# Environmental Product Declaration

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

## PERFORM® - Flexible roof flashing

from

**JUAL A/S**

| | |
|---|---|
| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB |
| EPD registration number: | EPD-IES-0016179-002 |
| Publication date: | 2024-09-05 |
| Updated | 2025-01-13 |
| Valid until: | 2029-09-04 |

*This EPD covers one product produced in multiple sizes. Per $m^2$ the same raw materials, density and manufacturing conditions are used.*
*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<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden |
| **Website:** | www.environdec.com |
| **E-mail:** | info@environdec.com |

| **Accountabilities for PCR, LCA and independent, third-party verification** |
|---|
| **Product Category Rules (PCR)** |
| CEN standard EN 15804 serves as the Core Product Category Rules (PCR) |
| Product Category Rules (PCR): *Construction Products PCR 2019:14 version 1.3.4* |
| PCR review was conducted by: *Martin Erlandsson, IVL Swedish Environmental Research Institute, Martin.Erlandsson@ivl.se* |
| **Life Cycle Assessment (LCA)** |
| LCA accountability: *Amy Stockwell, Carbonzero AB, Amy.Stockwell@carbonzero.se* |
| **Third-party verification** |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:<br><br>☐ EPD verification by individual verifier<br><br>Third-party verifier: *Vladimír Kočí, LCA Studio, Vlad.Koci@vscht.cz*<br><br>Approved by: The International EPD® System |
| Procedure for follow-up of data during EPD validity involves third party verifier:<br><br>☐ 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: JUAL A/S
Contact: Rasmus Jensen, rje@jual.dk
Description of the organisation: JUAL A/S is a dedicated supplier of customised solutions for the construction industry with a comprehensive range covering all aspects of roof and facade products. We offer high-quality building profiles that give facades, roofs, windows, and doors an elegant and durable finish. We focus on providing efficient drainage systems that prevent damage to buildings by ensuring proper handling of both general and emergency drainage.

Our expertise in venting solutions ensures optimal ventilation by breaking the roof surface in a safe and reliable way, contributing to a healthy indoor climate. In addition, we have developed Win products designed to optimise the building process, including efficient roofing solutions such as Win plates and Win valley gutter on roll.

Lead-through products are another important part of our range, as they make it easy to install cables, pipes and other components while ensuring tight and durable lead-throughs of roof surfaces. Our console systems support various roof installations such as solar panels, ventilation and air conditioning, and our flexible materials make it possible to adapt flashings to different needs on profiled roof.

At JUAL A/S, our goal is to provide innovative and reliable solutions that create long-term and sustainable results for our customers.

Name and location of production site(s): Denmark

## Product information

Product name: Perform
Product description: Flexible roof flashing, resistant to UV radiation and ozone. Perform flexible covering can be used anywhere on both flat and profiled roof materials. The covering material is self-supporting and dimensionally stable, which provides an "open/breathable" covering. The covering material has the same function and provides the same tight covering as lead.
Perform's products are lead-free and environmentally friendly and consist of a combination of a stretchable aluminum grid and environmentally friendly rubber materials. The coverings are produced "wet on wet". This means there is no risk of delamination of the different layers.

**Technical data**

| | |
|---|---|
| Temperature | Resistant to temperatures between -40 °C and +90 °C |
| UV and Ozone | PERFORM® is resistant to UV radiation and Ozone |
| Weather resistance | It is totally resistant to both weather and ageing in general |
| Solubility | Not soluble in water |
| Sealing | PERFORM® is waterproof |

UN CPC code: 54530 Roofing and waterproofing services
Geographical scope: The product is produced in Denmark and sold mainly in Europe.
Products: Perform covering materials are available in 5 different colours (black, anthracite grey, grey, terracotta and brown) that blend discreetly into the shade of the roof and as standard in 2 different widths (31cm, 125 cm). In addition, alternative sizes and colours can be produced to order.

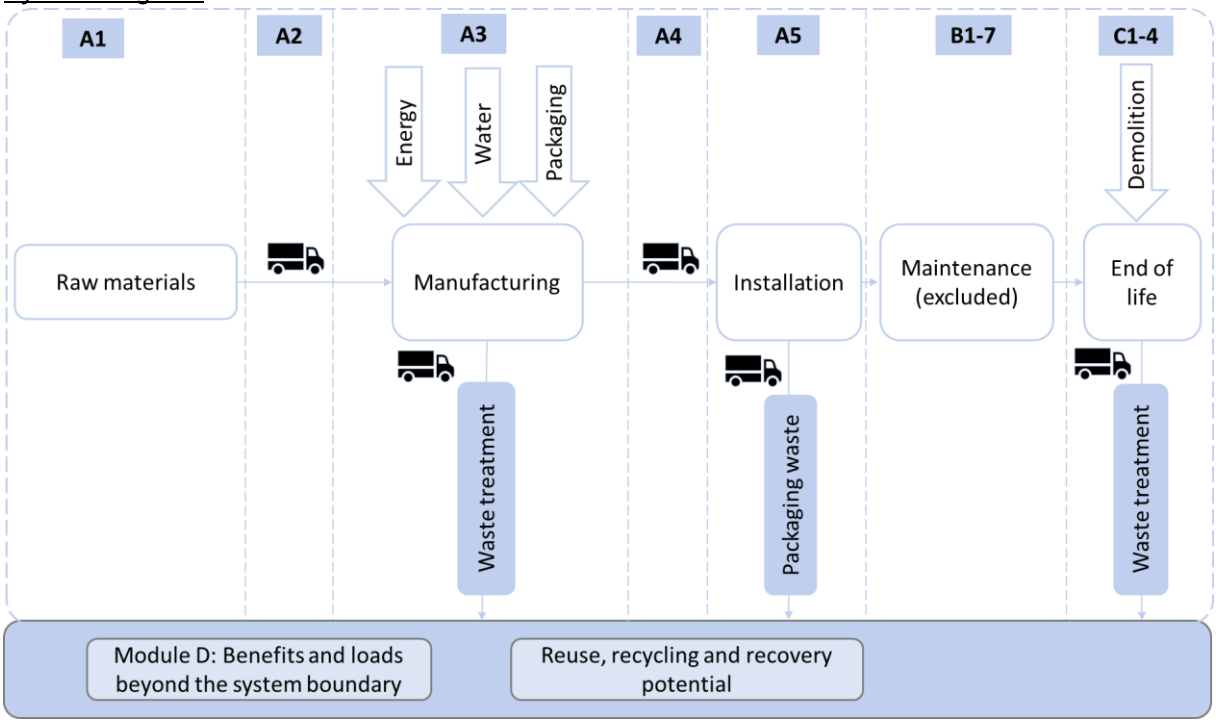
## LCA information

Functional unit / declared unit: 1m$^2$ roof flashing with packaging

Reference service life: not applicable. There is a large variation in the conditions in which the product is used, so no RSL can be estimated.

Time representativeness: Manufacturing data from 2022
Database(s) and LCA software used: LCA for Experts v10.8.0.14 with ecoinvent 3.8 database
Description of system boundaries: Cradle to gate with options, modules A1-A3, A4-A5, C1–C4, D
Allocation: the factory produces a range of waterproof sheet products. Actual manufacturing data for A3 was recorded for 2022. The allocation used product area as all product manufacturing data is recorded per m$^2$.

System diagram:



More information:

A4 transport to building site: the products are mainly sold in Europe, so 1000 km by truck was assumed.

| | Truck |
|---|---|
| Vehicle and fuel types | Truck-trailer, Euro 0 - 6 mix, 34 - 40t gross weight / 27t payload capacity<br>Using 0.021 kg diesel per tkm |
| Distance /km | 1000 |
| Capacity utilisation /% | 61<br>Dataset default value |
| Bulk density of transported products / kg/m$^3$ | Ranges from 770 - 830 |
| Volume capacity utilisation factor | 1 |

A5 installation: the cement panels are small enough to be installed by hand. Therefore the impacts are due to packaging waste disposal, shown in the table below.

C1-4 waste treatment:
A generic dataset was used to calculate the demolition, as the product is a part of the construction. The dataset specifies 0.172 kg of diesel used per tonne of excavated material.

Waste statistics shown below were taken from Eurostat and used to represent Europe, which is the biggest sales volume of product. Mixed construction waste is mainly recycled, but as the different materials are stuck together, in practice it is difficult to recycle, so the recycling option was excluded. It was assumed that pallets are reused.

| Waste | Recycling | Incineration | Landfill |
|---|---|---|---|
| Paper/cardboard | 98 % | 2 % | 0 % |
| Plastic | 71 % | 23 % | 5 % |
| Wood | 46 % | 53 % | 0 % |
| Mixed and undifferentiated materials | 51% | 26 % | 20% |
| Mixed and undifferentiated materials excluding recycling | 0% | 56% | 44% |

| Waste | Packaging (A5) | | Product (C3-4) | |
|---|---|---|---|---|
| | Weight to recycling /kg | Weight to incineration /kg | Weight to incineration /kg | Weight to landfill /kg |
| Paper/cardboard packaging | 5.84E-02 | 1.19E-03 | 0 | 0 |
| Mixed and undifferentiated materials | 0 | 0 | 2.12E+00 | 1.66E+00 |

D benefits: There were no suitable recycling datasets. Therefore, a 10% loss of product/quality was assumed, and materials were substituted with the same virgin materials. Materials which were incinerated produce energy which was credited with European electricity grid mix and thermal energy from natural gas.

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 | X | X | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X |
| Geography | EU | EU | DK | EU | EU | - | - | - | - | - | - | - | EU | EU | EU | EU | EU |
| Specific data used | <10 % | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | 0 % | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – sites | 0 % | | | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

## Content information

| **Product components** | **Weight, kg** | **Post-consumer material, weight-%** | **Biogenic material, weight-% and kg C/kg** |
|---|---|---|---|
| Aluminium | 1.3E+00 | 0 | 0 |
| Plastic | 2.5E+00 | 0 | 0 |
| TOTAL | 3.8E+00 | 0 | 0 |
| **Packaging materials** | **Weight, kg** | **Weight-% (versus the product)** | **Weight biogenic carbon, kg C/kg** |
| Paper | 6.0E-02 | 2 % | 2.65E-02 |
| Pallet | 1.5E-01 | 4 % | 6.18E-02 |
| TOTAL | 2.1E-01 | 6 % | 8.83E-02 |

There are no dangerous substances from the candidate list of SVHC for the Authorisation list.

## *Disclaimers*

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.

Using the results of modules A1-A3 without considering the results of module C is discouraged.

| ILCD classification | Indicator | Disclaimer |
|---|---|---|
| ILCD Type 1 | Global warming potential (GWP) | None |
| | Depletion potential of the stratospheric ozone layer (ODP) | None |
| | Potential incidence of disease due to PM emissions (PM) | None |
| ILCD Type 2 | Acidification potential, Accumulated Exceedance (AP) | None |
| | Eutrophication potential, Fraction of nutrients reaching freshwater end compartment (EP-freshwater) | None |
| | Eutrophication potential, Fraction of nutrients reaching marine end compartment (EP-marine) | None |
| | Eutrophication potential, Accumulated Exceedance (EP-terrestrial) | None |
| | Formation potential of tropospheric ozone (POCP) | None |
| | Potential Human exposure efficiency relative to U235 (IRP) | 1 |
| ILCD Type 3 | Abiotic depletion potential for non-fossil resources (ADP-minerals&metals) | 2 |
| | Abiotic depletion potential for fossil resources (ADP-fossil) | 2 |
| | Water (user) deprivation potential, deprivation-weighted water consumption (WDP) | 2 |
| | Potential Comparative Toxic Unit for ecosystems (ETP-fw) | 2 |
| | Potential Comparative Toxic Unit for humans (HTP-c) | 2 |
| | Potential Comparative Toxic Unit for humans (HTP-nc) | 2 |
| | Potential Soil quality index (SQP) | 2 |
| Disclaimer 1 – This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator. | | |
| Disclaimer 2 – The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. | | |

# Results of the environmental performance indicators

## Mandatory impact category indicators according to EN 15804, EF3.1

| Results per functional or declared unit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **A4** | **A5** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP-fossil | kg $CO_2$ eq. | 2.07E+01 | 3.13E-01 | 3.93E-05 | 2.46E-03 | 2.97E-02 | 3.53E+00 | 4.40E-02 | -1.34E+00 |
| GWP-biogenic | kg $CO_2$ eq. | -2.99E-01 | 9.69E-04 | 3.24E-01 | 7.50E-06 | 9.18E-05 | 8.37E-04 | 1.48E-04 | -9.29E-02 |
| GWP-luluc | kg $CO_2$ eq. | 1.17E-02 | 5.13E-03 | 2.61E-08 | 3.97E-05 | 4.86E-04 | 1.47E-04 | 1.70E-04 | -3.21E-04 |
| GWP-total | kg $CO_2$ eq. | 2.04E+01 | 3.19E-01 | 3.24E-01 | 2.51E-03 | 3.03E-02 | 3.53E+00 | 4.43E-02 | -1.43E+00 |
| ODP | kg CFC 11 eq. | 4.89E-08 | 4.49E-14 | 2.30E-16 | 3.48E-16 | 4.26E-15 | 1.44E-12 | 1.43E-13 | -1.08E-11 |
| AP | mol $H^+$ eq. | 7.95E-02 | 4.00E-04 | 4.70E-07 | 1.22E-05 | 3.79E-05 | 5.18E-04 | 2.67E-04 | -2.09E-03 |
| EP-freshwater | kg P eq. | 1.05E-04 | 1.30E-06 | 6.57E-11 | 1.01E-08 | 1.23E-07 | 1.39E-07 | 1.85E-05 | -3.04E-06 |
| EP-marine | kg N eq. | 1.64E-02 | 1.47E-04 | 1.73E-07 | 5.75E-06 | 1.40E-05 | 1.69E-04 | 5.94E-05 | -4.83E-04 |
| EP-terrestrial | mol N eq. | 1.77E-01 | 1.71E-03 | 2.15E-06 | 6.37E-05 | 1.63E-04 | 2.56E-03 | 6.52E-04 | -5.16E-03 |
| POCP | kg NMVOC eq. | 5.04E-02 | 4.06E-04 | 4.59E-07 | 1.63E-05 | 3.85E-05 | 4.79E-04 | 1.89E-04 | -1.40E-03 |
| ADP-minerals&metals* | kg Sb eq. | -4.42E-06 | 2.66E-08 | 2.43E-12 | 2.06E-10 | 2.52E-09 | -1.10E-08 | 2.93E-09 | -1.37E-07 |
| ADP-fossil* | MJ | 1.05E+02 | 4.02E+00 | 5.20E-04 | 3.11E-02 | 3.81E-01 | 2.39E+00 | 7.40E-01 | -2.38E+01 |
| WDP* | $m^3$ | 1.37E+02 | 4.73E-03 | 2.09E-04 | 3.66E-05 | 4.48E-04 | 4.21E-01 | 5.61E-03 | -1.07E-01 |
| 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** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP-GHG[1] | kg $CO_2$ eq. | 2.07E+01 | 3.20E-01 | 3.95E-05 | 2.50E-03 | 3.03E-02 | 3.53E+00 | 4.43E-02 | -1.35E+00 |

## Resource use indicators

| Results per functional or declared unit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **A4** | **A5** | **C1** | **C2** | **C3** | **C4** | **D** |
| PERE | MJ | 7.42E+01 | 3.46E-01 | 3.99E+00 | 2.68E-03 | 3.28E-02 | 7.44E-01 | 1.11E-01 | -9.42E+00 |
| PERM | MJ | 4.56E+00 | 0.00E+00 | -3.99E+00 | 0.00E+00 | 0.00E+00 | -3.19E-01 | -2.50E-01 | 0.00E+00 |
| PERT | MJ | 7.87E+01 | 3.46E-01 | 0.00E+00 | 2.68E-03 | 3.28E-02 | 4.25E-01 | -1.39E-01 | -9.42E+00 |
| PENRE | MJ | 4.36E+01 | 4.02E+00 | 5.20E-04 | 3.11E-02 | 3.81E-01 | 2.39E+00 | 7.40E-01 | -2.38E+01 |
| PENRM | MJ | 1.98E+01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | -1.11E+01 | -8.71E+00 | 0.00E+00 |
| PENRT | MJ | 6.34E+01 | 4.02E+00 | 5.20E-04 | 3.11E-02 | 3.81E-01 | -8.70E+00 | -7.97E+00 | -2.38E+01 |
| SM | kg | 1.49E-01 | 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 | $m^3$ | 1.61E-01 | 3.86E-04 | 4.93E-06 | 2.98E-06 | 3.66E-05 | 9.68E-03 | 1.68E-04 | -3.76E-03 |
| 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 | | | | | | | | |

[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 $CO_2$ is set to zero.

## Waste indicators

| Results per functional or declared unit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **A4** | **A5** | **C1** | **C2** | **C3** | **C4** | **D** |
| Hazardous waste disposed | kg | 3.97E-04 | 1.54E-10 | 2.96E-13 | 1.19E-12 | 1.46E-11 | 1.68E-09 | 1.81E-10 | -2.65E-08 |
| Non-hazardous waste disposed | kg | 5.73E+00 | 6.56E-04 | 5.31E-05 | 5.08E-06 | 6.22E-05 | 2.12E+00 | 1.66E+00 | -1.53E-02 |
| Radioactive waste disposed | kg | 9.79E-03 | 7.32E-06 | 2.62E-08 | 5.66E-08 | 6.94E-07 | 1.25E-04 | 1.03E-05 | -1.75E-03 |

## Output flow indicators

| Results per functional or declared unit | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **A4** | **A5** | **C1** | **C2** | **C3** | **C4** | **D** |
| Components for re-use | kg | 0.00E+00 | 0.00E+00 | 1.49E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Material for recycling | kg | 4.00E-03 | 0.00E+00 | 5.84E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Materials for energy recovery | 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 |
| Exported energy, electricity | MJ | 0.00E+00 | 0.00E+00 | 2.56E-03 | 0.00E+00 | 0.00E+00 | 6.32E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy, thermal | MJ | 0.00E+00 | 0.00E+00 | 4.64E-03 | 0.00E+00 | 0.00E+00 | 1.13E+01 | 0.00E+00 | 0.00E+00 |

# References


| | |
|---|---|
| EN 15804:2012+A2 | Sustainability of construction works – Environmental product declaration – Core rules for the product category of constructions products |
| EPD International (2021) | General Programme Instructions of the International EPD® System, version 4.0 |
| ISO 14020:2022 | International Standard ISO 14020 – Environmental statements and programmes for products – Principles and general requirements |
| ISO 14025:2006 | International Standard ISO 14025 – Environmental labels and declarations — Type III environmental declarations — Principles and procedures |
| ISO 14040:2006 | International Standard ISO 14040: Environmental Management – Life cycle assessment – Principles and framework. Second edition 2006-07-01. |
| ISO 14044:2006 | International Standard ISO 14044: Environmental Management – Life cycle assessment – Requirements and Guidelines. |
| Google Maps | www.maps.google.com visited 2024-07-25 |
| PCR 2019:14 | Construction products v1.3.4 |
| Eurostat (2020) | Treatment of waste by waste category, hazardousness and waste management operations, https://ec.europa.eu/eurostat/databrowser/view/env_wastrt/default/table?lang=en&category=env.env_was.env_wasgt Accessed 2024-08-13 |


## Version history

Version 2 – updated front page picture to English. Updated reference service life and warranty information.

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