



# **ENVIRONMENTAL PRODUCT DECLARATION**

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

KLOSS recycling bin TreCe AB



**EPD HUB, HUB-1647** Published on 23.08.2024, last updated on 17.11.2024, valid until 23.08.2029.



Created with One Click LCA





# **GENERAL INFORMATION**

#### MANUFACTURER

| Manufacturer    | TreCe AB   |
|-----------------|--|
| Address         | Importgatan 39, Box 6063, SE-600 06,<br>Norrköping, Sweden |
| Contact details | info@trece.se  |
| Website         | www.trece.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             | Manufactured product  |
| Category of EPD    | Third party verified EPD  |
| Scope of the EPD   | Cradle to gate with options, A4-A5, and modules C1-C4, D  |
| EPD author         | Sara Shakespeare, TreCe AB  |
| EPD verification   | <ul> <li>Independent verification of this EPD and data, according to ISO 14025:</li> <li>□ Internal verification ☑ External verification</li> </ul> |
| EPD verifier       | Nemanja Nedic, 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                      | KLOSS recycling bin                       |
|-----------------------------------|---|
| Additional labels                 | -   |
| Product reference                 | 32100001, 32100401, 32703001,<br>32705003 |
| Place of production               | Tranås, Sweden                            |
| Period for data                   | 2023 calendar year                        |
| Averaging in EPD                  | No averaging                              |
| Variation in GWP-fossil for A1-A3 | 0 %                                       |

#### **ENVIRONMENTAL DATA SUMMARY**

| Declared unit                               | 1 unit, recycling bin with frame, lid and<br>insert in powder-coated steel with 4<br>legs and an inside container in plastic. |
|---|---|
| Declared unit mass                          | 16.7 kg   |
| GWP-fossil, A1-A3 (kgCO <sub>2</sub> e)     | 5,95E+01  |
| GWP-total, A1-A3 (kgCO <sub>2</sub> e)      | 5,53E+01  |
| Secondary material, inputs (%)              | 4.67  |
| Secondary material, outputs (%)             | 83.3  |
| Total energy use, A1-A3 (kWh)               | 311   |
| Net freshwater use, A1-A3 (m <sup>3</sup> ) | 1.87  |



# **PRODUCT AND MANUFACTURER**

#### **ABOUT THE MANUFACTURER**

We are experts in storage and recycling solutions for offices and public spaces. Since 1973, we have been dedicated to creating furniture that combines great flexibility and function with a strong commitment to sustainability. We design solutions for modern and activity-based offices, emphasizing flexibility, user-friendliness, and aesthetic appeal, while prioritizing environmentally responsible practices.

#### **PRODUCT DESCRIPTION**

KLOSS is a connectable modular recycling system for waste separation. Constructed from durable steel, it offers flexible configuration and comes in 11 standard colours. The frame is easily assembled with a click mechanism for straightforward renovation and recycling.

The product features a 1 mm steel sheet frame, with a square top and lid made of 2 mm steel, along with four sturdy steel legs, all powder-coated for durability. Inside, it includes a container crafted from 100% recycled preconsumer ABS plastic and a steel bag holder. KLOSS is made in Sweden and all components are 100% recyclable.

Dimensions: Width 360 mm, Height 700 mm, Depth 360 mm. Holds: 68 L

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





### PRODUCT RAW MATERIAL MAIN COMPOSITION

| Raw material category | Amount, mass % | Material origin |
|-----------------------|----------------|-----------------|
| Metals                | 84             | Sweden/EU       |
| Minerals              | 0              | -               |
| Fossil materials      | 16             | EU              |
| Bio-based materials   | 0              | -               |

### **BIOGENIC CARBON CONTENT**

Product's biogenic carbon content at the factory gate

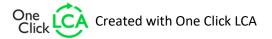
| Biogenic carbon content in product, kg C   | 0      |
|--|--------|
| Biogenic carbon content in packaging, kg C | 1.1018 |

### FUNCTIONAL UNIT AND SERVICE LIFE

| Declared unit          | 1 unit, recycling bin with frame,<br>lid and insert in powder-coated<br>steel with 4 legs and an inside<br>container in plastic. |
|------------------------|--|
| Mass per declared unit | 16.7 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.

| Pro           | duct si   | tage          |           | mbly<br>ige |     |             | U      | ise sta <sub>l</sub> | ge            |                        |                       | E                          | nd of l   | ife sta <sub>ł</sub> | ge       | Beyond the<br>system<br>boundaries |          |           |  |
|---------------|-----------|---------------|-----------|-------------|-----|-------------|--------|----------------------|---------------|------------------------|-----------------------|----------------------------|-----------|----------------------|----------|------------------------------------|----------|-----------|--|
| A1            | A2        | A3            | A4        | A5          | B1  | B2          | B3     | B4                   | B5            | <b>B6</b>              | B7                    | C1                         | C2        | СЗ                   | 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.

#### **Raw Materials:**

The raw materials for the manufacturing process are procured from reliable suppliers, ensuring the availability and quality required for production. The materials include:

- Cold Rolled Steel Sheet: Used for the frame and top with lid. They contain 20% recycled steel from scrap, as per the supplier's information.

- Hot Rolled Steel Bar: This material is utilised for the knob and adjustable legs.

- Powder Coating: Applied to the frame, top with lid, knob, and adjustable legs to provide a protective finish.

- Stainless Steel Coil: Used for the bag holder, ensuring durability and resistance to corrosion.

- ABS Plastic: The inside container is made from hot moulded ABS plastic, which consists of 100% pre-consumer recycled plastic.

#### Cutting:

To make the lid and frame, the sheet metal is either stamped or laser cut according to the required specifications.

#### Processing:

The sheet metal, once cut, is subjected to a series of processing steps including bending and welding. Initially, the sheet metal is bent into the necessary shapes using advanced, specialised equipment. This bending process is crucial to forming the structural components essential for the final products design and functionality. Following the bending process, welding is conducted to join various metal parts together. This welding step is vital to ensure the structural integrity and durability of the product, providing the necessary strength and stability for its intended use.

#### Coating:

After the lid and frame are shaped, they, along with the legs, undergo a powdercoating process. This process involves applying a protective layer of powder coating to the frame, top, lid and legs, that not only enhances the visual appeal but also serves as a robust barrier against corrosion. The powder-coating process is integral to protecting the metal from environmental factors, thereby significantly extending the



products lifespan and maintaining its structural integrity over time.

#### Assembly:

Following the coating process, the various parts undergo final assembly. During this stage, additional components such as the inside plastic container and bag holder, which are not processed in-house, are incorporated. These components are sourced externally and integrated into the product. The assembly stage ensures that all parts come together to form a finished product, ready for its intended use.

#### Packaging:

The final product is carefully packed to ensure its protection during transportation. This process involves using a combination of packaging materials including a protective plastic cover and a sturdy cardboard box, sealed with durable paper tape to secure the contents. The packaged product is then placed on a wooden pallet for shipment. These materials and techniques are carefully selected to prevent damage and ensure the product arrives at its destination in optimal condition, safeguarding its integrity throughout the distribution process.

#### **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.

No resources (materials or energy) are needed for the installation process of the product, so they are not considered in the EPD. The KLOSS bin is very easy to assemble with the click-function and comes with a manual for assembly.

Several markets are considered in this EPD and transportation and distances are calculated as a weighted average from detailed information for all markets.

A5 packaging treatment is based on predefined packaging scenario specific to the EU region.

Waste treatment of plastic packaging materials is 32.5% recycled, 42.5% incinerated with ER\*, and 25% landfilled (EuroParl 2023).

Waste treatment of cardboard packaging materials is 82% recycled, 9% incinerated with ER\*, and 9% landfilled (Eurostat & PSR-0014 v2 2023).

Wooden pallets are considered for multiple reuses, and when discarded, 31% are recycled, 31% incinerated with ER\*, and 38% landfilled (Eurostat & PSR-0014 v2, 2023).

\*ER = Energy Recovery.

#### **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.

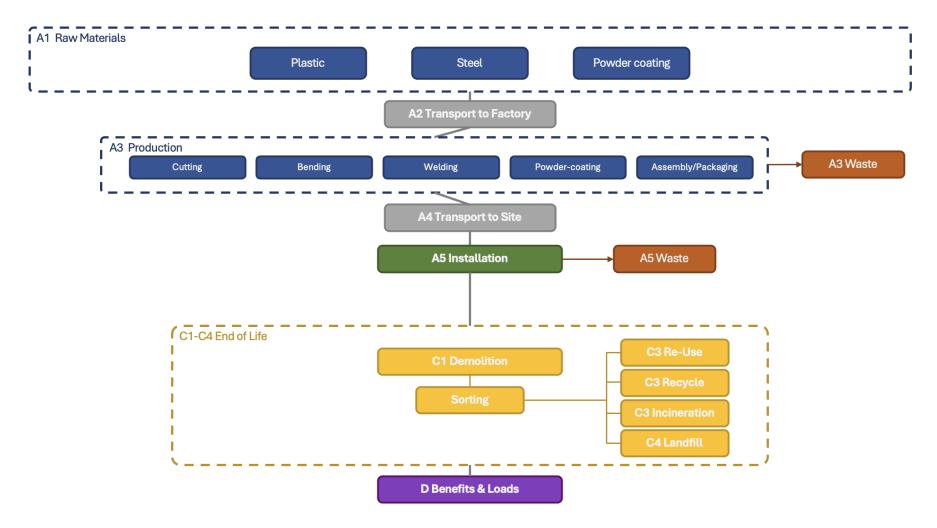
#### **PRODUCT END OF LIFE (C1-C4, D)**

The average disposal methods for the KLOSS bin are as follows: Recycling: 76% Landfill: 17% Energy Recovery: 7%

In this study we have adopted a more conservative approach and excluded the reuse stage. Ideally the product should be restored as KLOSS is designed with a circular approach in mind, allowing for parts to easily be disassembled, replaced, repaired and recycled. Product service life is estimated for 10-15 years.



# **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            | Not applicable              |
| Manufacturing energy and waste | Allocated by mass or volume |

#### **AVERAGES AND VARIABILITY**

| Type of average                       | No averaging   |
|---------------------------------------|----------------|
| Averaging method                      | Not applicable |
| Variation in GWP-fossil for A1-<br>A3 | 0 %            |

#### 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       | СЗ       | C4       | D         |
|--------------------------------------|----------------------|----------|----------|-----------|-----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|-----------|
| GWP – total <sup>1)</sup>            | kg CO₂e              | 5,20E+01 | 4,53E-01 | 2,81E+00  | 5,53E+01  | 8,29E-01 | 4,47E+00 | MND | MNR | 7,84E-02 | 3,97E+00 | 1,09E-01 | -2,34E+01 |
| GWP – fossil                         | kg CO <sub>2</sub> e | 5,20E+01 | 4,53E-01 | 6,99E+00  | 5,95E+01  | 8,29E-01 | 1,46E-01 | MND | MNR | 7,84E-02 | 3,97E+00 | 1,09E-01 | -2,13E+01 |
| GWP – biogenic                       | kg CO <sub>2</sub> e | 0,00E+00 | 0,00E+00 | -4,32E+00 | -4,32E+00 | 0,00E+00 | 4,32E+00 | MND | MNR | 0,00E+00 | 0,00E+00 | 0,00E+00 | -2,08E+00 |
| GWP – LULUC                          | kg CO <sub>2</sub> e | 1,57E-02 | 1,67E-04 | 1,39E-01  | 1,55E-01  | 3,06E-04 | 4,71E-05 | MND | MNR | 2,89E-05 | 4,25E-04 | 1,80E-05 | -2,31E-03 |
| Ozone depletion pot.                 | kg CFC-11e           | 3,90E-06 | 1,04E-07 | 4,65E-07  | 4,47E-06  | 1,91E-07 | 8,01E-09 | MND | MNR | 1,80E-08 | 3,78E-08 | 6,66E-09 | -6,40E-07 |
| Acidification potential              | mol H⁺e              | 1,32E-01 | 1,92E-03 | 4,91E-02  | 1,83E-01  | 3,51E-03 | 3,81E-04 | MND | MNR | 3,32E-04 | 4,00E-03 | 1,66E-04 | -9,36E-02 |
| EP-freshwater <sup>2)</sup>          | kg Pe                | 1,06E-03 | 3,71E-06 | 3,30E-04  | 1,40E-03  | 6,79E-06 | 1,68E-06 | MND | MNR | 6,42E-07 | 1,60E-05 | 2,34E-07 | -2,51E-04 |
| EP-marine                            | kg Ne                | 3,09E-02 | 5,70E-04 | 8,91E-03  | 4,04E-02  | 1,04E-03 | 3,34E-04 | MND | MNR | 9,86E-05 | 9,83E-04 | 7,38E-05 | -1,75E-02 |
| EP-terrestrial                       | mol Ne               | 3,31E-01 | 6,29E-03 | 9,17E-02  | 4,29E-01  | 1,15E-02 | 1,37E-03 | MND | MNR | 1,09E-03 | 1,11E-02 | 6,25E-04 | -2,01E-01 |
| POCP ("smog") <sup>3</sup> )         | kg<br>NMVOCe         | 9,81E-02 | 2,01E-03 | 2,46E-02  | 1,25E-01  | 3,68E-03 | 4,25E-04 | MND | MNR | 3,48E-04 | 3,00E-03 | 2,03E-04 | -9,55E-02 |
| ADP-minerals & metals <sup>4</sup> ) | kg Sbe               | 3,06E-04 | 1,06E-06 | 5,24E-05  | 3,60E-04  | 1,94E-06 | 4,02E-07 | MND | MNR | 1,84E-07 | 3,64E-05 | 4,99E-08 | -2,80E-04 |
| ADP-fossil resources                 | MJ                   | 7,07E+02 | 6,81E+00 | 3,11E+02  | 1,03E+03  | 1,24E+01 | 7,97E-01 | MND | MNR | 1,18E+00 | 4,24E+00 | 4,71E-01 | -1,84E+02 |
| Water use <sup>5)</sup>              | m³e depr.            | 1,06E+02 | 3,05E-02 | 1,08E+01  | 1,17E+02  | 5,57E-02 | 6,04E-02 | MND | MNR | 5,27E-03 | 1,87E-01 | 1,96E-03 | -3,98E+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       | С3       | C4       | D         |
|----------------------------------|--------------|----------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|-----------|
| Particulate matter               | Incidence    | 2,28E-07 | 5,22E-08 | 5,68E-07 | 8,48E-07 | 9,55E-08 | 5,78E-09 | MND | MNR | 9,03E-09 | 5,08E-08 | 3,33E-09 | -1,38E-06 |
| Ionizing radiation <sup>6)</sup> | kBq<br>U235e | 2,74E+00 | 3,24E-02 | 1,82E+01 | 2,10E+01 | 5,93E-02 | 7,34E-03 | MND | MNR | 5,60E-03 | 4,41E-02 | 2,18E-03 | -1,09E+00 |
| Ecotoxicity (freshwater)         | CTUe         | 1,78E+02 | 6,12E+00 | 2,15E+02 | 4,00E+02 | 1,12E+01 | 2,11E+00 | MND | MNR | 1,06E+00 | 1,81E+01 | 3,76E-01 | -7,00E+02 |
| Human toxicity, cancer           | CTUh         | 3,04E-09 | 1,50E-10 | 7,52E-09 | 1,07E-08 | 2,75E-10 | 1,00E-10 | MND | MNR | 2,60E-11 | 7,72E-10 | 1,04E-11 | -4,68E-08 |
| Human tox. non-cancer            | CTUh         | 8,10E-08 | 6,06E-09 | 1,09E-07 | 1,96E-07 | 1,11E-08 | 2,97E-09 | MND | MNR | 1,05E-09 | 2,83E-08 | 2,35E-10 | 2,74E-06  |
| SQP <sup>7)</sup>                | -            | 2,56E+01 | 7,84E+00 | 3,67E+02 | 4,01E+02 | 1,43E+01 | 9,37E-01 | MND | MNR | 1,36E+00 | 7,93E+00 | 1,05E+00 | -2,84E+02 |

6) EN 15804+A2 disclaimer for lonizing 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       | СЗ        | C4        | D         |
|------------------------------------|----------------|----------|----------|----------|----------|----------|-----------|-----|-----|-----|-----|-----|-----|-----|-----|----------|-----------|-----------|-----------|
| Renew. PER as energy <sup>8)</sup> | MJ             | 3,77E+01 | 7,67E-02 | 1,36E+02 | 1,74E+02 | 1,40E-01 | 4,69E-02  | MND | MNR | 1,33E-02 | 6,81E-01  | 5,71E-03  | -3,82E+01 |
| Renew. PER as material             | MJ             | 0,00E+00 | 0,00E+00 | 3,77E+01 | 3,77E+01 | 0,00E+00 | -3,77E+01 | MND | MNR | 0,00E+00 | 0,00E+00  | 0,00E+00  | 1,75E+01  |
| Total use of renew. PER            | MJ             | 3,77E+01 | 7,67E-02 | 1,74E+02 | 2,12E+02 | 1,40E-01 | -3,76E+01 | MND | MNR | 1,33E-02 | 6,81E-01  | 5,71E-03  | -2,07E+01 |
| Non-re. PER as energy              | MJ             | 6,32E+02 | 6,81E+00 | 3,06E+02 | 9,44E+02 | 1,24E+01 | 7,97E-01  | MND | MNR | 1,18E+00 | 4,24E+00  | 4,71E-01  | -1,83E+02 |
| Non-re. PER as material            | MJ             | 8,89E+01 | 0,00E+00 | 4,41E+00 | 9,34E+01 | 0,00E+00 | -4,41E+00 | MND | MNR | 0,00E+00 | -6,54E+01 | -2,36E+01 | 7,10E-01  |
| Total use of non-re. PER           | MJ             | 7,21E+02 | 6,81E+00 | 3,10E+02 | 1,04E+03 | 1,24E+01 | -3,61E+00 | MND | MNR | 1,18E+00 | -6,11E+01 | -2,31E+01 | -1,82E+02 |
| Secondary materials                | kg             | 7,79E-01 | 1,89E-03 | 1,01E+00 | 1,79E+00 | 3,46E-03 | 8,74E-04  | MND | MNR | 3,27E-04 | 6,66E-03  | 1,23E-04  | 8,02E+00  |
| Renew. secondary fuels             | MJ             | 1,23E-02 | 1,91E-05 | 9,46E-01 | 9,59E-01 | 3,49E-05 | 6,44E-06  | MND | MNR | 3,30E-06 | 2,27E-04  | 3,93E-06  | -4,03E-03 |
| Non-ren. secondary fuels           | MJ             | 1,38E-20 | 0,00E+00 | 0,00E+00 | 1,38E-20 | 0,00E+00 | 0,00E+00  | MND | MNR | 0,00E+00 | 0,00E+00  | 0,00E+00  | 0,00E+00  |
| Use of net fresh water             | m <sup>3</sup> | 1,58E+00 | 8,82E-04 | 2,91E-01 | 1,87E+00 | 1,61E-03 | 3,71E-04  | MND | MNR | 1,52E-04 | 2,78E-03  | 5,11E-04  | -1,31E-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   | 1,24E+00 | 9,03E-03 | 5,80E-01 | 1,83E+00 | 1,65E-02 | 5,79E-03 | MND | MNR | 1,56E-03 | 3,14E-02 | 0,00E+00 | -8,91E+00 |
| Non-hazardous waste | kg   | 6,87E+00 | 1,48E-01 | 1,98E+01 | 2,68E+01 | 2,71E-01 | 1,55E+00 | MND | MNR | 2,56E-02 | 2,07E+00 | 2,79E+00 | -3,80E+01 |
| Radioactive waste   | kg   | 7,22E-03 | 4,56E-05 | 4,02E-03 | 1,13E-02 | 8,33E-05 | 3,08E-06 | MND | MNR | 7,87E-06 | 2,25E-05 | 0,00E+00 | -2,13E-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       | СЗ       | 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 | MNR | 0,00E+00 | 0,00E+00 | 0,00E+00 | 0,00E+00 |
| Materials for recycling  | kg   | 6,48E-03 | 0,00E+00 | 2,91E+00 | 2,92E+00 | 0,00E+00 | 1,40E+00 | MND | MNR | 0,00E+00 | 1,27E+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 | 7,48E-01 | MND | MNR | 0,00E+00 | 1,19E+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 | 8,25E+00 | MND | MNR | 0,00E+00 | 3,68E+01 | 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       | СЗ       | C4       | D         |
|----------------------|------------|----------|----------|----------|----------|----------|----------|-----|-----|-----|-----|-----|-----|-----|-----|----------|----------|----------|-----------|
| Global Warming Pot.  | kg CO₂e    | 5,00E+01 | 4,49E-01 | 7,05E+00 | 5,75E+01 | 8,20E-01 | 2,86E-01 | MND | MNR | 7,76E-02 | 3,96E+00 | 9,08E-02 | -2,04E+01 |
| Ozone depletion Pot. | kg CFC-11e | 4,48E-07 | 8,26E-08 | 3,89E-07 | 9,20E-07 | 1,51E-07 | 6,49E-09 | MND | MNR | 1,43E-08 | 3,09E-08 | 5,28E-09 | -6,70E-07 |
| Acidification        | kg SO₂e    | 1,13E-01 | 1,49E-03 | 4,03E-02 | 1,55E-01 | 2,73E-03 | 2,89E-04 | MND | MNR | 2,58E-04 | 3,18E-03 | 1,26E-04 | -7,93E-02 |
| Eutrophication       | kg PO₄³e   | 2,54E-02 | 3,40E-04 | 1,35E-02 | 3,93E-02 | 6,21E-04 | 3,30E-03 | MND | MNR | 5,87E-05 | 1,55E-03 | 3,71E-03 | -3,78E-02 |
| POCP ("smog")        | kg C₂H₄e   | 1,12E-02 | 5,82E-05 | 2,12E-03 | 1,34E-02 | 1,06E-04 | 4,55E-05 | MND | MNR | 1,01E-05 | 1,19E-04 | 1,78E-05 | -1,04E-02 |
| ADP-elements         | kg Sbe     | 9,57E-05 | 1,03E-06 | 5,17E-05 | 1,48E-04 | 1,88E-06 | 3,93E-07 | MND | MNR | 1,78E-07 | 3,63E-05 | 4,87E-08 | -2,78E-04 |
| ADP-fossil           | MJ         | 6,85E+02 | 6,81E+00 | 3,10E+02 | 1,00E+03 | 1,24E+01 | 7,97E-01 | MND | MNR | 1,18E+00 | 4,24E+00 | 4,71E-01 | -1,83E+02 |



# **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.

Nemanja Nedic, as an authorized verifier acting for EPD Hub Limited 23.08.2024

