

ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025 / ISO 21930

Murbruk B and Färgat Murbruk M2,5
Finja Betong



EPD HUB, HUB-1546

Published on 07.06.2024, last updated on 07.06.2024, valid until 07.06.2029

GENERAL INFORMATION

MANUFACTURER

| | |
|-----------------|---------------|
| Manufacturer | Finja Betong |
| Address | Betongvägen 1 |
| Contact details | info@finja.se |
| Website | www.finja.se |

EPD STANDARDS, SCOPE AND VERIFICATION

| | |
|--------------------|--|
| Program operator | EPD Hub, hub@epdhub.com |
| Reference standard | EN 15804+A2:2019 and ISO 14025 |
| PCR | EPD Hub Core PCR version 1.1, 5 Dec 2023 |
| Sector | Construction product |
| Category of EPD | Third party verified EPD |
| Parent EPD number | |
| Scope of the EPD | Cradle to gate with options, A4-A5, and modules C1-C4, D |
| EPD author | Martin Varma, Finja Betong |
| EPD verification | Independent verification of this EPD and data, according to ISO 14025: <input type="checkbox"/> Internal verification <input checked="" type="checkbox"/> External verification |
| EPD verifier | Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited |

The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

| | |
|-----------------------------------|--|
| Product name | Murbruk B and Färgat Murbruk M2,5 |
| Additional labels | |
| Product reference | |
| Place of production | Finja and Strängnäs, Sweden |
| Period for data | 2023 |
| Averaging in EPD | Multiple products and multiple factories |
| Variation in GWP-fossil for A1-A3 | minus 7%, plus 46% from average % |

ENVIRONMENTAL DATA SUMMARY

| | |
|--|--------------|
| Declared unit | 1 metric ton |
| Declared unit mass | 1000 kg |
| GWP-fossil, A1-A3 (kgCO ₂ e) | 1,14E+02 |
| GWP-total, A1-A3 (kgCO ₂ e) | 1,07E+02 |
| Secondary material, inputs (%) | 1.39 |
| Secondary material, outputs (%) | 80 |
| Total energy use, A1-A3 (kWh) | 335 |
| Net fresh water use, A1-A3 (m ³) | 0.94 |

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

Finja is a Swedish family business whose journey began with a gravel pit acquired in 1957.

Since then, and with a large amount of knowledge, dedication and courage, you now have today's company – one of the country's largest companies in the concrete industry.

PRODUCT DESCRIPTION

General purpose masonry mortar, for use in masonry walls, columns and partitions, inside and outside. Classification according to EN 998-2: Designed-G-M2,5. Could be used for masonry works with bricks, light weight aggregate block and more. Please see product specific information on www.finja.se to choose the right mortar for the application.

Further information can be found at www.finja.se.

PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass- % | Material origin |
|-----------------------|-----------------|-----------------|
| Metals | | |
| Minerals | 100 | Europe |
| Fossil materials | | |
| Bio-based materials | | |

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

| | |
|--|------|
| Biogenic carbon content in product, kg C | |
| Biogenic carbon content in packaging, kg C | 1.96 |

FUNCTIONAL UNIT AND SERVICE LIFE

| | |
|------------------------|--------------|
| Declared unit | 1 metric ton |
| Mass per declared unit | 1000 kg |
| Functional unit | |
| Reference service life | 100 |

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

| Product stage | | | Assembly stage | | Use stage | | | | | | | End of life stage | | | | Beyond the system boundaries | | |
|---------------|-----------|---------------|----------------|----------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|-------------------|-----------|------------------|----------|------------------------------|----------|-----------|
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D | | |
| x | x | x | x | x | MND | MND | MND | MND | MND | MND | MND | x | x | x | x | x | | |
| Raw materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstr./demol. | Transport | Waste processing | Disposal | Reuse | Recovery | Recycling |

Modules not declared = MND. Modules not relevant = MNR.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the manufacturing of raw materials used in the production as well as packaging materials and other ancillary materials. Also, fuels used by machines, and handling of waste formed in the production processes at the manufacturing facilities are included in this stage. The study also considers the material losses occurring during the manufacturing processes as well as losses during electricity transmission.

Cement and sand/gravel aggregate is mixed at the factory plant. The mix is placed in bags of various sizes, placed on pallets and located in the storage area before transport to the customers warehouse.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions.

When ordered from customer the product is loaded for transport. The transports are optimised for maximum possible usage of load capacity. During installation material loss will occur, mainly when handling the product.

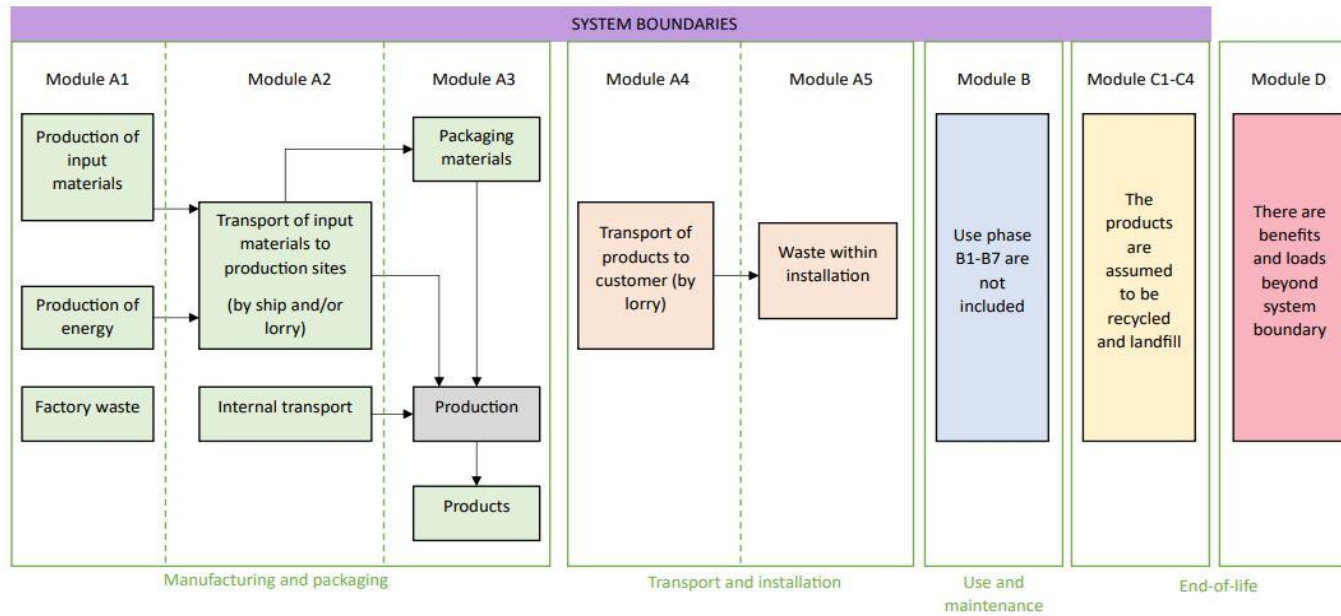
PRODUCT USE AND MAINTENANCE (B1-B7)

This EPD does not cover the use phase. Air, soil, and water impacts during the use phase have not been studied.

PRODUCT END OF LIFE (C1-C4, D)

After service life demolition is made mechanically. 100% of the demolished material can be used as new aggregate. However, it is assumed that 80% will be recycled and 20% will be land fill as according to concrete templates. The demolition process consumes diesel fuel used by building machines for example, excavator equipped with hydraulic hammer. The demolished masonry mortar is delivered to the closest waste treatment plant for crushing and sorting. Demolished masonry mortar can be used as landfill or as aggregate in new concrete. There are benefits outside system boundaries.

MANUFACTURING PROCESS



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR. The study does not exclude any hazardous materials or substances. The study includes all major raw material and energy consumption. All inputs and outputs of the unit processes, for which data is available for, are included in the calculation. There is no neglected unit process more than 1% of total mass or energy flows. The module specific total neglected input and output flows also do not exceed 5% of energy usage or mass.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

| Data type | Allocation |
|--------------------------------|-----------------------------|
| Raw materials | Allocated by mass or volume |
| Packaging materials | Allocated by mass or volume |
| Ancillary materials | Allocated by mass or volume |
| Manufacturing energy and waste | Allocated by mass or volume |

AVERAGES AND VARIABILITY

| | |
|-----------------------------------|--|
| Type of average | Multiple products and multiple factories |
| Averaging method | Averaged by shares of total mass |
| Variation in GWP-fossil for A1-A3 | minus 7%, plus 46% from average % |

This EPD is a weighted average, using annual production volume for each product and production plant in proportion. The product specific GWP-f interval is from 1,06+E2 to 1,66+E2 kg CO₂-e per metric ton, with the higher value origin from white cement.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using One Click LCA EPD Generator. The LCA and EPD have been prepared according to the reference standards and ISO 14040/14044. The EPD Generator uses Ecoinvent v3.8, Plastics Europe, Federal LCA Commons and One Click LCA databases as sources of environmental data.

ENVIRONMENTAL IMPACT DATA

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|-------------------------------------|------------------------|----------|----------|-----------|-----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|----------|----------|-----------|-----------|-----------|
| GWP – total ¹⁾ | kg CO ₂ e | 7,09E+01 | 4,50E+00 | 3,15E+01 | 1,07E+02 | 2,29E+01 | 1,48E+01 | MND | MND | MND | MND | MND | MND | MND | 3,31E+00 | 4,69E+00 | 6,58E+00 | 1,64E+00 | -3,81E+00 |
| GWP – fossil | kg CO ₂ e | 7,08E+01 | 4,50E+00 | 3,86E+01 | 1,14E+02 | 2,29E+01 | 7,55E+00 | MND | MND | MND | MND | MND | MND | MND | 3,31E+00 | 4,69E+00 | 6,59E+00 | 1,65E+00 | -3,80E+00 |
| GWP – biogenic | kg CO ₂ e | 1,94E-02 | 1,49E-05 | -7,20E+00 | -7,18E+00 | 0,00E+00 | 7,20E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | -1,55E-02 | -3,88E-03 | 0,00E+00 |
| GWP – LULUC | kg CO ₂ e | 1,49E-02 | 1,90E-03 | 1,85E-02 | 3,53E-02 | 8,43E-03 | 2,64E-03 | MND | MND | MND | MND | MND | MND | MND | 3,30E-04 | 1,73E-03 | 5,17E-03 | 1,29E-03 | -5,69E-04 |
| Ozone depletion pot. | kg CFC ₁₁ e | 1,64E-06 | 1,08E-06 | 3,84E-06 | 6,55E-06 | 5,26E-06 | 7,32E-07 | MND | MND | MND | MND | MND | MND | MND | 7,07E-07 | 1,08E-06 | 1,35E-06 | 3,36E-07 | -7,93E-07 |
| Acidification potential | mol H ⁺ e | 1,42E-01 | 2,83E-02 | 1,80E-01 | 3,51E-01 | 9,68E-02 | 2,70E-02 | MND | MND | MND | MND | MND | MND | MND | 3,44E-02 | 1,99E-02 | 5,57E-02 | 1,39E-02 | -3,89E-02 |
| EP-freshwater ²⁾ | kg Pe | 1,14E-03 | 3,11E-05 | 4,89E-04 | 1,66E-03 | 1,87E-04 | 1,06E-04 | MND | MND | MND | MND | MND | MND | MND | 1,10E-05 | 3,84E-05 | 1,73E-04 | 4,32E-05 | -1,92E-05 |
| EP-marine | kg Ne | 9,41E-03 | 6,88E-03 | 5,83E-02 | 7,46E-02 | 2,88E-02 | 6,79E-03 | MND | MND | MND | MND | MND | MND | MND | 1,52E-02 | 5,90E-03 | 2,07E-02 | 5,18E-03 | -1,70E-02 |
| EP-terrestrial | mol Ne | 4,05E-01 | 7,63E-02 | 6,41E-01 | 1,12E+00 | 3,17E-01 | 8,98E-02 | MND | MND | MND | MND | MND | MND | MND | 1,67E-01 | 6,51E-02 | 2,28E-01 | 5,70E-02 | -1,87E-01 |
| POCP (“smog”) ³⁾ | kg NMVOCe | 1,21E-01 | 2,38E-02 | 1,93E-01 | 3,38E-01 | 1,02E-01 | 2,71E-02 | MND | MND | MND | MND | MND | MND | MND | 4,59E-02 | 2,08E-02 | 6,36E-02 | 1,59E-02 | -5,13E-02 |
| ADP-minerals & metals ⁴⁾ | kg Sbe | 4,07E-05 | 1,05E-05 | 1,20E-04 | 1,71E-04 | 5,36E-05 | 1,35E-05 | MND | MND | MND | MND | MND | MND | MND | 1,68E-06 | 1,10E-05 | 2,18E-05 | 5,46E-06 | -3,15E-06 |
| ADP-fossil resources | MJ | 2,19E+02 | 6,90E+01 | 5,45E+02 | 8,33E+02 | 3,43E+02 | 6,97E+01 | MND | MND | MND | MND | MND | MND | MND | 4,45E+01 | 7,05E+01 | 1,13E+02 | 2,84E+01 | -5,12E+01 |
| Water use ⁵⁾ | m ³ e depr. | 4,83E+01 | 3,10E-01 | 2,66E+01 | 7,51E+01 | 1,54E+00 | 3,93E+00 | MND | MND | MND | MND | MND | MND | MND | 1,20E-01 | 3,15E-01 | 1,08E+00 | 2,71E-01 | -5,34E+00 |

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, PEF

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|----------------------------------|-----------|----------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|-----------|
| Particulate matter | Incidence | 6,30E-03 | 4,83E-07 | 3,37E-06 | 6,31E-03 | 2,63E-06 | 3,16E-04 | MND | MND | MND | MND | MND | MND | MND | 9,22E-07 | 5,41E-07 | 7,14E-06 | 1,79E-06 | -1,03E-06 |
| Ionizing radiation ⁶⁾ | kBq U235e | 3,74E+03 | 3,49E-01 | 1,04E+01 | 3,75E+03 | 1,64E+00 | 1,88E+02 | MND | MND | MND | MND | MND | MND | MND | 2,05E-01 | 3,36E-01 | 1,12E+00 | 2,79E-01 | -2,51E-01 |
| Ecotoxicity (freshwater) | CTUe | 1,94E+02 | 5,70E+01 | 4,13E+02 | 6,64E+02 | 3,09E+02 | 5,72E+01 | MND | MND | MND | MND | MND | MND | MND | 2,68E+01 | 6,34E+01 | 8,00E+01 | 2,00E+01 | -3,25E+01 |
| Human toxicity, cancer | CTUh | 9,40E-08 | 1,70E-09 | 2,24E-08 | 1,18E-07 | 7,59E-09 | 6,67E-09 | MND | MND | MND | MND | MND | MND | MND | 1,03E-09 | 1,56E-09 | 3,52E-09 | 8,79E-10 | -1,47E-09 |
| Human tox. non-cancer | CTUh | 9,40E-07 | 5,68E-08 | 2,39E-07 | 1,24E-06 | 3,06E-07 | 8,51E-08 | MND | MND | MND | MND | MND | MND | MND | 1,94E-08 | 6,27E-08 | 6,73E-08 | 1,68E-08 | -2,37E-08 |
| SQP ⁷⁾ | - | 1,48E+02 | 7,42E+01 | 9,91E+02 | 1,21E+03 | 3,96E+02 | 9,22E+01 | MND | MND | MND | MND | MND | MND | MND | 5,79E+00 | 8,12E+01 | 1,17E+02 | 2,91E+01 | -1,96E+03 |

6) EN 15804+A2 disclaimer for ionizing radiation, human health. 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|------------------------------------|----------------|----------|----------|----------|----------|----------|-----------|-----|-----|-----|-----|-----|-----|-----|----------|----------|-----------|----------|-----------|
| Renew. PER as energy ⁸⁾ | MJ | 4,48E+01 | 8,47E-01 | 9,62E+01 | 1,42E+02 | 3,87E+00 | 7,76E+00 | MND | MND | MND | MND | MND | MND | MND | 2,54E-01 | 7,94E-01 | 6,23E+00 | 1,56E+00 | -5,41E-01 |
| Renew. PER as material | MJ | 0,00E+00 | 0,00E+00 | 6,34E+01 | 6,34E+01 | 0,00E+00 | -6,34E+01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Total use of renew. PER | MJ | 4,48E+01 | 8,47E-01 | 1,60E+02 | 2,05E+02 | 3,87E+00 | -5,56E+01 | MND | MND | MND | MND | MND | MND | MND | 2,54E-01 | 7,94E-01 | 6,23E+00 | 1,56E+00 | -5,41E-01 |
| Non-re. PER as energy | MJ | 2,10E+02 | 6,90E+01 | 6,34E+02 | 9,13E+02 | 3,43E+02 | 7,38E+01 | MND | MND | MND | MND | MND | MND | MND | 4,45E+01 | 7,05E+01 | 1,13E+02 | 2,84E+01 | -5,12E+01 |
| Non-re. PER as material | MJ | 9,30E+01 | 0,00E+00 | 1,03E+02 | 1,96E+02 | 0,00E+00 | -1,03E+02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | -9,30E+01 | 0,00E+00 | 0,00E+00 |
| Total use of non-re. PER | MJ | 3,03E+02 | 6,90E+01 | 7,37E+02 | 1,11E+03 | 3,43E+02 | -2,96E+01 | MND | MND | MND | MND | MND | MND | MND | 4,45E+01 | 7,05E+01 | 2,04E+01 | 2,84E+01 | -5,12E+01 |
| Secondary materials | kg | 1,39E+01 | 2,09E-02 | 3,04E-01 | 1,42E+01 | 9,53E-02 | 7,19E-01 | MND | MND | MND | MND | MND | MND | MND | 1,74E-02 | 1,96E-02 | 4,09E-02 | 1,02E-02 | -2,58E-02 |
| Renew. secondary fuels | MJ | 5,72E+01 | 1,68E-04 | 1,73E+00 | 5,89E+01 | 9,62E-04 | 2,94E+00 | MND | MND | MND | MND | MND | MND | MND | 5,70E-05 | 1,97E-04 | 5,94E-04 | 1,49E-04 | -7,16E-04 |
| Non-ren. secondary fuels | MJ | 9,36E+01 | 0,00E+00 | 0,00E+00 | 9,36E+01 | 0,00E+00 | 4,68E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Use of net fresh water | m ³ | 5,40E-01 | 8,76E-03 | 3,91E-01 | 9,40E-01 | 4,45E-02 | 5,39E-02 | MND | MND | MND | MND | MND | MND | MND | 2,70E-03 | 9,13E-03 | 6,31E-02 | 1,58E-02 | -1,64E-01 |

8) PER = Primary energy resources.

END OF LIFE – WASTE

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|---------------------|------|----------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|-----------|
| Hazardous waste | kg | 1,85E-01 | 7,93E-02 | 9,94E-01 | 1,26E+00 | 4,55E-01 | 1,09E-01 | MND | MND | MND | MND | MND | MND | MND | 5,96E-02 | 9,34E-02 | 2,46E-01 | 6,15E-02 | -8,55E-02 |
| Non-hazardous waste | kg | 3,77E+02 | 1,28E+00 | 1,85E+01 | 3,97E+02 | 7,48E+00 | 2,96E+01 | MND | MND | MND | MND | MND | MND | MND | 4,19E-01 | 1,54E+00 | 1,47E+02 | 3,67E+01 | -7,68E-01 |
| Radioactive waste | kg | 4,70E-04 | 4,75E-04 | 4,68E-03 | 5,63E-03 | 2,30E-03 | 4,70E-04 | MND | MND | MND | MND | MND | MND | MND | 3,13E-04 | 4,71E-04 | 7,65E-04 | 1,91E-04 | -3,55E-04 |

END OF LIFE – OUTPUT FLOWS

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|--------------------------|------|----------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|----------|
| Components for re-use | kg | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Materials for recycling | kg | 1,20E-05 | 0,00E+00 | 1,43E-01 | 1,43E-01 | 0,00E+00 | 5,04E+01 | MND | MND | MND | MND | MND | MND | MND | 1,00E+01 | 0,00E+00 | 8,00E+02 | 0,00E+00 | 0,00E+00 |
| Materials for energy rec | kg | 0,00E+00 | 0,00E+00 | 1,30E-01 | 1,30E-01 | 0,00E+00 | 5,99E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Exported energy | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |

ENVIRONMENTAL IMPACTS – EN 15804+A1, CML / ISO 21930

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|----------------------|------------------------------------|----------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|-----------|
| Global Warming Pot. | kg CO ₂ e | 6,30E+00 | 4,46E+00 | 3,79E+01 | 4,86E+01 | 2,26E+01 | 4,27E+00 | MND | MND | MND | MND | MND | MND | MND | 3,27E+00 | 4,64E+00 | 6,51E+00 | 1,63E+00 | -3,76E+00 |
| Ozone depletion Pot. | kg CFC-11e | 1,96E-07 | 8,52E-07 | 3,12E-06 | 4,16E-06 | 4,17E-06 | 5,29E-07 | MND | MND | MND | MND | MND | MND | MND | 5,60E-07 | 8,55E-07 | 1,07E-06 | 2,68E-07 | -6,29E-07 |
| Acidification | kg SO ₂ e | 3,10E-02 | 2,27E-02 | 1,38E-01 | 1,92E-01 | 7,52E-02 | 1,68E-02 | MND | MND | MND | MND | MND | MND | MND | 2,45E-02 | 1,54E-02 | 4,14E-02 | 1,04E-02 | -2,78E-02 |
| Eutrophication | kg PO ₄ ³ e | 8,35E-03 | 3,67E-03 | 3,64E-02 | 4,84E-02 | 1,71E-02 | 4,52E-03 | MND | MND | MND | MND | MND | MND | MND | 5,69E-03 | 3,52E-03 | 1,37E-02 | 3,43E-03 | -6,62E-03 |
| POCP ("smog") | kg C ₂ H ₄ e | 1,75E-03 | 8,02E-04 | 7,86E-03 | 1,04E-02 | 2,94E-03 | 7,83E-04 | MND | MND | MND | MND | MND | MND | MND | 5,36E-04 | 6,03E-04 | 1,26E-03 | 3,14E-04 | -6,31E-04 |
| ADP-elements | kg Sbe | 2,28E-05 | 1,02E-05 | 1,40E-04 | 1,73E-04 | 5,19E-05 | 1,35E-05 | MND | MND | MND | MND | MND | MND | MND | 1,65E-06 | 1,07E-05 | 2,15E-05 | 5,38E-06 | -3,10E-06 |
| ADP-fossil | MJ | 5,93E+01 | 6,90E+01 | 7,37E+02 | 8,66E+02 | 3,43E+02 | 7,14E+01 | MND | MND | MND | MND | MND | MND | MND | 4,45E+01 | 7,05E+01 | 1,13E+02 | 2,83E+01 | -5,12E+01 |

ENVIRONMENTAL IMPACTS – GWP-GHG - THE INTERNATIONAL EPD SYSTEM

| Impact category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
|-----------------------|----------------------|----------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|----------|-----------|
| GWP-GHG ⁹⁾ | kg CO ₂ e | 7,08E+01 | 4,50E+00 | 3,86E+01 | 1,14E+02 | 2,29E+01 | 7,55E+00 | MND | MND | MND | MND | MND | MND | MND | 3,31E+00 | 4,69E+00 | 6,59E+00 | 1,65E+00 | -3,80E+00 |

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013). In addition, the characterisation factors for the flows - CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide - were updated in line with the guidance of IES PCR 1.2.5 Annex 1. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterization factor for biogenic CO₂ is set to zero.

VERIFICATION STATEMENT

VERIFICATION PROCESS FOR THIS EPD

This EPD has been verified in accordance with ISO 14025 by an independent, third-party verifier by reviewing results, documents and compliancy with reference standard, ISO 14025 and ISO 14040/14044, following the process and checklists of the program operator for:

- This Environmental Product Declaration
- The Life-Cycle Assessment used in this EPD
- The digital background data for this EPD

Why does verification transparency matter? [Read more online](#)

This EPD has been generated by One Click LCA EPD generator, which has been verified and approved by the EPD Hub.

THIRD-PARTY VERIFICATION STATEMENT

I hereby confirm that, following detailed examination, I have not established any relevant deviations by the studied Environmental Product Declaration (EPD), its LCA and project report, in terms of the data collected and used in the LCA calculations, the way the LCA-based calculations have been carried out, the presentation of environmental data in the EPD, and other additional environmental information, as present with respect to the procedural and methodological requirements in ISO 14025:2010 and reference standard.

I confirm that the company-specific data has been examined as regards plausibility and consistency; the declaration owner is responsible for its factual integrity and legal compliance.

I confirm that I have sufficient knowledge and experience of construction products, this specific product category, the construction industry, relevant standards, and the geographical area of the EPD to carry out this verification.

I confirm my independence in my role as verifier; I have not been involved in the execution of the LCA or in the development of the declaration and have no conflicts of interest regarding this verification.

Imane Uald lamkaddam, as an authorized verifier acting for EPD Hub Limited

07.06.2024

