

Environmental Product Declaration



Programme The International EPD® System

Programme Operator EPD International AB

EPD Registration Number S-P-07824

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An EPD should provide current information and may be updated if conditions change.
The stated validity is therefore subject to the continued registration and publication at www.environdec.com

In accordance with ISO 14025:2006 & EN 15804:2012+A2:2019/AC:2021 for
Wall Plates, FM Mattsson

From
FM Mattsson Group

General information

Programme information

Programme

The International EPD® System

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Accountabilities for PCR, LCA & independent, third-party verification

| | |
|--|--|
| Product Category Rules (PCR) | <p>CEN standard EN 15804 serves as the Core Product Category Rules (PCR)</p> <p>Product Category Rules (PCR): Construction products, 2019:14, version 1.2.5</p> <p>PCR review was conducted by: The Technical Committee of the International EPD® System. Chair of the PCR review: Claudia A. Peña. The review panel may be contacted via info@environdec.com</p> |
| Life Cycle Assessment (LCA) | <p>LCA accountability: Uniben Tetley Organization: RISE Research Institutes of Sweden</p> |
| Third-party verification | <p>Independent third-party verification of the declaration and data, according to ISO 14025:2006, via: EPD verification by individual verifier</p> <p>Third-party verifier: Hannu Karppi, Ramboll Finland Oy</p> <p>Approved by: The International EPD® System</p> |
| Procedure for follow-up of data during EPD validity involves third party verifier | <p>Yes No</p> |

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but from different programmers may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804. For further information about comparability, see EN 15804 and ISO 14025.

Company information

Owner Of The EPD

FM Mattsson Group

Contact

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Description Of The Organisation

FM Mattsson Group conducts the sale, manufacturing and product development of water mixers and related products under the established brands of FM Mattsson, Mora, Damixa, Hotbath, Aqualla and Adamsez.

Our vision is to become customer's first choice in the bathroom and kitchen.
In 2021 the business generated sales of more than 1.8 billion SEK from its companies in Sweden, Norway, Denmark, Finland, Benelux, UK, Germany and Italy and had 532 employees.

FM Mattsson Group is listed on Nasdaq Stockholm.

Product/Management System Related Certifications

ISO 9001:2015
ISO 14001:2015

Address Production Site

FM Mattsson Group
Östnorsvägen 95
792 95 Mora, Sweden

Sustainable flows

Responsible use of water is about protecting vital resources and all our futures. At FM Mattsson, we are constantly working to identify new solutions that use and distribute water in ways that are sustainable both for the environment and for people.

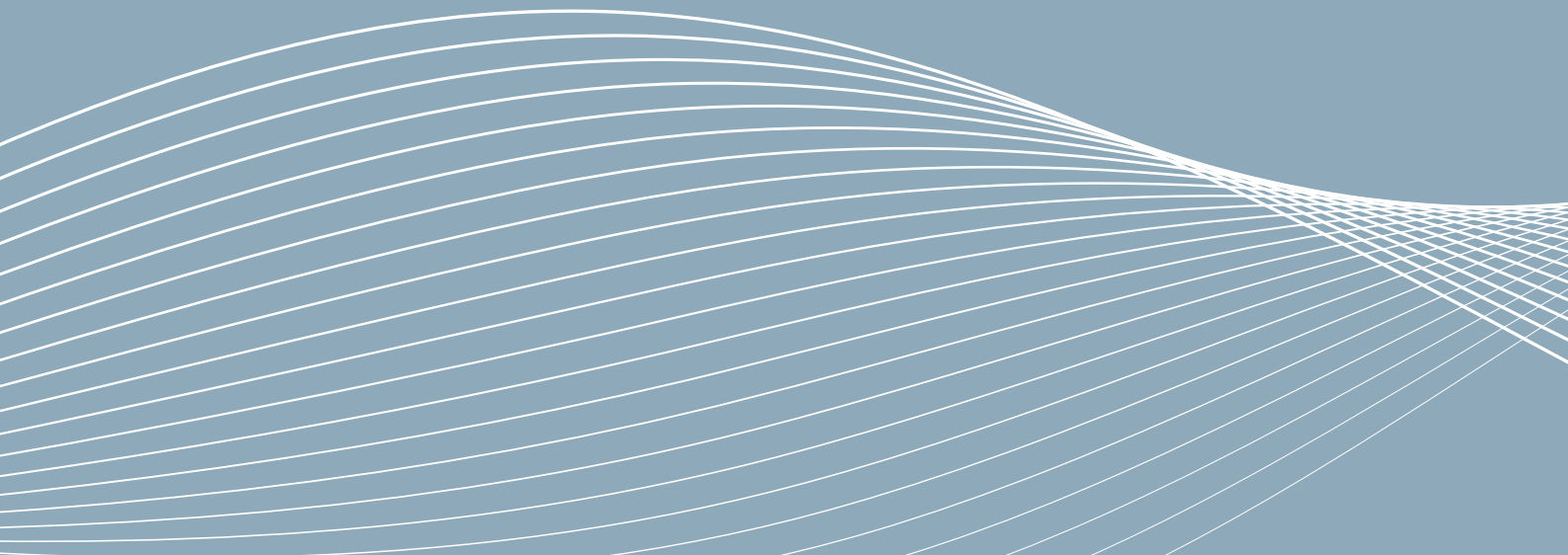
Consumers, architects, property owners, builders, companies, municipalities, and governments – we all benefit from saving water and energy. And we all have a responsibility to protect our shared resources for future generations.

FM Mattsson develops energy-efficient products for the future - continuing over 150 years of development and a passion for sustainable solutions. The Research Institute of Sweden, RISE, carried out a two-year project analysing different energy-efficient mixers from multiple brands, including FM Mattsson, in an apartment building (Folkesson et al., 2017). It was found that considerable savings can be made in both newly constructed and existing buildings – and that energy-efficient mixers offer hot water savings of up to 28 percent.

FM Mattsson also works to drive change in people's habits and their relationship with water, both privately and professionally. It is about simple changes, such as not wasting drinking water and reducing the amount of water being heated and hot water being consumed unnecessarily. Minor adjustments and new habits reduce energy consumption and create positive change –for people's personal finances and our planet.

The average person in Sweden consumes around 140 litres of water per day at home, of which approximately 60 litres is hot water. Therefore, FM Mattsson has developed the concept of sustainable water habits – a collection of tips and advice to save water and energy in day-to-day life.

A sustainable flow of water for the future, that's our mission.



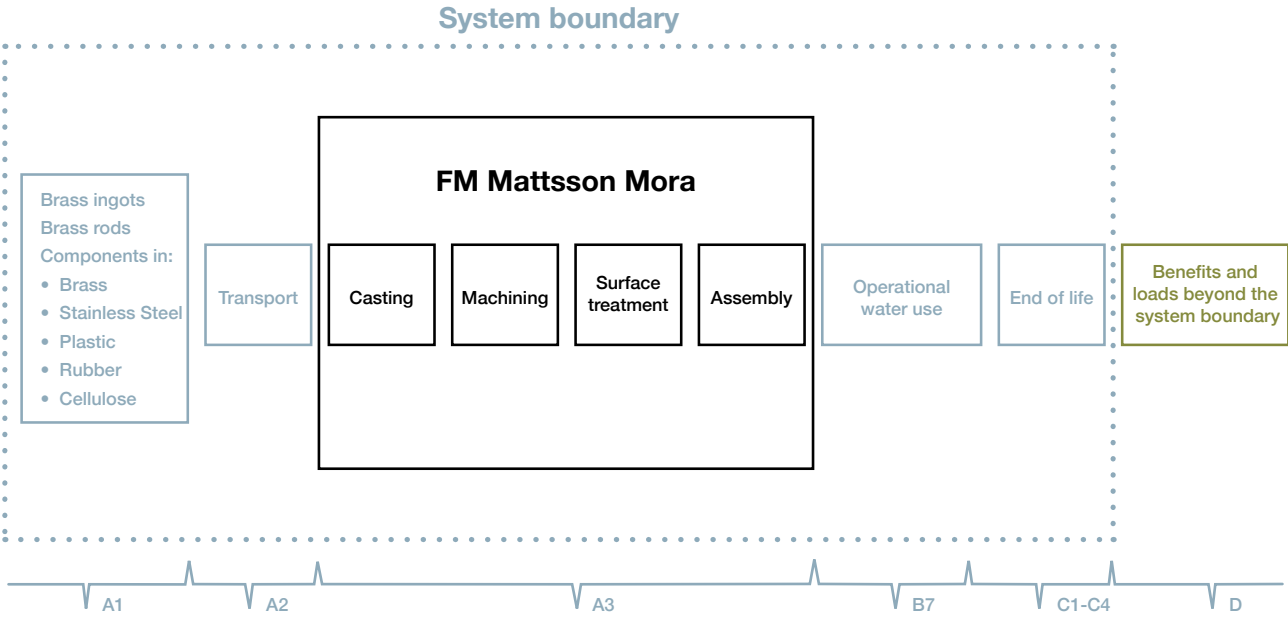
Product information

| | |
|-------------------------------|--|
| Product Name | Wall plates, FM Mattsson |
| Reference Product | The reference product Wall plate S600090 was chosen as the representative product based on high sales volume. |
| Product Identification | Wall plate for vertical mounting of mechanical and thermostatic mixing valves, two hole exposed, 40/160mm |
| Product Description | FM Mattsson Wall plates are manufactured by focusing on sustainable energy sources, highly efficient processes and minimized material usage and waste. |
| UN CPC Code | 42911 - Sinks, washbasins, baths and other sanitary ware and parts thereof, of iron, steel, copper or aluminium |
| Geographical Scope | Europe |

LCA information

| | |
|---|---|
| Functional Unit/Declared Unit | One wall plate, FM Mattsson |
| Reference Service Life | Not declared for the wall plates. |
| Time Representativeness | Bill-of-material from 2022. Operations in Mora represented with data from 2021. |
| Cut-Off Criteria | All materials and energy used to manufacture the wall plate are included. |
| Databases and LCA Software Used | Ecoinvent 3.8 SimaPro 9.4.0.2 |
| Description of System Boundaries | Cradle to gate (A1-A3) with options, i.e., also operational water use module B7, waste management modules C1-C4 and beyond end-of-life module D.. |

System diagram



More information

LCA Practitioner

Uniben Tettesy, RISE Research Institutes of Sweden

Additional information

Modelling of all components from production bill-of-material. Supplier specific electricity mixes and corresponding GWP impact: China, Guangdong province 931 g CO₂/kWh; Finland 264 g CO₂/kWh; Sweden 46 g CO₂/kWh; and European average 392 g CO₂/kWh).

Electricity used in module A3

Electricity for operations in Mora is 100% renewable based with a mix from hydro, wind and solar with a GWP impact of 11.4 g CO₂-eq/kWh.

Information about scenarios and additional technical information

Information about the scenario for operational water use for this product is provided under "Additional Information" below.

Modules declared

Geographical scope, share of specific data (in GWP-GHG indicator) & data variation

| | Product stage | | | Construction process stage | | Use stage | | | | | | | End of life stage | | | | Resource recovery stage | |
|-----------------------------|------------------------|------------|---------------|----------------------------|---------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|------------------------------------|---|
| | Raw material supply | Transport | Manufacturing | Transport | Construction installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational energy use | Operational water use | De-construction demolition | Transport | Waste processing | Disposal | Reuse-Recovery-Recycling-potential | |
| Module | A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D | |
| Modules declared | X | X | X | ND | ND | ND | ND | ND | ND | ND | ND | X | X | X | X | X | X | |
| Geography | Global /EU | Global /EU | SE | | | | | | | | | | EU | EU | EU | EU | EU | |
| Specific data used | 90% for GWP in A1-A3 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | <10% for GWP in A1-A3 | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – sites | 0%, all A3 in one site | | | | | - | - | - | - | - | - | - | - | - | - | - | - | - |

Modules explained

LCA modules

A1 Raw material supply

This module relates to raw material extraction and processing, processing of secondary material input (e.g. recycling processes), transport to component manufacturing and component manufacturing.

C2 Waste Transport

This module relates to the transport of the dismantled wall plate to final waste disposal. An average distance of 100 km from demolition site to waste processing site is assumed.

A2 Transportation

This module relates to transport from raw material extraction and processing, and component manufacturing to FM Mattsson Mora.

C3 Waste processing

This module covers impacts related to sorting and recycling processes for the relevant material components of the wall plates. It is assumed that 90% of the brass and non-brass metals as well as 74% of the packaging wastes are recovered for recycling.

A3 manufacturing

This module covers the relevant production processes for the wall plates at FM Mattsson Mora. The processes cover casting, machining, surface treatment and assembling of components. Treatment of waste and wastewater are also included.

C4 Waste disposal

This module relates to waste disposal processes such as landfilling or incineration. For the wall plates it is assumed that the remaining material components i.e. plastics, rubber, etc. as well as the remaining 10% of the brass and non-brass metals and 26% of the packaging wastes are incinerated.

B7 Operational

This module covers the production, heating and wastewater treatment of tap water use over the reference service life. For the wall plate, impacts from the use phase are assumed to be negligible as no operational water use is required through this product.

D Benefits and loads beyond system boundary

This module covers benefits and loads associated with recovery/recycling beyond the defined system boundary for the wall plate. This includes benefits from recycling and waste incineration.

C1 De-construction

This module relates to the dismantling of the wall plates at the end-of-life. It is assumed that the dismantling is done manually and the related impacts are assumed to be negligible.

Content information

| Product components | Weight, g | Post-consumer material, weight-% | Biogenic material, weight-% and kg C/kg |
|---------------------|--------------|----------------------------------|---|
| Brass | 599.9 | 80 | 0 |
| Cellulose | 0.4 | 50 | 0 |
| Stainless steel | 14.6 | 0 | 0 |
| Plastic | 61.1 | 0 | 0 |
| Rubber | 0.7 | 0 | 0 |
| Nickel | 7.2 | 35 | 0 |
| Copper | 2.9 | 15 | 0 |
| Chrome | 0.09 | 15 | 0 |
| Total | 686.9 | - | - |
| Packaging materials | Weight, g | Weight-% (versus the product) | Weight biogenic carbon, kg C/kg product |
| Corrugated board | 53.0 | 7.7 | 0.04 |
| Total | 53.0 | 7.7 | 0.04 |

| Dangerous substances from the candidate list of SVHC for Authorisation | EC No. | CAS No. | Weight-% per functional or declared unit |
|--|-----------|-----------|--|
| Lead | 231-100-4 | 7439-92-1 | <0.1 |

This product do not contain substances which exceed the limits for registration at the European Chemicals Agency regarding the Candidate List of Substances of Very High Concern for authorization.

Environmental information

Potential environmental impact - mandatory indicators according to EN 15804

| Results per wall plate, FM Mattsson | | | | | | | | | | | |
|-------------------------------------|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1 | A2 | A3 | A1-A3 | B7 | C1 | C2 | C3 | C4 | D |
| GWP-fossil | kg CO ₂ eq. | 2.61E+00 | 2.33E-01 | 8.46E-01 | 3.69E+00 | 0.00E+00 | 0.00E+00 | 9.74E-03 | 3.85E-02 | 1.44E-01 | -3.05E+00 |
| GWP-biogenic | kg CO ₂ eq. | 4.91E-03 | 3.86E-04 | 5.24E-02 | 5.77E-02 | 0.00E+00 | 0.00E+00 | 8.34E-06 | 2.14E-03 | 2.01E-02 | -4.21E-03 |
| GWP-luluc | kg CO ₂ eq. | 2.45E-03 | 1.00E-04 | 1.11E-05 | 2.56E-03 | 0.00E+00 | 0.00E+00 | 3.90E-06 | 8.59E-05 | 3.32E-06 | -7.16E-03 |
| GWP-total | kg CO ₂ eq. | 2.62E+00 | 2.34E-01 | 9.00E-01 | 3.76E+00 | 0.00E+00 | 0.00E+00 | 9.75E-03 | 4.08E-02 | 1.65E-01 | -3.06E+00 |
| ODP | kg CFC 11 eq. | 7.71E-08 | 5.34E-08 | 4.29E-08 | 1.73E-07 | 0.00E+00 | 0.00E+00 | 2.25E-09 | 2.12E-09 | 1.14E-09 | -1.85E-07 |
| AP | mol H+ eq. | 3.30E-02 | 1.08E-03 | 2.53E-03 | 3.66E-02 | 0.00E+00 | 0.00E+00 | 2.77E-05 | 2.07E-04 | 4.65E-05 | -2.20E-01 |
| EP-freshwater | kg P eq. | 1.22E-03 | 1.50E-05 | 2.27E-04 | 1.46E-03 | 0.00E+00 | 0.00E+00 | 6.41E-07 | 3.64E-05 | 1.73E-06 | -1.75E-02 |
| EP-marine | kg N eq. | 2.67E-03 | 2.48E-04 | 7.80E-04 | 3.69E-03 | 0.00E+00 | 0.00E+00 | 5.63E-06 | 3.87E-05 | 2.32E-05 | -1.15E-02 |
| EP-terrestrial | mol N eq. | 2.74E-02 | 2.72E-03 | 7.96E-03 | 3.81E-02 | 0.00E+00 | 0.00E+00 | 6.13E-05 | 3.41E-04 | 2.11E-04 | -1.57E-01 |
| POCP | kg NM-VOC eq. | 8.95E-03 | 8.80E-04 | 1.97E-03 | 1.18E-02 | 0.00E+00 | 0.00E+00 | 2.36E-05 | 9.65E-05 | 5.37E-05 | -4.31E-02 |
| ADP-minerals & metals* | kg Sb eq. | 1.34E-04 | 7.67E-07 | 5.39E-07 | 1.35E-04 | 0.00E+00 | 0.00E+00 | 3.45E-08 | 1.04E-07 | 2.60E-08 | -5.44E-03 |
| ADP-fossil* | MJ | 3.19E+01 | 3.52E+00 | 6.66E+00 | 4.21E+01 | 0.00E+00 | 0.00E+00 | 1.48E-01 | 7.93E-01 | 4.30E-02 | -3.96E+01 |
| WDP* | m ³ | 4.02E+00 | 1.06E-02 | 1.67E+02 | 1.71E+02 | 0.00E+00 | 0.00E+00 | 4.51E-04 | 8.67E-03 | 2.70E-02 | -3.85E+00 |
| Acronyms | 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 | | | | | | | | | | |

* Disclaimer: The results of this environmental impact indicator shall be used with care as the uncertainties of these results are high or as there is limited experience with the indicator.

Potential environmental impact - additional mandatory & voluntary indicators

| Results per wall plate, FM Mattsson | | | | | | | | | | | |
|-------------------------------------|------------------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1 | A2 | A3 | A1-A3 | B7 | C1 | C2 | C3 | C4 | D |
| GWP-GHG ¹ | kg CO ₂ eq. | 2.61E+00 | 2.33E-01 | 8.46E-01 | 3.69E+00 | 0.00E+00 | 0.00E+00 | 9.74E-03 | 3.86E-02 | 1.44E-01 | -3.06E+00 |

Use of resources

| Results per wall plate, FM Mattsson | | | | | | | | | | | |
|-------------------------------------|--|----------|----------|----------|----------|----------|----------|----------|----------|----------|-----------|
| Indicator | Unit | A1 | A2 | A3 | A1-A3 | B7 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 5.43E+00 | 5.19E-02 | 1.32E+02 | 1.38E+02 | 0.00E+00 | 0.00E+00 | 2.11E-03 | 1.34E-01 | 2.90E-03 | -1.04E+01 |
| PERM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PERT | MJ | 5.43E+00 | 5.19E-02 | 1.32E+02 | 1.38E+02 | 0.00E+00 | 0.00E+00 | 2.11E-03 | 1.34E-01 | 2.90E-03 | -1.04E+01 |
| PENRE | MJ | 3.19E+01 | 3.52E+00 | 6.63E+00 | 4.21E+01 | 0.00E+00 | 0.00E+00 | 1.48E-01 | 7.93E-01 | 4.30E-02 | -3.96E+01 |
| PENRM | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| PENRT | MJ | 3.19E+01 | 3.52E+00 | 6.63E+00 | 4.21E+01 | 0.00E+00 | 0.00E+00 | 1.48E-01 | 7.93E-01 | 4.30E-02 | -3.96E+01 |
| SM | 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 | 0.00E+00 |
| RSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| NRSF | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| FW | m ³ | 1.61E-02 | 6.31E-04 | 7.20E-03 | 2.39E-02 | 0.00E+00 | 0.00E+00 | 2.73E-05 | 1.77E-04 | 4.99E-05 | -5.03E-02 |
| Acronyms | 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 re-sources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water | | | | | | | | | | |

¹ This indicator accounts for all greenhouse gases except biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. As such, the indicator is identical to GWP-total except that the CF for biogenic CO₂ is set to zero.

Waste production & output flows

Waste production

| Results per wall plate, FM Mattsson | | | | | | | | | | | |
|-------------------------------------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Indicator | Unit | A1 | A2 | A3 | A1-A3 | B7 | C1 | C2 | C3 | C4 | D |
| Hazardous waste disposed | kg | 0.00E+00 | 0.00E+00 | 1.85E-01 | 1.85E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Non-hazardous waste disposed | kg | 0.00E+00 | 0.00E+00 | 3.32E-01 | 3.32E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Radioactive waste disposed | 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 | 0.00E+00 |

Output flows

| Results per wall plate, FM Mattsson | | | | | | | | | | | |
|-------------------------------------|------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Indicator | Unit | A1 | A2 | A3 | A1-A3 | 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 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Material for recycling | kg | 0.00E+00 | 0.00E+00 | 6.36E-01 | 6.36E-01 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 5.92E-01 | 0.00E+00 | 0.00E+00 |
| Materials for energy recovery | 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 | 0.00E+00 |
| Exported energy, electricity | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| Exported energy, thermal | MJ | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

Differences versus previous versions

This is the first version of the EPD so there are no differences versus previous versions of the EPD.

References

EPD International (2021): General Programme Instructions for the International EPD® System. Version 4.0. www.environdec.com.

EPD International (2019): Product Category Rules (PCR) Construction products 2019:14, version 1.2.5

Folkesson, B., Fernqvist, N., Normann, A. (2017): Vattenanvändning med energieffektiva blandare. Rapport 40807-1. Swedish Energy Agency.

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SimaPro. SimaPro LCA Package, Pré Consultants, the Netherlands, www.pre-sustainability.com

www.environdec.com

FM Mattsson

