

Environmental product declaration

in accordance with ISO 14025 and EN 15804+A2

Jotacote Universal S120, Jotun Paints (Europe) Ltd (UK)



Jotacote | UNIVERSAL S120



The Norwegian EPD Foundation

Owner of the declaration:

Jotun A/S

Product:

Jotacote Universal S120, Jotun Paints (Europe) Ltd (UK)

Declared unit:

1 m²

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR

IBU PCR Part B for coatings with organic binders

Program operator:

The Norwegian EPD Foundation

Declaration number:

NEPD-4781-4033-EN

Registration number:

NEPD-4781-4033-EN

Issue date: 16.08.2023

Valid to: 16.08.2028

EPD Software:

LCA.no EPD generator ID: 67995

General information

Product

Jotacote Universal S120, Jotun Paints (Europe) Ltd (UK)

Program operator:

Post Box 5250 Majorstuen, 0303 Oslo, Norway
The Norwegian EPD Foundation
Phone: +47 23 08 80 00
web: post@epd-norge.no

Declaration number: NEPD-4781-4033-EN

This declaration is based on Product Category Rules:

CEN Standard EN 15804:2012+A2:2019 serves as core PCR
IBU PCR Part B for coatings with organic binders

Statement of liability:

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

Declared unit:

1 m² Jotacote Universal S120, Jotun Paints (Europe) Ltd (UK)

Declared unit with option:

A1-A3,A4,A5,B2,C1,C2,C3,C4,D

Functional unit:

1 m² of a wind turbine asset (on splash-zone area) well maintained for 35 years

General information on verification of EPD from EPD tools:

Independent verification of data, other environmental information and the declaration according to ISO 14025:2010, § 8.1.3 and § 8.1.4. Verification of each EPD is made according to EPD-Norway's guidelines for verification and approval requiring that tools are i) integrated into the company's environmental management system, ii) the procedures for use of the EPD tool are approved by EPD-Norway, and iii) the process is reviewed annually by an independent third party verifier. See Appendix G of EPD-Norway's General Programme Instructions for further information on EPD tools.

Verification

Independent third party verification of the EPD tool, background data and test EPD in accordance with EPD Norway's procedures and guidelines for verification and approval of EPD tools.

Third party verifier:



Anne Rønning, Norsus AS

Owner of the declaration:

Jotun A/S
Contact person: Cleo Alves Otterbech
Phone: +47 33 45 70 00
e-mail: cleo.otterbech@jotun.no

Manufacturer:

Jotun Paints (Europe) Ltd

Place of production:

Jotun Paints (Europe) Ltd
Stather Road Flixborough, Scunthorpe
DN15 8RR North Lincolnshire, United Kingdom

Management system:

ISO 9001:2008 Certificate nr: 0044915-00, ISO 14001:2004
Certificate nr 0044914-00, ISO 45001: 2018 Certificate nr: 0098139

Organisation no:

923 248 579

Issue date: 16.08.2023

Valid to: 16.08.2028

Year of study:

2023

Comparability:

EPD of construction products may not be comparable if they not comply with EN 15804 and seen in a building context.

Development and verification of EPD:

The declaration is created using EPD tool lca.tools ver EPD2022.03, developed by LCA.no. The EPD tool is integrated in the company's management system, and has been approved by EPD Norway.
Approval number: NEPD07

Developer of EPD: Cleo Alves Otterbech

Reviewer of company-specific input data and EPD: Ragnhild Bjerkvik Alnes

Approved:



Håkon Hauan, CEO EPD-Norge

Product

Product description:

Jotacote Universal S120 is a two component polyamine cured epoxy coating based on Covallox Technology. It is a high build, solvent free product with low VOC emissions. It has exceptionally high adhesion strength and high flexibility. It offers unrivalled anticorrosive properties, ensuring longer lasting steel preservation.

The declared product is specially designed as a universal, all round, new building coating where low VOC emission is required and where long-term anticorrosion performance is expected. It can be used as primer, mid coat, finish coat or as single coat system in atmospheric and immersed environments. It is also suitable for properly prepared aluminum, carbon steel, galvanized steel, shop primed steel and stainless steel substrate.

Marine: Recommended for exterior and interior areas, including outside hulls, superstructures, decks, cargo holds and water ballast tanks. This product is PSPC approved for both two coat and single coat application in water ballast tanks which helps to improve production efficiency. Approved for PSPC cross over testing with a wide range of shop primers.

Protective: Recommended for offshore environments, including splash zones, refineries, power plants, bridges, buildings, mining equipment and general structural steel. Approved for ISO 12944-9, CX environment.

Product specification

For information on Green Building Standard credits, see "Additional Information" on page 4.

The material composition of the declared mixed product is given below:

| Materials | Value | Unit |
|------------------|---------|------|
| Binder | 50 - 75 | % |
| Filler | 25 - 50 | % |
| Titanium dioxide | 5 - 10 | % |
| Additive | 1 - 3 | % |
| Pigment | 1 - 3 | % |
| Solvent | 0.3 - 1 | % |

Technical data:

Product mixing ratio (by volume):

Jotacote Universal S120 Comp A: 2.5 part(s)

Jotacote Universal S120 Standard Comp B: 1 part

Density: 1.6 g/cm³

Solids by volume: 97 ± 2 volume%

Film thickness per coat:

Dry film thickness: 150 - 500 µm

Wet film thickness: 155 - 515 µm

Theoretical spreading rate: 6.5 - 1.9 m²/l

The most representative and worst case formulation produced at the manufacturing site is chosen for this EPD. For products with a selection of colours, this will be the formulation with the highest content of titanium dioxide.

The product packaging is based on an average sized metal packaging, including secondary packaging such as pallets and plastic wrapping.

For safety, health and environmental conditions, see the Safety Data Sheet for the declared product on www.jotun.com.

For information on technical data, application and use of the product, see the Technical Data Sheet for the declared product on www.jotun.com.

Market:

United Kingdom.

Reference service life, product

The reference service life of the product is highly dependent on the conditions of application. The declared product system is installed to be maintenance-free for the lifetime of the object.

Estimated service life, object

The lifetime of the object is 35 years in this analysis.

LCA: Calculation rules

Declared unit:

1 m2 Jotacote Universal S120, Jotun Paints (Europe) Ltd (UK)

Cut-off criteria:

All major raw materials and all the essential energy is included. The production processes for raw materials and energy flows with very small amounts (less than 1%) are not included. These cut-off criteria do not apply for hazardous materials and substances.

Allocation:

The allocation is made in accordance with the provisions of EN 15804. Incoming energy and water and waste production in-house is allocated equally among all products through mass allocation. Effects of primary production of recycled materials is allocated to the main product in which the material was used. The recycling process and transportation of the material is allocated to this analysis.

Data quality:

Specific data for the product composition are provided by the manufacturer. The data represent the production of the declared product and were collected for EPD development in the year of study. Background data is based on EPDs according to EN 15804 and different LCA databases. The data quality of the raw materials in A1 is presented in the table below.

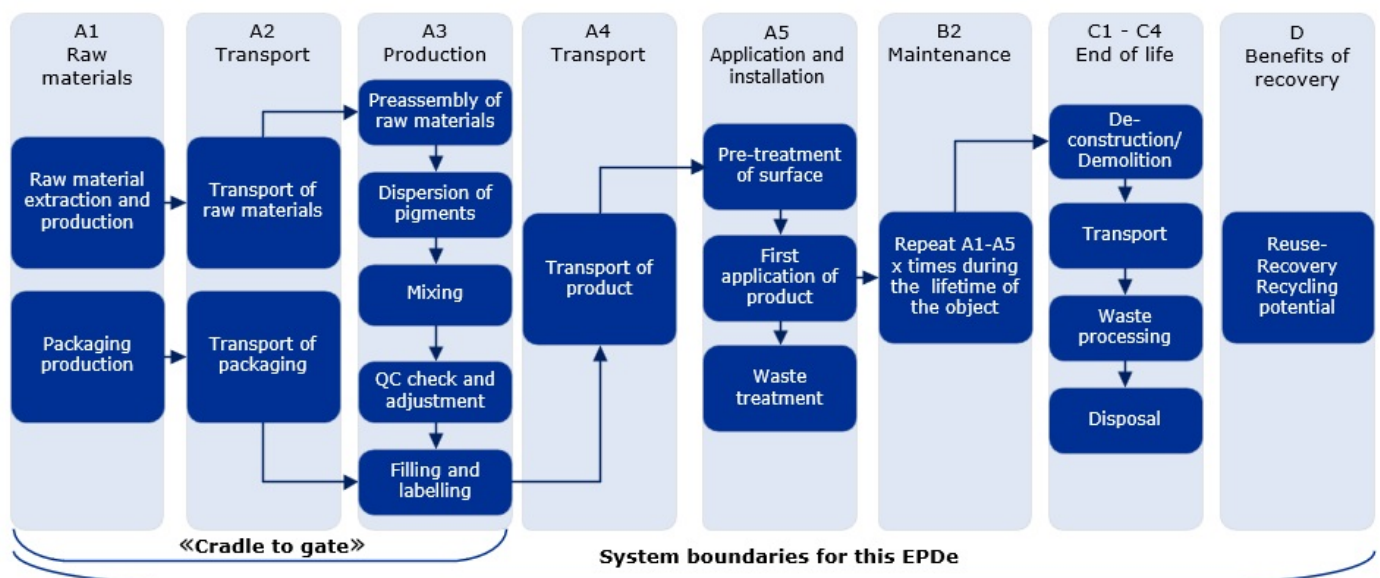
| Materials | Source | Data quality | Year |
|-----------|-----------------------|--------------|------|
| Materials | CEPE RM Database v3.0 | Database | 2019 |
| Materials | ecoinvent 3.6 | Database | 2019 |
| Packaging | ecoinvent 3.6 | Database | 2019 |

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

| Product stage | | | Construction installation stage | | Use stage | | | | | | | End of life stage | | | | Beyond the system boundaries |
|---------------|-----------|---------------|---------------------------------|----------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|------------------------------------|
| 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 | MND | X | MND | MND | MND | MND | MND | X | X | X | X | X |

System boundary:

The flowchart in the figure below illustrates the system boundaries for the analysis, in accordance with the modular principle on EN 15804+A2. The analysis is cradle-to-gate (A1-A3) with options, and modules A4, A5, B2, C and D have been included.



Additional technical information:

The declared product contributes to Green Building Standard credits by meeting the following specific requirements:

LEED® v4 (2013)

EQ credit: Low emitting materials

- Healthcare and schools: Exterior applied products: VOC content for Industrial Maintenance Coatings (250 g/l) (CARB(SCM)2020).

LEED®v4.1 (2020)/LEED®v4 (2013)

MR credit: Building product disclosure and optimization

- Material Ingredients, Option 2: Material Ingredient Optimization, International Alternative Compliance Path - REACH optimization: Fully inventoried chemical ingredients to 100 ppm and not containing substances on the REACH Authorization list – Annex XIV, the Restriction list – Annex XVII and the SVHC candidate list.

- Environmental Product Declarations: Product-specific Type III EPD (ISO 14025;21930, EN 15804) for Jotun Paints (Europe) Ltd (UK).

BREEAM® International (2021)/BREEAM® International (2016)

- Mat 01: Product-specific Type III EPD (ISO 14025; 21930, EN 15804) for Jotun Paints (Europe) Ltd (UK).

Certified for NORSOK Standard M-501, Edition 6: Coating system no. 1, 7A and 7B.

Additional certificates and approvals may be available on request.

LCA: Scenarios and additional technical information

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

This is a cradle to gate (A1-A3) study with options, the modules A4 transport to market, A5 application, B2 maintenance, C1-C4 end of life and module D beyond lifetime have been included, as described below.

Module A4 includes the transport of 1 kg of the declared product with packaging from place of production to the market where the product is sold. The calculation is based on average distances to distribution centers in the local market. The declared product is assumed to be transported with the most common type of truck used for local destinations.

Module A5 includes surface preparation and treatment, and the application of two layers of Jotacote Universal S120. Prior to application, the surface will be cleaned with high pressure water jetting. It will then be pretreated with abrasive blasting to achieve the required roughness. The paint application is performed using Airless Spray. The electricity mix used is from the United Kingdom.

- The object of this analysis is a wind turbine (splash-zone area), the lifetime of this asset is 35 years. The calculations are considering 1 m² of the substrate.

- A5 is modelled with 20% of product loss during the application in semi-covered area.

- The LCI model in the paint application phase utilizes Graco Inc. data for spray, sprayer, and pump characteristics. This does not limit the use of other tools/brands during the paint application phase.

- There are different practices and lack of data for waste treatment of abrasive blasting media and other wastes generated in A5 and B2. For this analysis we have assumed that 100% of the waste from A5 is sent for disposal.

Module B2 maintenance is assumed to be "zero" as the paint system is designed to be maintenance-free for the lifetime of the object.

Module C considers the end-of-life of the construction material. The calculations for module C are based on dried paint. VOC and water is subtracted from the total coating mass due to curing/drying processes occurring in modules A5 and B2. Similarly, packaging waste is generated in module A5 and B2, thus is not accounted for in module C.

Module C1, coatings generally stays on the object until its end of life, at this stage the paint cannot be removed but it will become part of the decommission process. Therefore, the energy use during decommissioning is allocated to the coated object and module C1 is included with zero impact for the declared product.

Module C2 includes the transport of the paint waste to the closest disposal facilities or waste treatment. It is assumed that the waste is transported by truck with European characteristics (EURO 6). The transportation distance is assumed to be 50 km.

Module C3, it is assumed that no waste paint processing takes place in this module.

Module C4, paint waste is gathered as part of the substrate in construction materials. The typical disposal scenario for paint applied on a substrate is landfill, therefore it is assumed that 100% of the paint waste is sent to landfill facilities.














Module D, it is assumed that reuse or recycling of applied paint is not a common practice, therefore for module D the recycling potential will be zero.

| Transport from production place to user (A4) | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
|---|---------------------------------------|---------------|-------------------------|-------|---------------------|
| Truck Europe, over 32 tonnes, EURO 6 (km) | 53,3 % | 197 | 0,023 | l/tkm | 4,53 |
| Assembly (A5) | | Unit | Value | | |
| Abrasive for blasting (kg) | kg/DU | 45,00 | | | |
| Dried paint residues landfill (kg) | kg/DU | 0,20 | | | |
| Electricity, United Kingdom (kWh) | kWh/DU | 1,98 | | | |
| Product loss during application (m2) | Units/DU | 0,20 | | | |
| Truck Europe, over 32 tonnes, EURO 6 (kgkm) | kgkm/DU | 2266,93 | | | |
| VOC emissions to air (kg) | kg/DU | 0,01 | | | |
| Waste packaging, metal, average treatment (kg) | kg | 0,12 | | | |
| Waste packaging, plastic, mixture, to average treatment (kg) | kg | 0,00 | | | |
| Waste packaging, wood, average treatment (kg) | kg | 0,01 | | | |
| Waste packaging, cardboard and paper, to average treatment (kg) | kg | 0,00 | | | |
| Waste, inert waste, to landfill (kg) | kg/DU | 45,00 | | | |
| Water (L) | kg/DU | 4,00 | | | |
| Assembly (A5) | | Unit | Value | | |
| Graco King 60:1 Single Leg Pump | kWh/DU | 0.0453 | | | |
| Transport of total packaging waste | km | 50 | | | |
| Transport of paint waste for disposal | km | 50 | | | |
| Paint waste for disposal | % | 100 | | | |
| High pressure water jetting | kWh/DU | 1.7 | | | |
| Blasting process | kWh/DU | 0.23 | | | |

| Maintenance (B2) | | Unit | Value | | | |
|--|--|---------------------------------------|---------------|-------------------------|-------|---------------------|
| Maintenance (m2) | | Units/DU | 0,00 | | | |
| De-construction demolition (C1) | | Unit | Value | | | |
| Energy use during decommissioning | | kWh/DU | 0,00 | | | |
| Transport to waste processing (C2) | | Capacity utilisation (incl. return) % | Distance (km) | Fuel/Energy Consumption | Unit | Value (Liter/tonne) |
| Truck Europe, over 32 tonnes, EURO 6 (km) | | 53,3 % | 50 | 0,023 | l/tkm | 1,15 |
| Waste processing (C3) | | Unit | Value | | | |
| Waste treatment per kg Paint, municipal incineration, Europe (kg) | | kg/DU | 0,00 | | | |
| Disposal (C4) | | Unit | Value | | | |
| Waste treatment per kg Paint, inert material landfill, Europe (kg) | | kg/DU | 1,02 | | | |
| Benefits and loads beyond the system boundaries (D) | | Unit | Value | | | |
| Substitution of raw materials (kg) | | kg/DU | 0,00 | | | |

LCA: Results

The LCA results are presented below for the declared unit defined on page 2 of the EPD document.

| Environmental impact | | | | | | | | | | | |
|--|------------------------|-----------|----------|----------|----------|----------|----------|----------|----------|----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D | |
|  GWP-total | kg CO ₂ -eq | 4,98E+00 | 1,95E-02 | 3,35E+00 | 0,00E+00 | 0,00E+00 | 4,43E-03 | 0,00E+00 | 1,98E-02 | 0,00E+00 | |
|  GWP-fossil | kg CO ₂ -eq | 4,98E+00 | 1,95E-02 | 3,33E+00 | 0,00E+00 | 0,00E+00 | 4,43E-03 | 0,00E+00 | 1,98E-02 | 0,00E+00 | |
|  GWP-biogenic | kg CO ₂ -eq | -4,98E-03 | 8,35E-06 | 1,68E-02 | 0,00E+00 | 0,00E+00 | 1,90E-06 | 0,00E+00 | 9,47E-06 | 0,00E+00 | |
|  GWP-luluc | kg CO ₂ -eq | 6,43E-04 | 5,94E-06 | 2,63E-03 | 0,00E+00 | 0,00E+00 | 1,35E-06 | 0,00E+00 | 6,53E-06 | 0,00E+00 | |
|  ODP | kg CFC11 -eq | 9,80E-05 | 4,70E-09 | 2,00E-05 | 0,00E+00 | 0,00E+00 | 1,07E-09 | 0,00E+00 | 5,49E-09 | 0,00E+00 | |
|  AP | mol H+ -eq | 2,52E-02 | 6,28E-05 | 1,71E-02 | 0,00E+00 | 0,00E+00 | 1,43E-05 | 0,00E+00 | 1,10E-04 | 0,00E+00 | |
|  EP-FreshWater | kg P -eq | 5,35E-04 | 1,55E-07 | 1,94E-04 | 0,00E+00 | 0,00E+00 | 3,52E-08 | 0,00E+00 | 1,73E-07 | 0,00E+00 | |
|  EP-Marine | kg N -eq | 8,27E-03 | 1,38E-05 | 4,66E-03 | 0,00E+00 | 0,00E+00 | 3,12E-06 | 0,00E+00 | 3,50E-05 | 0,00E+00 | |
|  EP-Terrestrial | mol N -eq | 5,30E-02 | 1,53E-04 | 4,47E-02 | 0,00E+00 | 0,00E+00 | 3,48E-05 | 0,00E+00 | 3,86E-04 | 0,00E+00 | |
|  POCP | kg NMVOC -eq | 1,64E-02 | 6,02E-05 | 1,49E-02 | 0,00E+00 | 0,00E+00 | 1,37E-05 | 0,00E+00 | 1,15E-04 | 0,00E+00 | |
|  ADP-minerals&metals ¹ | kg Sb -eq | 6,12E-05 | 3,48E-07 | 3,57E-05 | 0,00E+00 | 0,00E+00 | 7,89E-08 | 0,00E+00 | 4,39E-07 | 0,00E+00 | |
|  ADP-fossil ¹ | MJ | 6,55E+01 | 3,17E-01 | 6,25E+01 | 0,00E+00 | 0,00E+00 | 7,19E-02 | 0,00E+00 | 3,67E-01 | 0,00E+00 | |
|  WDP ¹ | m ³ | 2,36E+01 | 2,43E-01 | 3,20E+02 | 0,00E+00 | 0,00E+00 | 5,52E-02 | 0,00E+00 | 2,53E-01 | 0,00E+00 | |

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 = 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







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

*INA Indicator Not Assessed

1. 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

Remarks to environmental impacts

Additional environmental impact indicators











| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|-------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|  PM | Disease incidence | 4,26E-07 | 1,79E-09 | 2,30E-07 | 0,00E+00 | 0,00E+00 | 4,07E-10 | 0,00E+00 | 2,02E-09 | 0,00E+00 |
|  IRP ² | kgBq U235 -eq | 1,98E+02 | 1,38E-03 | 4,00E+01 | 0,00E+00 | 0,00E+00 | 3,14E-04 | 0,00E+00 | 1,56E-03 | 0,00E+00 |
|  ETP-fw ¹ | CTUe | 4,45E+01 | 2,32E-01 | 4,10E+01 | 0,00E+00 | 0,00E+00 | 5,26E-02 | 0,00E+00 | 2,49E-01 | 0,00E+00 |
|  HTP-c ¹ | CTUh | 4,74E-08 | 0,00E+00 | 1,03E-08 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,00E-12 | 0,00E+00 |
|  HTP-nc ¹ | CTUh | 3,66E-07 | 2,24E-10 | 1,02E-07 | 0,00E+00 | 0,00E+00 | 5,10E-11 | 0,00E+00 | 2,40E-10 | 0,00E+00 |
|  SQP ¹ | dimensionless | 5,43E+01 | 3,63E-01 | 7,45E+01 | 0,00E+00 | 0,00E+00 | 8,25E-02 | 0,00E+00 | 4,56E-01 | 0,00E+00 |

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 = Potential Soil Quality Index (dimensionless)

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

*INA Indicator Not Assessed

1. 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
2. This impact category deals mainly with the eventual impact of low dose ionizing radiation on human health of the nuclear fuel cycle. It does not consider effects due to possible nuclear accidents, occupational exposure nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.




| Resource use | | | | | | | | | | | |
|---|----------------|----------|----------|-----------|----------|----------|----------|----------|----------|----------|--|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D | |
|  PERE | MJ | 8,09E+00 | 3,98E-03 | 7,69E+00 | 0,00E+00 | 0,00E+00 | 9,05E-04 | 0,00E+00 | 4,28E-03 | 0,00E+00 | |
|  PERM | MJ | 9,79E-02 | 0,00E+00 | 1,96E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
|  PERT | MJ | 8,19E+00 | 3,98E-03 | 7,71E+00 | 0,00E+00 | 0,00E+00 | 9,05E-04 | 0,00E+00 | 4,28E-03 | 0,00E+00 | |
|  PENRE | MJ | 7,24E+01 | 3,17E-01 | 6,61E+01 | 0,00E+00 | 0,00E+00 | 7,19E-02 | 0,00E+00 | 3,67E-01 | 0,00E+00 | |
|  PENRM | MJ | 1,62E-01 | 0,00E+00 | 3,25E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | |
|  PENRT | MJ | 7,26E+01 | 3,17E-01 | 6,61E+01 | 0,00E+00 | 0,00E+00 | 7,19E-02 | 0,00E+00 | 3,67E-01 | 0,00E+00 | |
|  SM | kg | 2,22E-02 | 0,00E+00 | -4,50E+01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,06E-05 | 0,00E+00 | |
|  RSF | MJ | 1,77E-02 | 1,39E-04 | 1,77E-01 | 0,00E+00 | 0,00E+00 | 3,17E-05 | 0,00E+00 | 1,38E-04 | 0,00E+00 | |
|  NRSF | MJ | 9,70E-02 | 4,67E-04 | 2,17E-02 | 0,00E+00 | 0,00E+00 | 1,06E-04 | 0,00E+00 | 5,36E-04 | 0,00E+00 | |
|  FW | m ³ | 2,21E-01 | 3,60E-05 | 7,47E-02 | 0,00E+00 | 0,00E+00 | 8,19E-06 | 0,00E+00 | 1,83E-04 | 0,00E+00 | |

PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non renewable primary energy excluding non-renewable primary energy resources used as raw materials; PENRM = Use of non renewable primary energy resources used as raw materials; PENRT = Total use of non renewable primary energy resources; SM = Use of secondary materials; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Net use of fresh water

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

*INA Indicator Not Assessed

End of life - Waste






| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|--|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|  HWD | kg | 2,61E-02 | 1,73E-05 | 8,35E-03 | 0,00E+00 | 0,00E+00 | 3,94E-06 | 0,00E+00 | 2,27E-05 | 0,00E+00 |
|  NHWD | kg | 8,33E-01 | 2,75E-02 | 4,64E+01 | 0,00E+00 | 0,00E+00 | 6,25E-03 | 0,00E+00 | 1,03E+00 | 0,00E+00 |
|  RWD | kg | 1,09E-04 | 2,16E-06 | 3,18E-04 | 0,00E+00 | 0,00E+00 | 4,91E-07 | 0,00E+00 | 2,46E-06 | 0,00E+00 |

HWD = Hazardous waste disposed; NHWD = Non-hazardous waste disposed; RWD = Radioactive waste disposed

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

End of life - Output flow

| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
|---|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
|  CRU | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
|  MFR | kg | 6,59E-03 | 0,00E+00 | 1,29E-01 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,81E-05 | 0,00E+00 |
|  MER | kg | 1,81E-02 | 0,00E+00 | 1,32E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 3,08E-07 | 0,00E+00 |
|  EEE | MJ | 6,05E-03 | 0,00E+00 | 6,56E-03 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 2,66E-06 | 0,00E+00 |
|  EET | MJ | 9,16E-02 | 0,00E+00 | 9,93E-02 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 4,03E-05 | 0,00E+00 |

CRU = Components for re-use; MFR = Materials for recycling; MER = Materials for energy recovery; EEE = Exported energy electrical; EET = Exported energy thermal

*Reading example: 9,0 E-03 = $9,0 \cdot 10^{-3}$ = 0,009"

*INA Indicator Not Assessed

Biogenic Carbon Content

| Indicator | Unit | At the factory gate |
|---|------|---------------------|
| Biogenic carbon content in product | kg C | 0,00E+00 |
| Biogenic carbon content in accompanying packaging | kg C | 3,59E-03 |

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO₂

Additional requirements

Greenhouse gas emissions from the use of electricity in the manufacturing phase

National production mix from import, low voltage (production of transmission lines, in addition to direct emissions and losses in grid) of applied electricity for the manufacturing process (A3).

| Electricity mix | Data source | Amount | Unit |
|-----------------------------------|---------------|--------|---------------------------|
| Electricity, United Kingdom (kWh) | ecoinvent 3.6 | 386,67 | g CO ₂ -eq/kWh |

Dangerous substances

The product contains no substances given by the REACH Candidate list or the Norwegian priority list.

Indoor environment

Not applicable for externally applied products.






Additional Environmental Information

| Additional environmental impact indicators required in NPCR Part A for construction products | | | | | | | | | | |
|--|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Indicator | Unit | A1-A3 | A4 | A5 | B2 | C1 | C2 | C3 | C4 | D |
| GWPIOBC | kg CO ₂ -eq | 4,98E+00 | 1,95E-02 | 3,10E+00 | 0,00E+00 | 0,00E+00 | 4,43E-03 | 0,00E+00 | 1,98E-02 | 0,00E+00 |

GWPIOBC: Global warming potential calculated according to the principle of instantaneous oxidation. 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 instantaneous oxidation. GWP-IOBC is also referred to as GWP-GHG in context to Swedish public procurement legislation.

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