(s) and LCA software used: Modelling of environmental impact has been carried out with the LCA tool SimaPro, version 10.2.0.3. Generic datasets and background data have been based on LCI data from Ecoinvent 3.11.

Impact assessment methods: Categories, units and parameters used to describe environmental impacts were selected according to PCR (PCR 2019:14). Characterization factors used to assess material and energy flows were applied according to EN 15804:2012+A2:2019/AC:2021 based on EF 3.1.

Description of system boundaries: Cradle to gate with options, modules C1–C4, module D and with optional modules (A1–A3 + C + D and additional modules)". The additional modules are A4–A5 and B1-B7.

Electricity: Pmflex uses electricity produced from own solar cells on the roof of the facility and purchased electricity from Göteborg Energi AB, with guarantees of origin stating 100% hydro power. The corresponding calculated emission factor for the electricity on the production site in Hisings backa is 0,0547 kg CO2eq/kWh. The emission factor was calculated using IPCC 2021 (GWP-GHG = GWP total).

Data quality: The general data quality and robustness of the results are considered to be good. Most of the input data that is important for the result is based on specific information about material and energy flows from Pmflex. All generic datasets used come from reliable and audited sources (Ecoinvent 3.11) and have been selected based on technical, geographical, and temporal aspects to represent actual processes.

All specific (measured) data has been verified by Pmflex.

The processes constituting over 80% of the impact are presented below and evaluated with regards to data quality. It is presented in the table below.

Process	Share	Reference year	Geographical representativeness	Technical representativeness	Temporal representativeness
Waste plastic, industrial electronics {GLO}| treatment of waste plastic, industrial electronics, municipal incineration | Cut-off, U	50,3%	2023	Good	Good	Very good

Process	Share	Reference year	Geographical representativeness	Technical representativeness	Temporal representativeness
Polypropylene, flakes, recycled {RER}| treatment of waste plastic, mixed, recycling | Cut-off, U	9,92%	2024	Good	Good	Very good
Polypropylene, granulate {RER}| polypropylene production, granulate | Cut-off, U	9,31%	2019	Good	Good	Good
Propylene {RER}| market for propylene | Cut-off, U	6,09%	2024	Good	Good	Very good
Transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 {RER}| market for transport, freight, lorry, 16-32 metric ton, diesel, EURO 6 | Cut-off, U	5,75%	2018	Good	Good	Fair

Share of primary data: The share of primary data is calculated based on GWP-GHG results. It is a simplified indicator for data quality that supports the use of more primary data, to increase the representativeness of and comparability between EPDs. Note that the indicator does not capture all relevant aspects of data quality and is not comparable across product categories.

The polypropylene raw material, which has the largest proportion by weight and climate impact, is based on generic data. No further information has been possible to gather in this stage and the generic data used might differ from actual production. However, the best available data has been used.

The share of primary/specific data contributing to the GWP-GHG results in the manufacturing stage is 10%. The calculations for share of specific data are based on shares of primary data given for raw materials, as well as data from the manufacturing site, see compilation in the table below.

Module	Specification	Source	Reference year	Contribution to GWP	GWP-GHG (kg CO2-eq.)	Total share of primary data
A1	Polypropylene granulates	Polypropylene raw material 100% generic from ecoinvent.	2025	7,9%	0,013	0%
A1	Polypropylene granulates	Combination of generic data from ecoinvent adapted with specific data on energy in production	2025	17,6%	0,029	5,8%
A1	Masterbatch with Flame retardant, xFlex	Masterbatch for xRigid used as proxy. Primary data	2025	9%	0,008	0%
A2	Transport of raw materials to Pmflex	Specific distances and weights collected	2025	3,6%	0,006	100%
A3	Production at Pmflex	Specific manufacturing data collected	2025	2,6%	0,004	100%
A1-A3				**37%**	0,01	**12%**

Allocation: The amount of material in each component is based on specific data. For energy consumption, water use and waste at the production plant, allocation based on mass was used. Total

production volumes over a year were used to allocate the environmental impacts from the production processes per unit of studied products respectively.

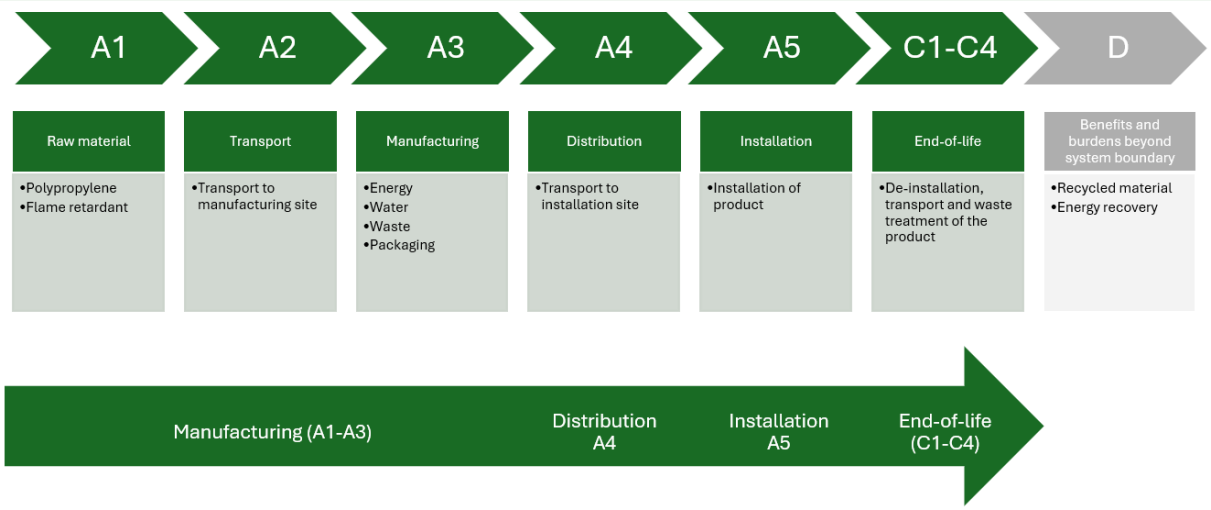
The allocation of waste follows the polluter-pays principle. The system boundary to the subsequent product system is set where the waste (e.g., the discarded product) reaches the end-of-waste state, i.e., when the material has become a usable flow (e.g., for reuse, energy recovery and/or recycling).

Cut-off criteria: The cut-of rule of 1% for mass and energy and 5% for environmental impact over the product life cycle has been followed. Material and energy flows that have been excluded in this LCA are:

- Plastic straps or film used for packaging of final product. Very small amounts per m, environmental impact estimated to fall under cut-off.

In this study, the infrastructure and capital goods are included in the LCA analysis since it is not possible within reasonable effort to subtract the data on infrastructure/capital goods.

System diagram: The system diagram is presented below.



More information:
The scenarios included are currently used and are representative of one of the most likely options. Current market is the Swedish market, hence scenarios for customers located in Sweden has been used through modules A4 to C. Module A4 includes the transport from the Pmflex Group Northern Europe site to wholesale partners and from there further transport to final site for installation. This includes the impact related to the transportation by lorry. The products have no activities generating environmental aspects in module B, hence the different parts of the B-module are empty.

For plastics, the 20% recycling rate comes from the EN 50693 (Product category rules for electronic products and systems) (SIS, 2020). The remaining flow for plastic is assumed to go to incineration (40%) and landfill (40%).

Where a scenario beyond the A3 module has been made, a conservative assumption has generally been made.

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

	Product stage	Distribution/ installation stage	Use stage	End-of-life stage	Beyond product life cycle

	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	X	X	X	X	X	X	X	X	X	X	X	X
Geography	EU/ GLO	EU	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE	SE
Share of primary data	20%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	322%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

Modules/processes/life-cycle stages declared shall be noted with “X”.

Results of the environmental performance indicators

Results are presented for the selected representative product 1m of xReflex 16mm. Further down in the EPD, the variations in results for the different products within the product group are presented. Variations are highly dependent on the dimension of the cable conduit, and the results differ significantly depending on the chosen product.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks.

The results of the end-of-life stage (modules C1-C4) should be considered when using the results of the product stage (modules A1-A3).

Mandatory impact category indicators according to EN 15804

Results per functional or 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.	5,83 E-02	2,59 E-03	1,33 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,91 E-05	1,10E -03	1,17 E-01	0,00 E+00	-1,86E -02
GWP-biogenic	kg CO_2 eq.	3,56 E-04	1,80 E-06	2,46 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,87 E-09	7,52E -07	5,64 E-06	0,00 E+00	-9,93E -04
GWP-luluc	kg CO_2 eq.	1,53 E-03	8,73 E-07	1,30 E-08	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,96 E-09	3,63E -07	7,76 E-07	0,00 E+00	-3,23E -04
GWP-total	**kg CO_2 eq.**	**6,02 E-02**	**2,59 E-03**	**1,35 E-03**	**0,00 E+00**	**0,00 E+00**	**0,00 E+00**	**0,00 E+00**	**0,00 E+00**	**0,00 E+00**	**0,00 E+00**	**1,91 E-05**	**1,10E -03**	**1,17 E-01**	**0,00 E+00**	-1,99E -02
ODP	kg CFC 11 eq.	1,81 E-09	5,66 E-11	9,00 E-13	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,84 E-13	2,39E -11	3,43 E-11	0,00 E+00	-3,42E -09
AP	mol H^+ eq.	1,88 E-04	5,56 E-06	3,57 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,71 E-07	3,52E -06	3,03 E-05	0,00 E+00	-7,56E -04
EP-freshwater	kg P eq.	1,24 E-05	1,80 E-07	5,13 E-09	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	6,17 E-10	7,48E -08	9,85 E-07	0,00 E+00	-4,90E -06
EP-marine	kg N eq.	3,80 E-05	1,34 E-06	1,93 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	7,96 E-08	1,18E -06	2,01 E-05	0,00 E+00	-2,17E -04
EP-terrestrial	mol N eq.	3,64 E-04	1,45 E-05	1,69 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	8,71 E-07	1,29E -05	1,58 E-04	0,00 E+00	-3,65E -03
POCP	kg NMVOC eq.	2,28 E-04	8,83 E-06	4,66 E-07	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	2,61 E-07	5,33E -06	3,90 E-05	0,00 E+00	-6,51E -04
ADP-minerals&metals*	kg Sb eq.	3,67 E-07	8,90 E-09	1,32 E-10	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	6,83 E-12	3,69E -09	4,24 E-09	0,00 E+00	-2,06E -07
ADP-fossil*	MJ	2,05 E-01	2,94 E-03	6,27 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	9,70 E-06	1,22E -03	4,52 E-03	0,00 E+00	-2,21E -01
WDP*	m^3	2,84 E-02	1,45 E-04	7,06 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	5,32 E-07	6,03E -05	1,76 E-03	0,00 E+00	-6,19E -03
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 functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-GHG[1]	kg CO2 eq.	5,98 E-02	2,59 E-03	1,33 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,91 E-05	1,10E -03	1,17 E-01	0,00 E+00	-1,89E -02
PM	disease inc.	1,79 E-09	1,94 E-10	3,16 E-12	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	4,88 E-12	8,76E -11	1,36 E-10	0,00 E+00	-1,05E -08
IRP[2]	kBq U-235 eq	6,23 E-03	4,45 E-05	1,17 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,06 E-07	1,85E -05	7,32 E-05	0,00 E+00	-1,46E -02
ETP-fw[3]	CTUe	1,73 E-01	4,94 E-03	2,81 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,35 E-05	2,06E -03	1,16 E+00	0,00 E+00	-1,76E -01
HTP-c[3]	CTUh	1,52 E-11	4,33 E-13	7,75 E-14	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,94 E-15	1,86E -13	1,38 E-11	0,00 E+00	-5,80E -11
HTP-nc[3]	CTUh	4,61 E-10	2,31 E-11	3,21 E-12	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	3,06 E-14	9,69E -12	2,66 E-09	0,00 E+00	-1,17E -09
SQP[3]	Pt	3,53 E-01	2,21 E-02	2,48 E-04	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,65 E-05	9,18E -03	5,80 E-03	0,00 E+00	-1,28E +01
Acronyms	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															

Resource use indicators

The use of primary energy resources is calculated according to option B in Annex 3 in PCR 2019:14. Construction Products. Version 2.0.1.

[1] *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 CO2 is set to zero.*

[2] *Disclaimer: 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.*

[3] *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.*

Results per functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
PERE	MJ	2,52 E-01	6,08 E-04	1,75 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,57 E-06	2,53E -04	7,80 E-04	0,00 E+00	-3,30E +00
PERM	MJ	7,18 E-03	0,00 E+00	-6,46 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	0,00 E+00	0,00 E+00	0,00E +00
PERT	MJ	2,59 E-01	6,08 E-04	-6,45 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,57 E-06	2,53E -04	7,80 E-04	0,00 E+00	-3,30E +00
PENRE	MJ	2,12 E-01	3,07 E-03	6,54 E-05	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,02 E-05	1,28E -03	4,71 E-03	0,00 E+00	-2,23E -01
PENRM	MJ	2,26 E+00	0,00 E+00	-2,02 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	-1,85 E+00	0,00 E+00	0,00E +00
PENRT	MJ	2,47 E+00	3,07 E-03	-2,01 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,02 E-05	1,28E -03	-1,85 E+00	0,00 E+00	-2,23E -01
SM	kg	3,36 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	0,00 E+00	0,00 E+00	0,00E +00
RSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	0,00 E+00	0,00 E+00	0,00E +00
NRSF	MJ	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	0,00 E+00	0,00 E+00	0,00E +00
FW	m^3	2,46 E-04	5,54 E-06	2,21 E-06	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	1,82 E-08	2,31E -06	8,20 E-05	0,00 E+00	-1,28E -04
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 functional or declared unit															
Indicator	**Unit**	**A1-A3**	**A4**	**A5**	**B1**	**B2**	**B3**	**B4**	**B5**	**B6**	**B7**	**C1**	**C2**	**C3**	**C4**	**D**
Hazardous waste disposed	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Non-hazardous waste disposed	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00
Radioactive waste disposed	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00

Output flow indicators

Results per functional or 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	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	0,00 E+00	0,00 E+00	0,00E +00
Material for recycling	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	9,60 E-03	0,00 E+00	0,00E +00
Materials for energy recovery	kg	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	0,00 E+00	0,00 E+00	0,00E +00
Exported energy, electricity	MJ	0,00 E+00	0,00 E+00	2,66 E-03	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	1,48 E-01	0,00 E+00	0,00E +00
Exported energy, thermal	MJ	0,00 E+00	0,00 E+00	2,40 E-02	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00 E+00	0,00E +00	1,33 E+00	0,00 E+00	0,00E +00

Scenarios for end of life

As per the PCR, 100% scenarios should be developed. If any of the declared scenarios is a mix of end-of-life alternatives (reuse, recycling, incineration with energy recovery, landfill, etc.), also the corresponding 100% scenarios (100% reuse, 100% recycling, 100% incineration with energy recovery, 100% landfill, etc.) shall be declared. In other words, the 100% scenarios of relevance for the intended market shall be declared. Scenarios have to be relevant for the product and the market. As the product is sold on the Swedish market, the original scenario developed is estimated to be the most accurate one.

Scenarios identified, apart from the most likely one developed in the study for the market, that are the 100% alternatives are 100% incineration of plastics and 100% recycling. Results are presented for the entire life cycle A-D.

Results in modules A and B remain the same. Changes occur in modules C and D. The changes in results are presented for the modules for each scenario for the representative product xReflex 16mm.

Environmental impact											
xReflex 16mm		**100% incineration scenario in end-of-life**					**100% recycling scenario in end-of-life**				
Indicator	**Unit**	**C1**	**C2**	**C3**	**C4**	**D**	**C1**	**C2**	**C3**	**C4**	**D**
GWP-total	kg CO2-eq.	1,91E-05	1,19E-03	1,46E-01	0,00E+00	-2,78E-02	1,91E-05	7,31E-04	4,19E-05	0,00E+00	1,15E-02
GWP-fossil	kg CO2-eq.	1,91E-05	1,19E-03	1,46E-01	0,00E+00	-2,61E-02	1,91E-05	7,30E-04	4,15E-05	0,00E+00	1,12E-02

GWP-biogenic	kg CO2-eq.	3,87E-09	8,14E-07	6,99E-06	0,00E+00	-1,30E-03	3,87E-09	5,01E-07	2,56E-07	0,00E+00	2,39E-04
GWP-luluc	kg CO2-eq.	1,96E-09	3,93E-07	9,27E-07	0,00E+00	-4,09E-04	1,96E-09	2,42E-07	1,73E-07	0,00E+00	1,97E-05
ODP	kg CFC 11 eq.	2,84E-13	2,59E-11	4,26E-11	0,00E+00	-4,05E-09	2,84E-13	1,59E-11	8,41E-13	0,00E+00	-9,09E-10
AP	mol H^+ eq.	1,71E-07	3,81E-06	3,77E-05	0,00E+00	-9,54E-04	1,71E-07	2,35E-06	3,43E-07	0,00E+00	3,27E-05
EP-freshwater	kg P eq.	6,17E-10	8,10E-08	1,23E-06	0,00E+00	-7,76E-06	6,17E-10	4,99E-08	2,63E-09	0,00E+00	6,51E-06
EP-marine	kg N eq.	7,96E-08	1,28E-06	2,51E-05	0,00E+00	-2,75E-04	7,96E-08	7,90E-07	1,51E-07	0,00E+00	1,21E-05
EP-terrestrial	mol N eq.	8,71E-07	1,40E-05	1,97E-04	0,00E+00	-4,57E-03	8,71E-07	8,59E-06	1,68E-06	0,00E+00	3,40E-05
POCP	kg NMVOC eq.	2,61E-07	5,78E-06	4,86E-05	0,00E+00	-7,94E-04	2,61E-07	3,56E-06	4,88E-07	0,00E+00	-7,57E-05
ADPm[2]	kg Sb eq.	6,83E-12	4,00E-09	5,29E-09	0,00E+00	-2,78E-07	6,83E-12	2,46E-09	7,26E-11	0,00E+00	8,22E-08
ADPf[2]	MJ	9,70E-06	1,32E-03	5,48E-03	0,00E+00	-3,06E-01	9,70E-06	8,14E-04	6,76E-04	0,00E+00	1,18E-01
WDP[2]	m^3	5,32E-07	6,53E-05	2,19E-03	0,00E+00	-6,17E-03	5,32E-07	4,02E-05	8,61E-06	0,00E+00	-6,27E-03

Abbreviations

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 use

Result for different dimensions

In an EPD of multiple products, the difference (in %) between the declared GWP-GHG result, and the product with GWP-GHG results furthest away from the declared results, for modules A1-A3, shall be reported in the EPD.

The difference in dimension generates significant differences in impact per DU (m). This is due to the different weights of the products per m as a consequence of dimension.

Below, the difference in results between the declared results and the results for each system are presented for the mandatory environmental impact indicators as well as the indicator GWP-GHG. As the difference between the products in the products group is significant, also the results for environmental indicator GWP-GHG are presented as per the optional element in the PCR to highlight

how the different dimensions affect the results. The results for “best case” product and the “worst case” within the product range for the impact indicator GWP-GHG are presented.

Environmental impact A1-A3							
Indicator	**Unit**	**Diameter 16mm (represen-tative product)**	**Diameter 20mm**	**Diameter 25mm**	**Diameter 32mm**	**Diameter 40mm**	**Diameter 50mm**
GWP-fossil	kg CO_2 eq.	0%	23%	119%	140%	220%	321%
GWP-biogenic	kg CO_2 eq.	0%	24%	121%	143%	225%	328%
GWP-luluc	kg CO_2 eq.	0%	20%	99%	117%	184%	270%
GWP-total	kg CO_2 eq.	0%	5%	25%	30%	47%	68%
ODP	kg CFC 11 eq.	0%	24%	121%	143%	224%	328%
AP	mol H^+ eq.	0%	24%	120%	141%	222%	324%
EP-freshwater	kg P eq.	0%	23%	119%	141%	221%	323%
EP-marine	kg N eq.	0%	23%	118%	139%	218%	319%
EP-terrestrial	mol N eq.	0%	23%	117%	138%	217%	318%
POCP	kg NMVOC eq.	0%	23%	119%	141%	221%	323%
ADP-minerals&metals*	kg Sb eq.	0%	23%	119%	140%	221%	322%
ADP-fossil*	MJ	0%	23%	115%	136%	214%	312%
WDP*	m^3	0%	19%	99%	117%	184%	269%
GWP-GHG	kg CO_2 eq	0%	23%	119%	140%	220%	322%

Environmental impact A1-A3			
Indicator	**Unit**	**Diameter 16mm (representative product, ”best-case”)**	**Diameter 50mm (product with largest dimension, ”worst-case”)**
GWP-GHG	kg CO_2 eq	5,98E-02	2,52E-01

Abbreviations

Abbreviation	Definition
General Abbreviations	
EN	European Norm (Standard)
EPD	Environmental Product Declaration
EF	Environmental Footprint
GPI	General Programme Instructions
ISO	International Organization for Standardization
LCA	Life Cycle Assessment
PCR	Product Category Rules
c-PCR	Complementary Product Category Rules
CEN	European Committee for Standardization
CLC	Co-location centre
CPC	Central product classification
GHS	Globally harmonized system of classification and labelling of chemicals
GRI	Global Reporting Initiative
Environmental Impact Indicators (EN 15804)	
GHG	Greenhouse gas
GWP	Global Warming Potential (kg CO_2 eq.)
GWP-fossil	Global Warming Potential from fossil sources (kg CO_2 eq.)
GWP-biogenic	Global Warming Potential from biogenic sources (kg CO_2 eq.)
GWP-luluc	Global Warming Potential from land use and land use change (kg CO_2 eq.)
GWP-total	Total Global Warming Potential (kg CO_2 eq.)
GWP-GHG	Global Warming Potential for greenhouse gases (kg CO_2 eq.)
ODP	Ozone Depletion Potential (kg CFC-11 eq.)
AP	Acidification Potential (mol H^+ eq.)
EP	Eutrophication Potential
EP-freshwater	Freshwater eutrophication potential (kg P eq.)
EP-marine	Marine eutrophication potential (kg N eq.)
EP-terrestrial	Terrestrial eutrophication potential (mol N eq.)
POCP	Photochemical Ozone Creation Potential (kg NMVOC eq.)
ADP	Abiotic Depletion Potential
ADP-minerals&metals	Abiotic depletion potential for non-fossil resources (kg Sb eq.)
ADP-fossil	Abiotic depletion potential for fossil resources (MJ)
WDP	Water Deprivation Potential (m^3)
Resource Use Indicators	
PERE	Use of renewable primary energy excluding renewable primary energy resources used as raw materials (MJ)
PERM	Use of renewable primary energy resources used as raw materials (MJ)
PERT	Total use of renewable primary energy resources (MJ)
PENRE	Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials (MJ)
PENRM	Use of non-renewable primary energy resources used as raw materials (MJ)
PENRT	Total use of non-renewable primary energy resources (MJ)
SM	Use of secondary material (kg)
RSF	Use of renewable secondary fuels (MJ)
NRSF	Use of non-renewable secondary fuels (MJ)
FW	Use of net fresh water (m^3)
Waste Indicators	
HW	Hazardous Waste (disposed) (kg)
NHW	Non-Hazardous Waste (disposed) (kg)
RW	Radioactive Waste (disposed) (kg)
Output Flow Indicators	
CFR	Components for Reuse (kg)
MR	Material for Recycling (kg)
MER	Materials for Energy Recovery (kg)
EEE	Exported Energy, Electricity (MJ)

EET	Exported Energy, Thermal (MJ)
Lifecycle Stages / Modules	
A1	Raw material supply
A2	Transport
A3	Manufacturing
A4	Transport to site
A5	Construction/Installation
B1	Use
B2	Maintenance
B3	Repair
B4	Replacement
B5	Refurbishment
B6	Operational energy use
B7	Operational water use
C1	Deconstruction/Demolition
C2	Transport to waste processing
C3	Waste processing
C4	Disposal
D	Reuse-Recovery-Recycling potential
Other Relevant Terms	
SVHC	Substances of Very High Concern
EC No.	European Community Number
CAS No.	Chemical Abstracts Service Number
MJ	Megajoule
kg	Kilogram
m^3	Cubic Meter
NMVOC	Non-Methane Volatile Organic Compounds
Sb eq.	Antimony Equivalents
P eq.	Phosphorus Equivalents
N eq.	Nitrogen Equivalents
CFC-11 eq.	Chlorofluorocarbon-11 Equivalents
CO_2 eq.	Carbon Dioxide Equivalents
kg C	Kilograms of Carbon
kg CO_2 eq.	Kilograms of Carbon Dioxide Equivalent
ND	Not Declared

References

EN 15804:2012+A2:2019/AC:2021. Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

General Programme Instructions of the International EPD® System. Version 5.0.1

PCR 2019:14. Construction Products. Version 2.0.1

LCA report_xReflexwire and xReflex_Pmflex 2026-08-27, Sweco. Johansson & Granström.

Version history

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