epd-norway
Global Program Operator

# Environmental Product Declaration

In accordance with 14025 and EN15804 +A2

## H-window+ Fixed frame, 90mm profile


**Owner of the declaration:**
H-fasader Stette AS

**Product name:**
H-window+, Fixed frame, 90 mm profile

**Declared unit:**
1 window with 3-layer glass measuring 1,23 m x 1,48m

**Product category /PCR:**
NPCR Part A: 2021 Construction products and services Ver 2. NPCR 014:2021 Part B for Windows and doors. EN 17213:2020 PCR for Windows and doors

**Program holder and publisher:**
The Norwegian EPD foundation

**Declaration number:**
NEPD-5674-4939-EN

**Registration number:**
NEPD-5674-4939-EN

**Issue date:** 08.01.2024

**Valid to:** 08.01.2029

The Norwegian
EPD Foundation

# General information

## Product:
H-window+ Fixed frame 90 mm profile

## Program operator:
The Norwegian EPD Foundation
Post Box 5250 Majorstuen, 0303 Oslo, Norway
Tlf: +47 23 08 80 00
e-mail: post@epd-norge.no

## Declaration number:
NEPD-5674-4939-EN

## This declaration is based on Product Category Rules:
NPCR Part A:2021 Construction products and services Ver 2. NPCR 014:2021 Part B for Windows and doors. EN 17213:2020 PCR for Windows and doors

## Statements:
The owner of the declaration shall be liable for the underlying information and evidence. EPD Norway shall not be liable with respect to manufacturer, life cycle assessment data and evidences.

## Declared unit:
1 Fixed frame window with 3-layer glass measuring 1,23 m x 1,48m

## Functional unit:
1 Fixed frame window with 3-layer glass measuring 1,23 m x 1,48 m, and with an expected service life of 40 years, from cradle to grave.

## Verification:
Independent verification of the declaration and data, according to ISO14025:2010

internal ☐ external ☒

Sign

Julie Lyslo Skullestad

Julie Lyslo Skullestad
Independent verifier approved by EPD Norway

## Owner of the declaration:
H-fasader Stette AS
Contact person: Eva Furevik
Phone: +47 47266840
e-mail: eva.furevik@hfasader.no

## Manufacturer:
H-fasader Stette AS

## Place of production:
Siauliai, Lithuania

## Management system:
NDVK-sertifisert (Norsk dør- og vinduskontroll

## Organisation no:
852072202

## Issue date:
08.01.2024

## Valid to:
08.01.2029

## Year of study:
2022

## Comparability:
EPDs from other programs than EPD Norway may not be comparable.

## The EPD has been worked out by:
Kristine Bjordal og Jill Saunders, Asplan Viak AS

Approved

Manager of EPD Norway

# Product

## Product description:

Fixed frame window for exterior walls with 3-layers glass and PVC-frame.

## Product specification:

| Materials | KG | % |
|---|---|---|
| 3-layers glass unit | 48,61 kg | 74,5 % |
| Frame in PVC | 10,69 kg | 16,4 % |
| Steel components | 5,86 kg | 9,0 % |
| Gasket | 0,10 kg | 0,2 % |
| Plastic | 0,03 kg | 0,0 % |
| **Total weight window** | **65,29 kg** | **100 %** |
| Packaging – wood | 4,62 kg | |
| Packaging – steel | 0,09 kg | |
| Packaging – plastic | 0,08 kg | |
| Packaging - cardboard | 0,17 kg | |
| **Total weight window incl. packaging** | **70,25 kg** | |

## Technical data:

U-value for reference size: 0,73 (W/m2K).

Available in customized sizes. Approved according to NDVK standard.

## Market:

Norway

## Reference service life, product:

40 years.

## Reference service life, building:

60 years.

# LCA: Calculation rules

## Declared unit:

1 window with 3-layer glass measuring 1,23 m x 1,48m

## Data quality:

The data quality complies with the guidelines for the use of generic and specific data according to EN 15804 and ISO 14044. The data used is representative with regard to temporal, geographical and technological conditions.

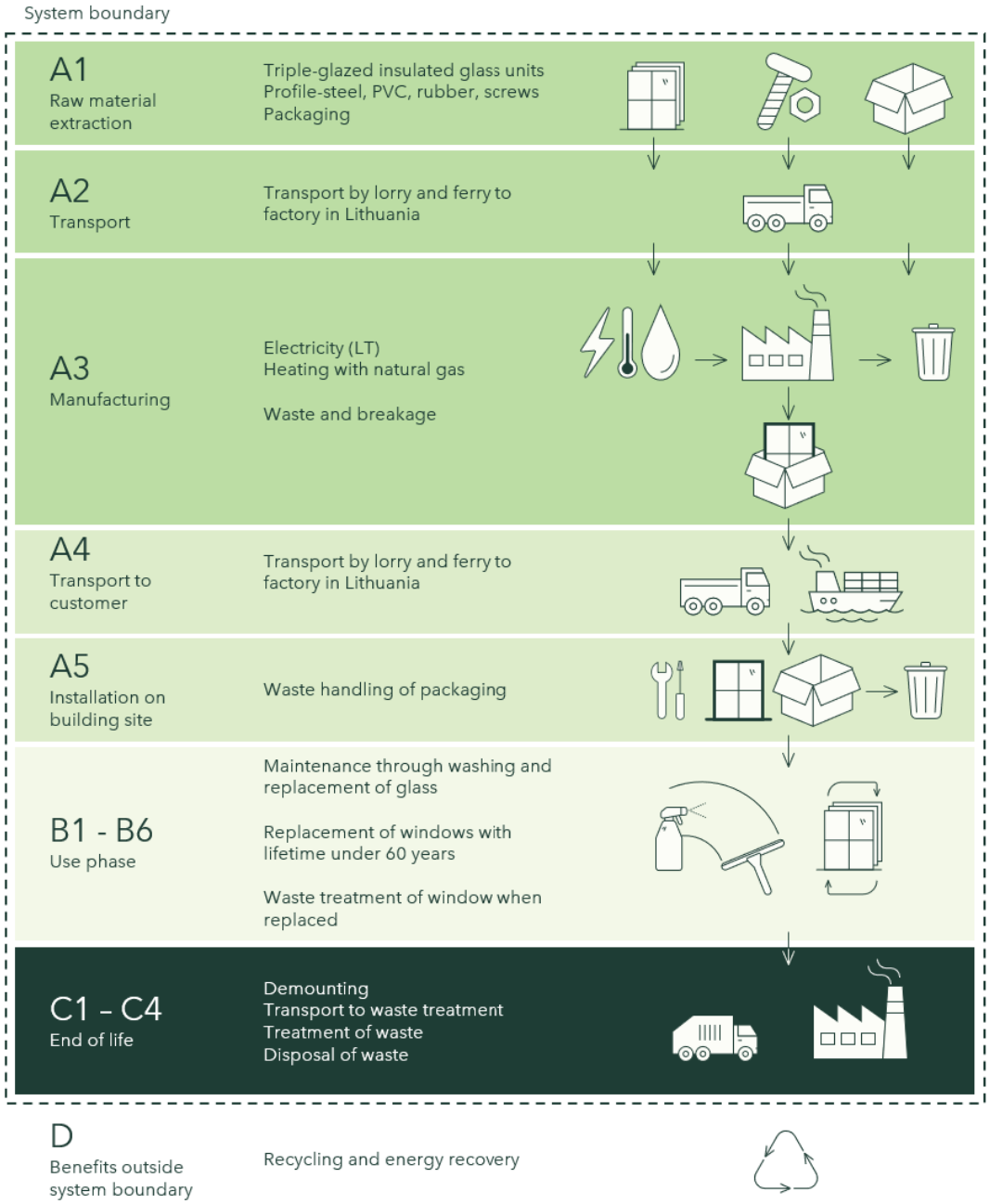
Data for energy consumption, material consumption, transport of raw materials and waste management was obtained for H-facade's production in 2021 and was collected in 2022. Generic data is from Ecoinvent v.3.9 and SimaPro v 9.5.0.1. All generic data is < 10 years old. Characterization factors according to EN15804:2012 + A2 2019.

## Allocation:

Allocation of energy, water and waste is allocated equally between all products based on the production based on the quantity produced. Upstream production of raw materials is allocated as standard in the database ecoinvent v3.9

## System boundary:

A1-A3, A4, A5, B1-B6, C1-C4, D




## Cut-off criteria:

All important raw materials and all important energy use are included. The production process for certain raw materials and energy flows that are included in very small quantities (<1%) are not included. Absorption and emission of biogenic carbon is calculated in accordance with NS-EN 16485:2014. This approach is based on the modularity principle in EN 15804: emissions must be counted in the model where they actually occur. Calculation of biogenic carbon content and conversion to carbon dioxide is done in accordance with NS-EN 16449:2014.

# LCA: Scenarios and additional technical information

The following information describe the scenarios in the different modules of the EPD.

## Transport from production place to assembly/user (A4)

| Type | Capacity utilisation (incl. return) % | Type of vehicle | Distance KM | Fuel/Energy consumption | value (l/t) |
|---|---|---|---|---|---|
| Truck (16-32 t) | 36,67 % (ecoinvent prosess) | Euro 5 | 776 | 0,03 l/tkm | 9,4 l/t |
| Ferry | | Sea ferry | 283 | | |

A4 includes truck transport from H-fasader's factory in Lithuania to the terminal in Oslo (capital of Norway) which is 476 km. The product is further transported 300 km to a construction site in Norway according to PCR.

## Assembly (A5)

| | Unit | Value |
|---|---|---|
| Auxiliary | Kg | 0 |
| Water consumption | m3 | 0 |
| Electricity consumption | kWh | 0 |
| Other energy carriers | MJ | 0 |
| Material loss | Kg | 0 |
| Output materials from waste treatment | Kg | 5,0 |
| Dust in the air | kg | 0 |

The windows arrive ready for installation. Consumption of screws and fastening material shall according to the PCR for windows be calculated by LCA of the building itself, and it is therefore omitted here. Energy use for the installation is therefore not included either. The module declares waste from packaging and its treatment, including transport.

## Use (B1)

The product does not require any resources or cause any emissions in use, other than what is covered by maintenance and replacement in B2 and B4. B1 is therefore set to 0.

## Maintenance (B2)/Repair (B3)

| | Unit | Value |
|---|---|---|
| Detergent | Liter | 9 |
| Water consumption | Liter | 180 |
| Lubricating oil | Kg | 0,3 |
| Change of glazing unit after 30 years | Unit | 1 |

Maintenance according to H-facades' FDV. The PVC material is maintenance-free and for that reason, maintenance related to the interior and exterior is disregarded. NPCR 014 requires that

washing be calculated 3 times a year with soap and water. It is assumed that 1,5 dl of detergent and 3 liters of water are used per window per year. PCR EN 17213:2020 also requires that the replacement of the glass insert is included for all products with a lifespan longer than 30 years.

## Replacement (B4)/Refurbishment (B5)

| | Unit | Value |
|---|---|---|
| Replacement cycle | year | 40 |
| Replacement of whole window | Piece | 0,5 |

For the entire window the replacement is done in year 40. This gives a window consumption of a total of 1,5 windows during the building's lifetime of 60 years, this results in 0,5 extra windows for 60 years.

## End of Life (C1, C3, C4)

| | Unit | Value |
|---|---|---|
| Hazardous waste disposed | Kg | 0 |
| Collected as mixed construction waste | Kg | 65,29 |
| Reuse | Kg | 0 |
| Recycling | Kg | 3,34 |
| Energy recovery | Kg | 10,82 |
| To landfill | Kg | 51,13 |

Similar to assembly in A5, no activities have been calculated for disassembly in C1. Windows must be treated as mixed waste and assumed to be incinerated with energy recovery. Some of the metal is believed to have been extracted from the ashes for recycling. Ashes, glass and other residual materials are assumed to be deposited in C4.

## Transport to waste processing (C2)

| Type | Capacity utilisation (incl. return) % | Type of vehicle | Distance KM | Fuel/Energy consumption | value (l/t) |
|---|---|---|---|---|---|
| Truck (16-32 t) | 36,7 % (Ecoinventprocess) | Euro 5 | 50 | 0,03 L / tkm | 1,5 L/t |

It is assumed that the waste is transported 50 km to the waste reception place.

## Benefits and loads beyond the system boundaries (D)

| | Unit | Value |
|---|---|---|
| Substitution of delivered electricity | 16 | MJ |
| Substitution of delivered district heating | 471 | MJ |
| Substitution of primary steel with net scrap | 2,97 | kg |

Exported energy replaces the Norwegian district heating mix and electricity mix. All conversion factors for efficiencies and losses from waste to delivered energy are included.

It is assumed that the steel scrap replaces a global average for steel scrap. For this scrap fraction, it is assumed that the scrap replaces raw materials of the same value, and no value

correction factor is needed. For aluminum, it is assumed that the scrap replaces virgin-produced aluminum with a value correction factor of 0,7

# LCA: Results

Results are presented below for the declared unit, one window with the dimensions 1,23 m x 1,48 m.

## System boundaries (X=included, MND= module not declared, MNR=module not relevant)

| Product stage | | | Assembly stage | | Use stage | | | | | | | End of life stage | | | | Benefits & loads beyond system boundary |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| X | X | X | X | X | X | X | X | X | X | MIR | MIR | X | X | X | X | X |

## Core environmental impact indicators

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B4 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-total | kg CO2 eq. | 1,32E+02 | 1,30E+01 | 7,33E+00 | 1,05E+02 | 9,00E+01 | 5,44E-01 | 2,65E+01 | 2,19E-01 | -1,01E+01 |
| GWP-fossil | kg CO2 eq. | 1,43E+02 | 1,29E+01 | 2,82E-01 | 1,05E+02 | 9,19E+01 | 5,43E-01 | 2,64E+01 | 2,17E-01 | -8,29E+00 |
| GWP-biogenic | kg CO2 eq. | -1,11E+01 | 2,65E-02 | 7,05E+00 | -2,95E-01 | -1,95E+00 | 1,44E-03 | 1,14E-01 | 1,90E-03 | -1,78E+00 |
| GWP-LULUC | kg CO2 eq. | 1,90E-01 | 6,68E-03 | 4,46E-05 | 2,99E-01 | 1,00E-01 | 2,13E-04 | 3,41E-03 | 4,88E-05 | -1,31E-02 |
| ODP | kg CFC11 eq. | 1,01E-05 | 2,59E-07 | 4,51E-09 | 2,10E-06 | 5,47E-06 | 1,26E-07 | 3,91E-07 | 1,07E-07 | -8,41E-08 |
| AP | mol $H^+$ eq. | 9,56E-01 | 1,04E-01 | 1,73E-03 | 7,97E-01 | 5,40E-01 | 2,20E-03 | 1,25E-02 | 2,13E-03 | -4,20E-02 |
| EP-freshwater | kg P eq. | 4,77E-03 | 9,07E-05 | 1,42E-06 | 3,32E-03 | 2,45E-03 | 3,80E-06 | 3,07E-05 | 1,38E-06 | -1,73E-04 |
| EP-marine | kg N eq. | 1,65E-01 | 2,93E-02 | 7,99E-04 | 1,36E-01 | 1,01E-01 | 6,56E-04 | 4,68E-03 | 8,02E-04 | -1,21E-02 |
| EP-terrestial | mol N eq. | 1,99E+00 | 3,20E-01 | 8,97E-03 | 1,59E+00 | 1,19E+00 | 7,25E-03 | 5,09E-02 | 8,83E-03 | -1,33E-01 |
| POCP | kg NMVOC eq. | 6,05E-01 | 1,03E-01 | 2,48E-03 | 4,84E-01 | 3,65E-01 | 2,22E-03 | 1,42E-02 | 2,53E-03 | -3,98E-02 |
| ADP-M&M | kg Sb eq. | 9,47E-04 | 3,50E-05 | 2,91E-07 | 6,54E-04 | 4,96E-04 | 1,89E-06 | 7,36E-06 | 4,23E-07 | -1,08E-04 |
| ADP-fossil | MJ | 1,92E+03 | 1,74E+02 | 1,27E+00 | 1,37E+03 | 1,07E+03 | 8,20E+00 | 2,28E+01 | 7,02E+00 | -9,36E+01 |
| WDP | $m^3$ | 4,95E+01 | 6,39E-01 | 1,84E-02 | 2,71E+01 | 2,51E+01 | 2,38E-02 | -6,06E-02 | 2,17E-02 | -6,08E+01 |

***GWP-total:*** *Global Warming Potential;* ***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; See "additional requirements" for indicator given as PO4 eq.* ***EP-marine:*** *Eutrophication potential, fraction of nutrients reaching freshwater end compartment;* ***EP-terrestial:*** *Eutrophication potential, Accumulated Exceedance;* ***POCP****: Formation potential of tropospheric ozone;* ***ADP-M&M****: Abiotic depletion potential for non-fossil resources (minerals and metals);* ***ADP-fossil:*** *Abiotic depletion potential for fossil resources;* ***WDP:*** *Water deprivation potential, deprivation weighted water counsumption*

## Additional environmental impact indicators

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B4 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| PM | Disease incidence | 9,94E-06 | 7,25E-07 | 1,67E-08 | 8,01E-06 | 5,50E-06 | 3,75E-08 | 2,26E-07 | 4,62E-08 | -2,05E-06 |
| IRP | kBq U235 eq. | 5,17E+00 | 7,85E-02 | 9,62E-04 | 2,96E+00 | 2,70E+00 | 3,56E-02 | 8,32E-02 | 3,02E-02 | 1,14E+02 |
| ETP-fw | CTUe | 1,04E+03 | 9,20E+01 | 1,75E+00 | 8,39E+02 | 6,19E+02 | 6,40E+00 | 9,15E+01 | 3,89E+00 | -2,81E+01 |
| HTP-c | CTUh | 1,76E-07 | 5,62E-09 | 1,44E-09 | 8,63E-08 | 9,47E-08 | 2,07E-10 | 6,57E-09 | 8,88E-11 | -6,68E-09 |
| HTP-nc | CTUh | 2,40E-06 | 1,48E-07 | 5,78E-09 | 1,47E-06 | 1,31E-06 | 6,71E-09 | 6,54E-08 | 1,84E-09 | -2,94E-07 |
| SQP | Dimensionless | 7,96E-02 | 1,06E-02 | 3,05E-04 | 6,21E-02 | 4,65E-02 | 2,78E-04 | 1,91E-03 | 3,08E-04 | -6,05E-03 |

***PM:*** *Particulate matter emissions;* ***IRP:*** *Ionising radiation, human health;* ***ETP-fw:*** *Ecotoxicity (freshwater);* ***ETP-c:*** *Human toxicity, cancer effects;* ***HTP-nc:*** *Human toxicity, non-cancer effects;* ***SQP:*** *Land use related impacts / soil quality*

## Classification of disclaimers to the declaration of core and additional environmental impact indicators

| ILCD classification | Indicator | Disclaimer |
|---|---|---|
| ILCD type / level 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 / level 2 | Acidification potential, Accumulated Exceedance (AP) | 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 / level 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 | | |

## Resource use

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | B4 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| RPEE | MJ | 2,59E+02 | 2,44E+00 | 3,59E-02 | 2,68E+02 | 1,31E+02 | 1,16E-01 | 7,76E-01 | 1,43E-01 | -2,76E+02 |
| RPEM | MJ | 7,94E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,97E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| TPE | MJ | 3,39E+02 | 2,44E+00 | 3,59E-02 | 2,68E+02 | 1,71E+02 | 1,16E-01 | 7,76E-01 | 1,43E-01 | -2,76E+02 |
| NRPE | MJ | 1,70E+03 | 1,74E+02 | 1,27E+00 | 1,35E+03 | 9,55E+02 | 8,20E+00 | 2,28E+01 | 7,02E+00 | -9,36E+01 |
| NRPM | MJ | 2,26E+02 | 0,00E+00 | 0,00E+00 | 1,19E+01 | 1,13E+02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| TRPE | MJ | 1,92E+03 | 1,74E+02 | 1,27E+00 | 1,37E+03 | 1,07E+03 | 8,20E+00 | 2,28E+01 | 7,02E+00 | -9,36E+01 |
| SM | kg | 2,70E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,35E+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 | 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 | 0,00E+00 |
| W | $m^3$ | 1,05E+00 | 2,14E-02 | 2,48E-03 | 9,79E-01 | 5,43E-01 | 8,55E-04 | 4,56E-03 | 8,43E-03 | -7,95E-01 |

*RPEE Renewable primary energy resources used as energy carrier; RPEM Renewable primary energy resources used as raw materials; TPE Total use of renewable primary energy resources; NRPE Non renewable primary energy resources used as energy carrier; NRPM Non renewable primary energy resources used as materials; TRPE Total use of non renewable primary energy resources; SM Use of secondary materials; RSF Use of renewable secondary fuels; NRSF Use of non renewable secondary fuels; W Use of net fresh water*

## End of life – Waste

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | B4 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| HW | KG | 3,29E+00 | 3,95E-03 | 2,21E-02 | 5,50E+01 | 3,13E+01 | 4,17E-04 | 5,94E+01 | 2,19E-04 | -2,20E-02 |
| NHW | KG | 2,96E+01 | 7,18E+00 | 7,11E-02 | 1,53E+01 | 4,47E+01 | 4,22E-01 | 9,75E-01 | 5,11E+01 | -1,14E+00 |
| RW | KG | 3,50E-03 | 5,01E-05 | 6,25E-07 | 2,17E-03 | 1,88E-03 | 5,55E-05 | 1,18E-04 | 4,73E-05 | -1,84E-04 |

*HW Hazardous waste disposed; NHW Non hazardous waste disposed; RW Radioactive waste disposed*

## End of life – output flow

| Parameter | Unit | A1-A3 | A4 | A5 | B2 | B4 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| CR | 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 | 0,00E+00 |
| MR | kg | 1,62E+00 | 0,00E+00 | 1,42E-01 | 1,42E-01 | 2,48E+00 | 0,00E+00 | 3,34E+00 | 0,00E+00 | 0,00E+00 |
| MER | kg | 2,65E+00 | 0,00E+00 | 8,67E+00 | 8,67E+00 | 6,74E+00 | 0,00E+00 | 1,08E+01 | 0,00E+00 | 0,00E+00 |
| EEE | 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 | 0,00E+00 |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| ETE | 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 | 0,00E+00 |

*CR Components for reuse; MR Materials for recycling; MER Materials for energy recovery; EEE Exported electric energy; ETE Exported thermal energy*

Reading example: 9,0 E-03 = 9,0*10-3 = 0,009

### Information describing the biogenic carbon content at the factory gate

| Biogenic carbon content | Unit | Value |
|---|---|---|
| Biogenic carbon content in product | kg C | 0 |
| Biogenic carbon content in the accompanying packaging | kg C | 2,3 |

# Additional requirements

## Location based electricity mix from the use of electricity in manufacturing

National production mix from import, medium voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing prosess (foreground/core) per functional unit.

| National electricity grid | Data source | Foreground / core [kWh] | $GWP_{total}$ [kg CO2 -eq/kWh] | SUM [kg CO2 -eq] |
|---|---|---|---|---|
| Electricity, medium voltage {LT}\| market for \| Cut-off, U | Ecoinvent v3.9 | 15,92 | 0,501 | 7,98 |

## Guarantees of origin from the use of electricity in the manufacturing phase

Where guarantees of origin is applied instead of national production mix – the electricity for the manufacturing prosess (A3) shall be stated clearly in the EPD per functional unit.

| Electricity source | Foreground / core [kWh] | $GWP_{total}$ [kg CO2 -eq/kWh] | SUM [kgCO2 -eq] |
|---|---|---|---|
| Guarantee of origin electricity used in the foreground | | | |
| Residual mix electricity used in the foreground | 15,92 | 0,699 | 11,13 |

There has not been used guarantee of origin in this EPD. The residual mix for Lithuania is calculated using the dataset from Ecoinvent v3.9 following methodology and statistics from AIB (2022).

## Additional environmental impact indicators required in NPCR Part A for construction products

In order to increase the transparency of biogenic carbon contribution to climate impact, the indicator GWP-IOBC is required as it declares climate impacts calculated according to the principle of instantanious oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | B4 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|---|
| GWP-IOBC | kg CO2 ekv. | 1,40E+02 | 1,30E+01 | -2,38E-01 | 1,05E+02 | 9,00E+01 | 5,44E-01 | 2,65E+01 | 2,19E-01 | -1,01E+01 |

***GWP-IOBC*** *Global warming potential calculated according to the principle of instantanious oxidation.*

## Hazardous substances

The declaration is based upon reference to threshold values and/or test results and/or material safety data sheets provided to EPD verifiers. Documentation available upon request to EPD owner.

- ■ The product contains no substances given by the REACH Candidate list or the Norwegian priority list.
- □ The product contains substances given by the REACH Candidate list or the Norwegian priority list that are less than 0,1 % by weight.
- □ The product contain dangerous substances, more then 0,1% by weight, given by the REACH Candidate List or the Norwegian Priority list, see table.
- □ The product contains no substances given by the REACH Candidate list or the Norwegian priority list. The product is classified as hazardous waste (Avfallsforskiften, Annex III), see table.

| Name | CAS no. | Amount |
|---|---|---|
| | | |
| | | |

## Indoor environment

The product has not been tested for emissions to the indoor environment. This is not relevant.

## Carbon footprint

Carbon footprint has not been worked out for the product.

# Bibliography


| | |
|---|---|
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| ISO 14044:2006 | Environmental management - Life cycle assessment - Requirements and guidelines |
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|---|---|---|---|
| epd-norway Global Program Operator | **Program Operator** | tlf | +47 23 08 80 00 |
| | The Norwegian EPD Foundation | | |
| | Post Box 5250 Majorstuen, 0303 Oslo | e-post: | post@epd-norge.no |
| | Norway | web | www.epd-norge.no |
| epd-norway Global Program Operator | **Publisher** | tlf | +47 23 08 80 00 |
| | The Norwegian EPD Foundation | | |
| | Post Box 5250 Majorstuen, 0303 Oslo | e-post: | post@epd-norge.no |
| | Norway | web | www.epd-norge.no |
| H fasader | **Owner of the declaration** | tlf | +47 70217400 |
| | H-fasader Stette AS | Fax | |
| | Stette næringsområde 15 | e-post: | marked@hfasader.no |
| | Norge | web | www.hfasader.no |
| asplan viak | **Author of the life cycle assesment** | tlf | +47 417 99 417 |
| | Kristine Bjordal og Jill Saunders | Fax | |
| | Asplan Viak AS | e-post: | asplanviak@asplanviak.no |
| | Kjørboveien 20, 1337 Sandvika | web | www.asplanviak.no |
| ECO PLATFORM EPD VERIFIED | ECO Platform | web | www.eco-platform.org |
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