
# ENVIRONMENTAL PRODUCT DECLARATION

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

S-BT Self tapping threaded studs
Hilti AG

**EPD HUB, HUB-2538**
Published on 21.02.2025, last updated on 23.05.2025, valid until 21.02.2030

Created with One Click LCA

# GENERAL INFORMATION

## MANUFACTURER

| | |
|---|---|
| **Manufacturer** | Hilti AG |
| **Address** | Feldkircherstrasse 100, 9494 Schaan, Liechtenstein |
| **Contact details** | Sustainability@Hilti.com |
| **Website** | www.hilti.com |

## 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** | Elise Janssen, Hilti AG |
| **EPD verification** | Independent verification of this EPD and data, according to ISO 14025:<br>☐ Internal verification ☑ External verification |
| **EPD verifier** | Imane Uald Lamkaddam as an authorized verifier for EPD Hub |

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** | S-BT Self tapping threaded studs |
| **Additional labels** | See appendix |
| **Product reference** | 2345767 |
| **Place of production** | Schaan, Liechtenstein |
| **Period for data** | Calendar year 2023 |
| **Averaging in EPD** | Multiple products |
| **Variation in GWP-fossil for A1-A3** | 50 % |

## ENVIRONMENTAL DATA SUMMARY

| | |
|---|---|
| **Declared unit** | 1 kg |
| **Declared unit mass** | 1 kg |
| **GWP-fossil, A1-A3 (kgCO2e)** | 3.38E+00 |
| **GWP-total, A1-A3 (kgCO2e)** | 3.22E+00 |
| **Secondary material, inputs (%)** | 33.6 |
| **Secondary material, outputs (%)** | 81.8 |
| **Total energy use, A1-A3 (kWh)** | 15.8 |
| **Net freshwater use, A1-A3 (m3)** | 0.01 |

# PRODUCT AND MANUFACTURER

## ABOUT THE MANUFACTURER

The Hilti Group supplies the worldwide construction and energy industries with technologically leading products, systems, software and services. With about 33,000 team members in over 120 countries the company stands for direct customer relationships, quality and innovation. The headquarters of the Hilti Group have been located in Schaan, Liechtenstein, since its founding in 1941. The company is privately owned by the Martin Hilti Family Trust, which ensures its long-term continuity. The Hilti Group's purpose is making construction better, based on a passionate and inclusive global team and a caring and performance-oriented culture.

## PRODUCT DESCRIPTION

Hilti S-BT Threaded Stud Portfolio consists of Duplex coated carbon steel and stainless steel screws. M8/M10/W10 variants are included in 2 lengths. Based on the intended use of the product the threaded stud will come in the sales box with flange nuts, hex nuts + spring washers, conductivity discs or without elements. Typical application for S-BT threaded studs include fastening on steel for multipurpose fastening, grating fastening and electrical connections.

The declared product derives from Basic Oxygen Furnace (BOF) steel wire with secondary material (recycled material) content of 33.6%.

Further information can be found at www.hilti.com.

## PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|---|---|---|
| **Metals** | 100 | Germany |
| **Minerals** | - | - |
| **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** | 0.04 |

## FUNCTIONAL UNIT AND SERVICE LIFE

| | |
|---|---|
| **Declared unit VP-011** | 1 kg |
| **Mass per declared unit VP-012** | 1 kg |
| **Functional unit** | - |
| **Reference service life** | - |

## 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 | | |
| × | × | × | × | × | MND | MND | MND | MND | MND | MND | MND | × | × | × | × | × | | |
| Raw materials | Transport | Manufacturing | Transport | Assembly | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | Deconstruction/ demolition | 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.

The threaded stud is made from carbon steel. The referenced product is threaded stud S-BT-Gx M8/7, which is a threaded stud, used for fastening on steel. The steel is BOF. The coils are cut and cold formed to form the blank in its final size and shape. The part is the rolled to form the thread and the heat treated to get the desired properties. The steel stud is coated and finally packaged and distributed. The manufacturing process requires electricity for powering the production equipment. A wooden pallet and cardboard are used as packaging materials for transporting the screw to the dedicated market places.

## 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.

The transportation is calculated based on the distance travelled by lorry from the supplier to the warehouses in Hilti Liechtenstein. Vehicle capacity utilization volume factor may vary but as role of transportation emissions in total results is small, the variety in load is assumed to be negligible. To be conservative, empty returns are included in this study as implemented through an average load factor in the Ecoinvent transport datapoints. Transportation does not cause losses as product is packaged properly.

Environmental impacts from installation into the building include generation of waste packaging materials (A5) and release of biogenic carbon dioxide from wood pallets/cardboard boxes. The impacts of material production, its processing and its disposal as installation waste are also assessed. Screws used in the installation process and electricity consumption for the assembly are considered, too. No installation losses happen in this stage if the installation process is carried out appropriately according to Hilti instructions.

## PRODUCT USE AND MAINTENANCE (B1-B7)

The use phase is not relevant for the life cycle emissions of this product and is, therefore, not accounted into the assessment.

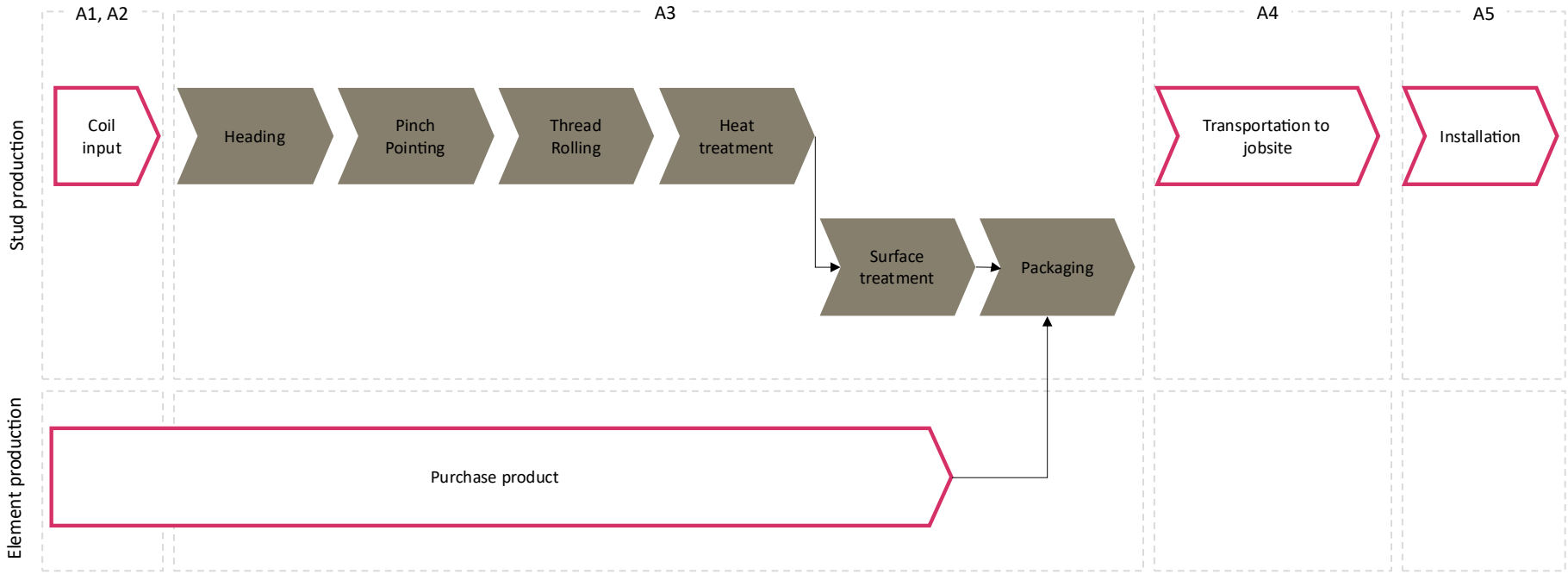
Air, soil, and water impacts during the use phase have not been studied.

## PRODUCT END OF LIFE (C1-C4, D)

The product is considered to be dismantled by a power tool and with negligible energy use. It is assumed that the steel waste is collected separately and transported to the waste treatment facility. Transportation distance to waste treatment plant and to landfill is assumed to be 100 km, the transportation method is assumed to be lorry. Module C3 accounts for energy and resource inputs for sorting and treating of steel for recycling. Landfilled material is included in module C4. Due to the material recovery potential of the product and material and energy recovery potential of its packaging, recycled raw materials lead to avoided virgin material production and the energy recovered from incineration replaces electricity and heat from primary sources. Benefits and loads from incineration and recycling are included in Module D.

Recycling rate of 85% in the calculation is based on world average. Actual recyclability may vary between regions.

# 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** | No allocation |
| **Packaging material** | No allocation |
| **Ancillary materials** | Allocated by mass or volume |
| **Manufacturing energy and waste** | Allocated by mass or volume |

## AVERAGES AND VARIABILITY

| | |
|---|---|
| **Type of average** | Multiple products |
| **Averaging method** | Representative product |
| **Variation in GWP-fossil for A1-A3** | 50% |

The representative product is threaded stud S-BT-Gx M8/7 which is a duplex coated carbon steel stud.

The products included in the averaging are carbon steel or stainless steel, coated studs but different screw lengths, diameter, and/or components. They share the function of fastening on metal substructures.

## 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 v3.10.1 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 | 2,76E+00 | 5,62E-02 | 4,03E-01 | 3,22E+00 | 2,78E-04 | 1,77E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,04E-02 | 2,23E-02 | 8,99E-04 | -1,64E+00 |
| GWP – fossil | kg $CO_2$e | 2,76E+00 | 5,61E-02 | 5,60E-01 | 3,38E+00 | 2,78E-04 | 1,67E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,04E-02 | 2,22E-02 | 8,99E-04 | -1,64E+00 |
| GWP – biogenic | kg $CO_2$e | 4,72E-04 | 1,89E-07 | -1,60E-01 | -1,59E-01 | 6,29E-08 | 1,60E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| GWP – LULUC | kg $CO_2$e | 2,30E-03 | 2,51E-05 | 2,19E-03 | 4,51E-03 | 1,24E-07 | 3,76E-06 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,63E-06 | 2,61E-05 | 5,14E-07 | -1,12E-03 |
| Ozone depletion pot. | kg $CFC\text{-}_{11}$e | 5,37E-08 | 8,29E-10 | 2,11E-08 | 7,56E-08 | 4,10E-12 | 2,03E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,53E-10 | 2,39E-10 | 2,60E-11 | -9,53E-09 |
| Acidification potential | mol $H^+$e | 1,48E-02 | 1,91E-04 | 2,09E-03 | 1,71E-02 | 9,47E-07 | 1,72E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,53E-05 | 2,38E-04 | 6,37E-06 | -8,21E-03 |
| EP-freshwater[2)] | kg Pe | 7,94E-04 | 4,37E-06 | 1,95E-04 | 9,94E-04 | 2,16E-08 | 7,43E-08 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 8,06E-07 | 1,20E-05 | 7,39E-08 | -1,64E-03 |
| EP-marine | kg Ne | 2,96E-03 | 6,29E-05 | 4,91E-04 | 3,51E-03 | 3,11E-07 | 3,17E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,16E-05 | 5,28E-05 | 2,43E-06 | -1,60E-03 |
| EP-terrestrial | mol Ne | 3,15E-02 | 6,85E-04 | 4,54E-03 | 3,68E-02 | 3,39E-06 | 5,14E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,26E-04 | 5,96E-04 | 2,65E-05 | -1,53E-02 |
| POCP ("smog")[3)] | kg NMVOCe | 1,13E-02 | 2,82E-04 | 1,68E-03 | 1,32E-02 | 1,40E-06 | 2,37E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 5,20E-05 | 1,76E-04 | 9,50E-06 | -5,80E-03 |
| ADP-minerals & metals[4)] | kg Sbe | 7,45E-05 | 1,57E-07 | 7,97E-06 | 8,27E-05 | 7,75E-10 | 2,87E-08 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,89E-08 | 1,31E-06 | 1,43E-09 | -2,39E-06 |
| ADP-fossil resources | MJ | 4,73E+01 | 8,15E-01 | 5,81E+00 | 5,39E+01 | 4,03E-03 | 2,69E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,50E-01 | 2,62E-01 | 2,21E-02 | -2,16E+01 |
| Water use[5)] | $m^3$e depr. | 8,18E-01 | 4,02E-03 | 1,94E-01 | 1,02E+00 | 1,99E-05 | 1,26E-03 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 7,42E-04 | 4,15E-03 | 6,37E-05 | -6,01E-01 |

*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 | 6,11E-09 | 5,62E-09 | 2,97E-08 | 4,14E-08 | 2,78E-11 | 6,81E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,04E-09 | 3,32E-09 | 1,45E-10 | -1,63E-07 |
| Ionizing radiation[6)] | kBq U235e | 9,22E-03 | 7,10E-04 | 3,36E-02 | 4,35E-02 | 3,51E-06 | 1,72E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,31E-04 | 9,43E-04 | 1,39E-05 | -5,87E-02 |
| Ecotoxicity (freshwater) | CTUe | 5,43E-01 | 1,15E-01 | 5,66E+00 | 6,32E+00 | 5,70E-04 | 3,87E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,13E-02 | 1,52E-01 | 1,85E-03 | -1,15E+01 |
| Human toxicity, cancer | CTUh | 3,99E-11 | 9,27E-12 | 1,03E-09 | 1,08E-09 | 4,58E-14 | 8,00E-12 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,71E-12 | 1,78E-11 | 1,66E-13 | -3,49E-09 |
| Human tox. non-cancer | CTUh | 9,28E-10 | 5,28E-10 | 8,30E-09 | 9,75E-09 | 2,61E-12 | 1,48E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 9,73E-11 | 1,14E-09 | 3,81E-12 | -2,28E-08 |
| SQP[7)] | - | 4,07E-01 | 8,21E-01 | 1,24E+01 | 1,36E+01 | 4,06E-03 | 3,06E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,51E-01 | 4,97E-01 | 4,34E-02 | -1,08E+01 |

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 | 4,07E+00 | 1,12E-02 | 1,28E+01 | 1,69E+01 | 5,52E-05 | 1,93E-03 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,06E-03 | 4,08E-02 | 2,13E-04 | -2,34E+00 |
| Renew. PER as material | MJ | 0,00E+00 | 0,00E+00 | 1,30E+00 | 1,30E+00 | 0,00E+00 | -1,30E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 1,27E+00 |
| Total use of renew. PER | MJ | 4,07E+00 | 1,12E-02 | 1,41E+01 | 1,82E+01 | 5,52E-05 | -1,30E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,06E-03 | 4,08E-02 | 2,13E-04 | -1,07E+00 |
| Non-re. PER as energy | MJ | 3,57E+01 | 8,15E-01 | 3,62E+00 | 4,01E+01 | 4,03E-03 | 2,69E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,50E-01 | 2,62E-01 | 2,21E-02 | -2,16E+01 |
| Non-re. PER as material | MJ | 0,00E+00 | 0,00E+00 | 4,82E-01 | 4,82E-01 | 0,00E+00 | -4,82E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | -8,14E-03 |
| Total use of non-re. PER | MJ | 3,57E+01 | 8,15E-01 | 4,10E+00 | 4,06E+01 | 4,03E-03 | -4,55E-01 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,50E-01 | 2,62E-01 | 2,21E-02 | -2,16E+01 |
| Secondary materials | kg | 3,36E-01 | 3,47E-04 | 5,04E-02 | 3,87E-01 | 1,72E-06 | 5,27E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,40E-05 | 3,04E-04 | 5,55E-06 | -1,06E-01 |
| Renew. secondary fuels | MJ | 2,49E-04 | 4,41E-06 | 2,08E-02 | 2,10E-02 | 2,18E-08 | 3,63E-07 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 8,12E-07 | 1,38E-05 | 1,15E-07 | -7,33E-04 |
| Non-ren. secondary fuels | 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 |
| Use of net fresh water | $m^3$ | 8,19E-03 | 1,20E-04 | 4,82E-03 | 1,31E-02 | 5,96E-07 | 1,74E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,22E-05 | 1,15E-04 | 2,29E-05 | -1,46E-02 |

*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 | 1,61E-02 | 1,38E-03 | 7,52E-02 | 9,27E-02 | 6,83E-06 | 2,06E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,55E-04 | 2,05E-03 | 2,44E-05 | -6,59E-01 |
| Non-hazardous waste | kg | 3,30E-01 | 2,55E-02 | 1,70E+00 | 2,06E+00 | 1,26E-04 | 4,02E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 4,71E-03 | 5,76E-02 | 5,57E-04 | -1,54E+01 |
| Radioactive waste | kg | 2,57E-03 | 1,77E-07 | 8,59E-06 | 2,58E-03 | 8,73E-10 | 5,60E-08 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 3,26E-08 | 2,37E-07 | 3,43E-09 | -1,59E-05 |

## 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 | 4,04E-03 | 0,00E+00 | 7,22E-03 | 1,13E-02 | 0,00E+00 | 0,00E+00 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 0,00E+00 | 8,18E-01 | 0,00E+00 | 0,00E+00 |
| Materials for energy rec | 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 |
| Exported energy | MJ | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 | 5,21E+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 | 8,52E-02 | 5,58E-02 | 5,68E-01 | 7,09E-01 | 2,76E-04 | 4,24E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,03E-02 | 2,22E-02 | 8,91E-04 | -1,63E+00 |
| Ozone depletion Pot. | kg $CFC_{-11}$e | 1,69E-09 | 6,61E-10 | 2,12E-08 | 2,35E-08 | 3,27E-12 | 1,67E-10 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,22E-10 | 1,98E-10 | 2,07E-11 | -1,04E-08 |
| Acidification | kg $SO_2$e | 3,24E-04 | 1,46E-04 | 1,60E-03 | 2,07E-03 | 7,23E-07 | 1,34E-05 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,70E-05 | 1,91E-04 | 4,72E-06 | -6,76E-03 |
| Eutrophication | kg $PO_4^3$e | 4,34E-04 | 3,56E-05 | 8,16E-04 | 1,29E-03 | 1,76E-07 | 1,06E-04 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 6,57E-06 | 2,72E-05 | 1,50E-06 | -1,57E-03 |
| POCP (“smog”) | kg $C_2H_4$e | 2,57E-05 | 1,30E-05 | 1,36E-04 | 1,75E-04 | 6,44E-08 | 6,71E-06 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,40E-06 | 1,13E-05 | 4,46E-07 | -1,13E-03 |
| ADP-elements | kg Sbe | 1,12E-06 | 1,53E-07 | 6,10E-06 | 7,38E-06 | 7,55E-10 | 2,84E-08 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 2,82E-08 | 1,31E-06 | 1,40E-09 | -2,19E-06 |
| ADP-fossil | MJ | 1,66E+00 | 8,04E-01 | 5,26E+00 | 7,73E+00 | 3,97E-03 | 2,69E-02 | MND | MND | MND | MND | MND | MND | MND | 0,00E+00 | 1,48E-01 | 2,48E-01 | 2,18E-02 | -2,06E+01 |

# 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 for EPD Hub Limited
21.02.2025

# APPENDIX

| Item number | Item name | Weight [kg] |
|---|---|---|
| 2345766 | Threaded stud S-BT-GF M8/7 AN 6 HL | 0.0058 |
| 2345768 | Threaded stud S-BT-MF M8/7 AN 6 HL | 0.0128 |
| 2345769 | Threaded stud S-BT-MF M8/15 AN 6 HL | 0.0162 |
| 2346060 | Threaded stud S-BT-MF M10/15 AN 6 HL | 0.0247 |
| 2346061 | Threaded stud S-BT-MF W10/15 AN 6 HL | 0.0215 |
| 2346070 | Elec. connector S-BT-EF M8/15 AN 6 HL | 0.01683 |
| 2346071 | Elec. connector S-BT-EF M10/15 AN 6 HL | 0.02933 |
| 2346072 | Elec. connector S-BT-EF W10/15 AN 6 HL | 0.0245 |
| 2346077 | Elec. connector S-BT-EF M10 HC 120 HL | 0.03593 |
| 2346078 | Elec. connector S-BT-EF W10 HC 4/0 HL | 0.0379 |
| 2345767 | Threaded stud S-BT-GR M8/7 SN 6 HL | 0.0062 |
| 2346062 | Threaded stud S-BT-MR M8/7 SN 6 HL | 0.0132 |
| 2346063 | Threaded stud S-BT-MR M8/15 SN 6 HL | 0.0166 |
| 2346064 | Threaded stud S-BT-MR M10/15 SN 6 HL | 0.0251 |
| 2346065 | Threaded stud S-BT-MR W10/15 SN 6 HL | 0.0219 |
| 2346066 | Threaded stud S-BT-MR M8/7 SN 6 HL AL | 0.0126 |
| 2346067 | Threaded stud S-BT-MR M8/15 SN 6 HL AL | 0.0166 |
| 2346068 | Threaded stud S-BT-MR M10/15 SN 6 HL AL | 0.0251 |
| 2346069 | Threaded stud S-BT-MR W10/15 SN 6 HL AL | 0.0219 |
| 2346073 | Elec. connector S-BT-ER M8/15 SN 6 HL | 0.01705 |
| 2346074 | Elec. connector S-BT-ER M10/15 SN 6 HL | 0.02955 |
| 2346075 | Elec. connector S-BT-ER W10/15 SN 6 HL | 0.0257 |
| 2346079 | Elec. connector S-BT-ER M10 HC 120 HL | 0.03615 |
| 2346080 | Elec. connector S-BT-ER W10 HC 4/0 HL | 0.0381 |