

Mosa.

Environmental Product Declaration

Wall Tiles

1215 205
60 mm
MOP MTR
670
MMD 370/2

03 38'

93.1 +0.8 +3.7 PD-01

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508 2/508

Updated 01.08.23
1.2 4.2 1.4
20 60 20

Verification

Compilation and verification process

This LCA assessment has been commissioned by Royal Mosa and is authored by Luc Hillege. The original report was made for the Dutch Assessment Method for Environmental Performance Buildings & Civil Engineering works version 3.0 [1]. The results of the product assessments and resulting 'Environmental Product Declarations' in this report are only comparable to others, if these others also comply to the norms and standards used in this report, and as set out above. The study was conducted in June 2020 and the reporting was completed on 08-10-2020. The LCA study has been adjusted to adhere to the PCR for ceramic tiles EN 17160:2019 in Q1-2021. Hereafter, the review of this EPD has taken place.

Based on

PCR for ceramic tiles NEN-EN 17160: 2019 [6]
In addition the c-PCR is adopted in this LCA to comply to the new EN-15804+A2:2019 (based on ISO 14040-14044 standards). Complementary Product Category Rules (C-PCR) TO PCR 2019:14 CERAMIC TILES (EN 17160:2019) PRODUCT GROUP CLASSIFICATION: UN CPC 373

Created with

LCA software: Ecochain version 2.8.1
Database: Ecoinvent version 3.5

Revision

1.1

Date of publication

21-06-2021

Mosa declaration nr.

Mosa-WT-2021

Verification statement

CEN standards EN15804:2012+A2:2019 and EN 17160:2019 - Product category rules for ceramic tiles serve as the core and product PCRs.

External independent verification of the declaration and data: Environmental Product Declaration Wall Tiles, v.1.1, Mosa declaration nr. Mosa-WT-2021, 21-06-2021 and the underlying LCA report and dossier fulfil the requirements for EPD according to the PCRs, ISO 14040 and ISO 14044 standards.

SGS INTRON,
drs. A. Schuurmans,
June 18, 2021

Valid until

5 years after publication

Author

Ecochain Technologies B.V.

Peer review

Agnes Schuurmans, June 2021

Share of Recycled materials in

Mosa wall tiles increased to 33% in 2021

Mosa replaced the natural raw material chalk with calcite, a renewable resource, and significantly increased the proportion of recycled material in all its wall tiles in the process in 2021. This EPD is based on a production year 2019 thus positive development in share of recycled material is not yet taken into account in the results.

Read more here at: mosa.com/en/mosa/news-and-press

Substances of Very High Concern

Our products do not contain any Substances of Very High Concern.

HPD

Health Product Declaration is available for Mosa Cradle to Cradle certified wall tiles.

Download it from the HPD Public Repository or find it here: mosa.com/en/mosa/sustainability

Declare / Red List Free

Mosa Cradle to Cradle Certified® Gold wall tiles have a DECLARE label and are Red List free.

Please find the Declare labels for wall tiles mosa.com/en/mosa/sustainability

Low-emitting Materials / VOC

Mosa tiles do not contain significant organic volatile pollutants due to the burning process.

Learn more how Mosa tiles contribute to **Green Labels**, such as **LEED** and **BREEAM** at: mosa.com/en/mosa/sustainability

Manufacturer

Royal Mosa B.V., founded in 1883, is an innovative Dutch tile company that manufactures its entire collection using sustainable production methods. Mosa is perceived as a leader in the design of ceramic tiles and its tiles have frequently been awarded international design awards. The company intends to be also a leader in sustainability and wellbeing, and in the pursuit of this goal cooperates with a number of relevant parties, such as German/American knowledge institute EPEA/MBDC, and the founders of the Cradle to Cradle philosophy.

Mosa started working according to Cradle to Cradle principles in 2007, and today has 99% of its tiles Cradle to Cradle Certified® since early 2011, Mosa is being designated as a Cradle to Cradle char-tered organisation, an award reserved for those companies making an exceptional contribution to the implementation of the Cradle to Cradle philosophy in their operations. There are 12 such companies in the world, and of these, Mosa is the only tile manufacturer.

Mosa is active in 30 countries on 4 continents. The key markets include Europe, Middle East, Asia Pacific and North America. Mosa manufactures its products in accordance with the ISO 9001 and the ISO 14001 environmental care system. Mosa's products are very suitable for the development of green buildings and buildings aiming at LEED or BREEAM certification. Mosa is member of the US, UK and Dutch Green Building Council as well as the German Sustainable Building Council.

For further information visit www.mosa.com

Mosa.

We are Royal Mosa. And Mosa is inseparable from Maastricht in the Netherlands. Maastricht is where the Mosa company designs, develops and manufactures its ceramic tiles today. Approximately 85% of our raw materials are sourced within a 200 km supplier range. Main ingredients continue to be natural materials – silver sand, quartz, kaolin and feldspar. Years of craftsmanship, and our passion and love for ceramics, can be felt whenever you walk through our factories.



Life Cycle Inventory

How do the Mosa tiles compare to the industry average?

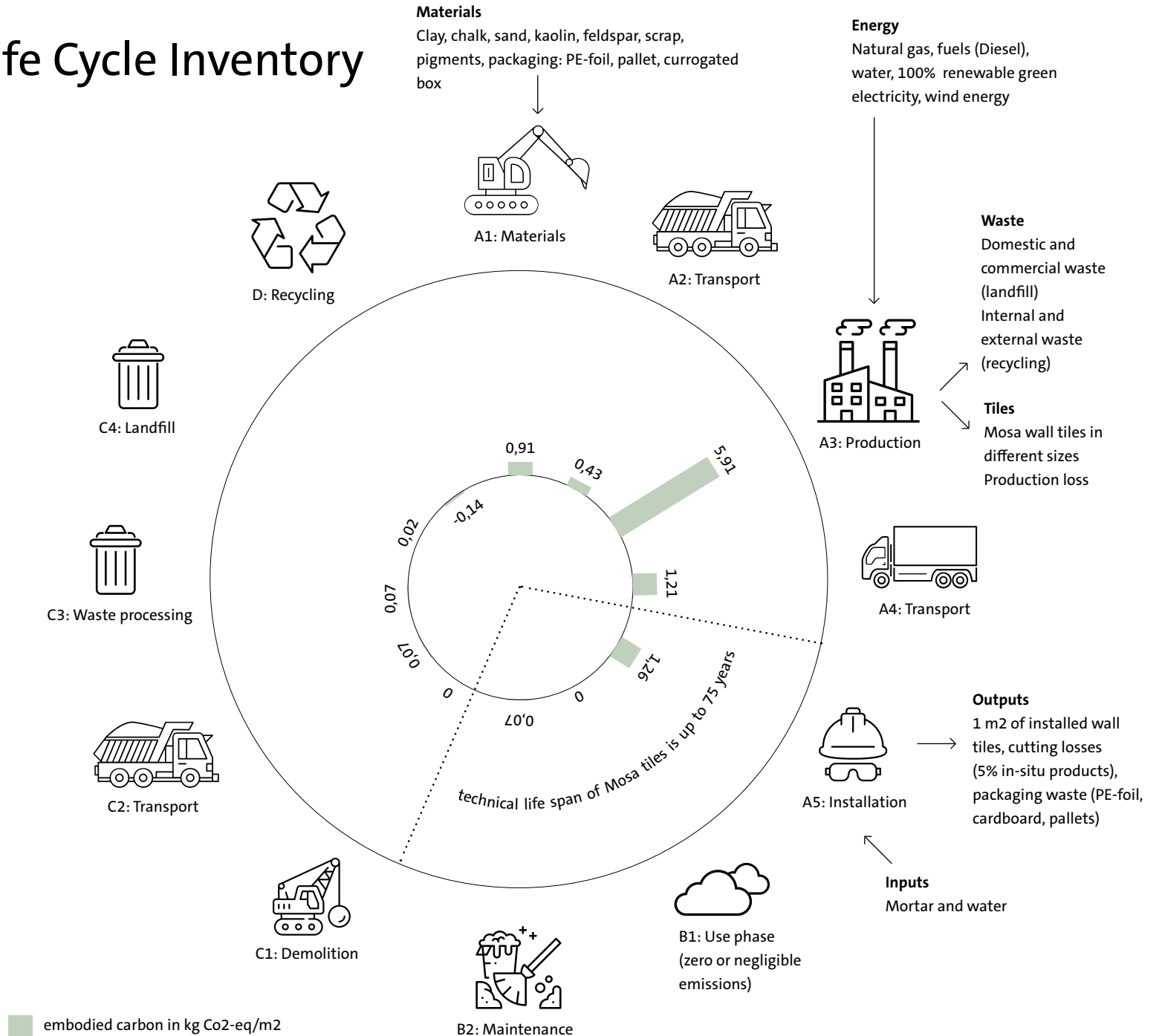
Industry average: Cradle-to-Gate
Ceramic Tile 1 kg (Ecoinvent 3.4)

0.82

Mosa Wall Tile Cradle-to-Gate
1kg (2019 production data)

0.67

NB: this metric is in kg CO₂ per kg because that is the unit of the industry average!



A1: Extraction of raw materials

The Mosa wall tiles consist of:

| Material | Amount |
|----------|--------|
| Clay | 50% |
| Chalk | 10% |
| Sand | 10% |
| Kaolin | 9% |
| Feldspar | 10% |
| Scrap | 10% |
| Pigments | 1% |

A3: Production

The production location for this study is the Wall Tile Factory of Royal Mosa B.V. in Maastricht. At this facility the wall tiles are produced. Mosa's production process is divided into a number of production steps. These are described in the table below.

| Process | Process name | Description |
|------------|--|---|
| Process 01 | Mass preparation | After weighing the raw materials, the hard components are milled in tumbling mills while supplying spring water, after this, this mass is fed to the covered tubs together with the soft components and then everything is mixed with a number of additives to a ceramic suspension. This suspension is stored in a pit. The suspension is sieved and spray-dried in the spraying tower until it becomes a press granulate, which is stored in bunkers. |
| Process 02 | Pressing of tiles | Press granulate is transported to the tile presses via conveyor belt, where the granulate is pressed into a 'green' tile under high pressure with hydraulic presses. The pressed tiles are deburred and transported to the biscuit fire section by roller boxes and automatically guided vehicles. |
| Process 03 | Dry-fire | The tiles are dried with a tunnel drier before they are passed through the biscuit kiln. The firing produces an intermediate product, the 'biscuit' tile. |
| Process 04 | Glaze-decorate-fire | The 'biscuits' are transported to the glazing department, being glazed and if applicable further decorated. After the glazing section the tiles are fired again to the final product with all its functionality. |
| Process 05 | Sorting | After the production process, the tiles are sorted by means of breaking rolls and camera control. Damaged tiles are reused as raw materials in the production process. The tiles are packed in cardboard boxes, stacked on pallets and provided with a shrink-wrap. |
| Process 06 | Other processes – offices, general heating systems | All other processes that are not related to production and do not have to be allocated to Mosa's wall tiles [5]. |
| Process 07 | Pressured air | Pressured air that is applied in several steps in the production process |
| Process 08 | Lighting | Energy use related to lighting the Wall Tile Factory. |
| Process 09 | Cutting - Aqua jet | Tiles are cut into shapes or strips |
| Process 10 | Production waste Mosa Wall Tile Factory | Process added by Ecochain to allocate waste flows.[A1] |

A2: Transport

All relevant transports to Royal Mosa B.V. in Maastricht are included in this study. Means of transport were modelled based on supplier information from the transporter to the production location. As the EN-17160 indicates, return transports must be included. This is achieved when calculating with the single journey and average load factor. This load factor has already been incorporated into the Ecoinvent transport reference.

Production waste Mosa wall tiles

All the waste that arises during the production of ceramic wall tiles is collected separately and offered to an authorized waste processor. If recovery of materials is possible, this is applied, otherwise it is landfilled as landfill waste.

For the production losses, an internal recycling process has been set up in which waste flows from the ceramic Wall Tile Factory (for example broken waste) and are returned to the production process as much as possible. Mosa has invested a lot of time and research into this type of reuse, so that the quality of the tile is not affected by (re)usage of production losses. Recycling is therefore fully included in the modelling of Mosa wall tiles.

Packaging

Packaging is specified per product type.

A4-A5: Transport to construction site

In this study, all relevant transports and construction activities have been included in the construction and installation process. This includes the transport from the Wall Tile factory where Mosa wall tiles are produced to the construction site (A4), as well as the installation at work (A5). The removal and processing of the packaging material - which is released at the construction site - has also been included in this phase.

A4: Transport to client

It is assumed that all transport is done by 16-32-ton truck with a EURO5 engine or a better performing vehicle. This is the most representative for Mosa's current situation.

The transport values are based on actual Mosa sales volumes to different European countries from 2019. Whereby a weighted average approach has been adopted. The resulting average transport distance of 680 km was used in this LCA study.

A5: Installation

Module A5 concerns the installation of a Mosa wall tile. There are various options for installing a wall tile. In accordance with the PCR, various choices can be made for the installation, namely: bonding or laying by means of a cement mortar or grout. The second option from PCR-EN17160: 2019, table 11, p. 41 has been used for this study. This results in the use of: 3.3 kg of cement and 0.8 liters of water per square meter.

Module A5 also includes the waste processing of packaging and building materials (cement, glue, etc.). For the transport of packaging materials to the waste processor, a fixed distance of 50 kilometres is used to the waste processor (s) in accordance with PCR.

The following European waste scenario (table 12, p.41 PCR-EN17160) has been used and can be found in Module A5.

| Packaging materials | Category | Recycling | Incineration | Landfill |
|---------------------|----------------------------|-----------|--------------|----------|
| PE foil | polyolefinen (o.a. PE, PP) | 37,2% | 31,5% | 31,3% |
| Cardboard | Value adopted from EN17160 | 84,6% | 8,3% | 7,1% |
| Pallet | Value adopted from EN17160 | 36,1% | 30% | 33,9% |

Cutting losses

The products must be tailor-made on the construction site. When installing ceramic wall tiles, this usually results in more waste due to cutting losses. In addition, some of the materials are lost due to damage or possible weather influences. It has been assumed that 5% of the wall tiles are lost for cutting losses (based on the Dutch Norm SBK Bepalingsmethode 1.0, p. 20 in-situ products). Therefore, extra tiles are used for the installation of one square meter. This has been taken into account in the results. Thus, usage of 5% extra Mosa wall tile is included in module A5.

B1: Use phase

The materials used cause no or negligible emissions during the use phase. This is included in the PCR, EN17160: 2019, p. 41. Therefore, In Module B1 – a 0 is stated in the results table on page.

B2: Maintenance

Maintenance and replacement of Mosa wall tiles are included in this study.

Maintenance in particular is an aspect that is important for wall tiles. During the lifespan of a Wall Tile, it is cleaned (maintained). The EN17160:2019 (p.43) prescribes that in the case of household application, the following cleaning regime or 'maintenance cycle' can be assumed for wall tiles:

0.134 ml of cleaning agent and 0.1 liter of water consumption per 3 months per square meter (1 m²)

This comes down to:

4x 0.1 liters = 0.4 liters of water per year

4x 0.134 ml = 0.0003483 kg of cleaning agent (detergent) per year

These values are calculated and included for the full Reference Service Life (RSL) of 50 years.

B3-B5: Repair, Replacement and Refurbishment

The service life of ceramic tiles is in general the same as the building life time.

Repair, replacement and refurbishment is not required for ceramic tiles.

This is included in the PCR, EN17160: 2019, p. 41. Therefore, in Module B3, B4 and B5 a zero is stated in the results table.

B6-B7: Operational energy and water use

These information modules relate to the operation of the building and are therefore not relevant for ceramic tiles.

C1: Demolition

Negligibly small and ignored according to PCR, EN-17190. A 0 has therefore been included in the results tables of this LCA study.

C2: Transport

The transport of the waste processing of packaging is included in Module A5. The transport of a demolished Mosa wall tile is included in this phase. A fixed value of 50 km to a waste processor has been used for this.

C3-C4: Waste processing

For the EOL (End-of-Life) of a Mosa Wall Tile, the following EOL scenario has been used in accordance with EN17160, table 17. According to this scenario 70% is recycled and 30% will go to landfill. The Netherlands uses higher recycling rates for ceramic tiles (99%). Due to a lack of data on recycling and re-use scenarios for each European country a 'worst-case' approach is adopted. Therefore, using the default values provided by the PCR for ceramic tiles.

D: Benefits and loads beyond the product system boundary

In this case Mosa wall tiles are 70% recycled by means of crushing, thus 70% of raw material can be saved.

Crushed stone or gravel aggregate has been adopted in this LCA study as the saved material, because the use of this secondary material is deemed a best fit.

Note: Variability for the results for Climate Change

Variability of the results for GWP-total is between -14,7 and -7,7% for the smaller sizes, the medium size has a variability between 6,5 and 11,6%. The larger wall tiles have a variability of 33,5 and 35,8%.

The difference between the weighted average and the individual tiles is the largest for the impact category ecotoxicity, freshwater. The PD, SD - WALL tiles have a higher contribution on this category. Mainly because the glazing system that contains Barium Oxide (BaO).

Mosa.

Environmental profile of 1 m² average Mosa wall tile applied in Europe over 50 years. Products averaged for the Wall Tile Factory are formats 15x15 cm, 15x30 cm and 30x60 cm. Values for the individual sizes may vary.
(Note: Only the phases with values are presented in the results. Otherwise the value is zero)

| Impact Category | Abbreviations | UNIT | A1 | A2 | A3 | Total 'Cradle- to-Gate' | A4 | A5 | B2 | C2 | C3 | C4 | D | Total 'Cradle- to-Grave' |
|--|---------------|------------------------|----------|----------|----------|-------------------------------|----------|----------|----------|----------|----------|----------|-----------|--------------------------------|
| Environmental impact | | | | | | | | | | | | | | |
| Climate change - total | GWP-total | kg CO ₂ -eq | 0,91 | 0,43 | 5,91 | 7,26 | 1,21 | 1,26 | 0,05 | 0,07 | 0,07 | 0,02 | -0,14 | 9,79 |
| Climate change - Fossil | GWP-f | kg CO ₂ -eq | 0,99 | 0,43 | 5,86 | 7,28 | 1,21 | 1,25 | 0,05 | 0,07 | 0,06 | 0,02 | -0,14 | 9,80 |
| Climate change - Biogenic | GWP-b | kg CO ₂ -eq | -0,08 | 0,00 | 0,05 | -0,03 | 0,00 | 0,02 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | -0,01 |
| Climate change - Land use and LU change | GWP-luluc | kg CO ₂ -eq | 2,46E-03 | 1,57E-04 | 3,10E-04 | 2,93E-03 | 3,59E-04 | 5,13E-04 | 3,56E-05 | 2,14E-05 | 4,02E-05 | 4,76E-06 | -1,29E-04 | 3,77E-03 |
| Ozone depletion | ODP | kg CFC11 eq | 1,60E-07 | 9,64E-08 | 8,23E-07 | 1,08E-06 | 2,78E-07 | 1,08E-07 | 5,94E-09 | 1,67E-08 | 1,42E-08 | 7,85E-09 | -1,82E-08 | 1,49E-06 |
| Acidification | AP | mol H ⁺ eq | 6,80E-03 | 1,95E-03 | 5,91E-03 | 1,47E-02 | 3,48E-03 | 4,12E-03 | 3,28E-04 | 4,11E-04 | 5,79E-04 | 1,71E-04 | -1,02E-03 | 2,27E-02 |
| Eutrophication, freshwater | EP-fw | kg P eq | 9,04E-05 | 8,17E-06 | 5,39E-05 | 1,53E-04 | 1,82E-05 | 2,76E-05 | 3,68E-06 | 1,08E-06 | 2,46E-06 | 3,10E-07 | -7,01E-06 | 1,99E-04 |
| Eutrophication, marine | EP-m | kg N eq | 1,47E-03 | 5,76E-04 | 1,54E-03 | 3,59E-03 | 6,48E-04 | 9,89E-04 | 4,76E-05 | 1,44E-04 | 1,99E-04 | 5,61E-05 | -2,48E-04 | 5,43E-03 |
| Eutrophication, terrestrial | EP-T | mol N eq | 1,58E-02 | 6,49E-03 | 1,70E-02 | 3,93E-02 | 7,40E-03 | 1,13E-02 | 5,79E-04 | 1,59E-03 | 2,30E-03 | 6,21E-04 | -3,07E-03 | 6,00E-02 |
| Photochemical ozone formation | POCP | kg NMVOC eq | 0,00 | 0,00 | 0,01 | 0,01 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,02 |
| Resource use, minerals and metals | ADP-mm | kg Sb eq | 5,73E-05 | 1,24E-06 | 3,49E-06 | 6,21E-05 | 3,66E-06 | 3,79E-06 | 2,65E-07 | 2,03E-07 | 7,31E-08 | 1,95E-08 | -8,44E-07 | 6,92E-05 |
| Resource use, fossils | ADP-f | MJ | 14,24 | 6,61 | 93,50 | 114,36 | 18,46 | 11,78 | 1,60 | 1,11 | 1,18 | 0,53 | -1,88 | 147,13 |
| Water use | WDP | m ³ depriv. | 0,72 | 0,06 | 1,11 | 1,88 | 0,14 | 0,40 | 0,89 | 0,01 | 0,03 | 0,02 | -0,13 | 3,24 |
| Particulate matter | PM | disease inc. | 7,36E-08 | 3,06E-08 | 3,04E-08 | 1,34E-07 | 7,71E-08 | 4,42E-08 | 3,00E-09 | 6,50E-09 | 4,15E-08 | 3,20E-09 | -1,13E-08 | 2,99E-07 |
| Ionising radiation | IR | kBq U-235 eq | 0,05 | 0,03 | 0,04 | 0,12 | 0,08 | 0,03 | 0,00 | 0,00 | 0,01 | 0,00 | -0,01 | 0,24 |
| Ecotoxicity, freshwater | ETP-fw | CTUe | 182,56 | 4,78 | 10,71 | 198,06 | 13,07 | 24,97 | 1,03 | 0,80 | 0,75 | 0,31 | -2,22 | 236,78 |
| Human toxicity, cancer | HTP-c | CTUh | 7,50E-10 | 1,61E-10 | 9,42E-10 | 1,85E-09 | 3,83E-10 | 3,47E-10 | 1,71E-10 | 3,03E-11 | 2,81E-11 | 6,91E-12 | -1,01E-10 | 2,72E-09 |
| Human toxicity, non-cancer | HTP-nc | CTUh | 3,59E-08 | 5,57E-09 | 1,25E-08 | 5,40E-08 | 1,46E-08 | 1,05E-08 | 2,03E-09 | 1,02E-09 | 6,74E-10 | 2,23E-10 | -2,33E-09 | 8,08E-08 |
| Land use | SQP | Pt | 26,04 | 4,44 | 2,70 | 33,18 | 12,61 | 6,81 | 0,19 | 0,93 | 1,13 | 1,01 | -1,43 | 54,42 |
| Resource use | | | | | | | | | | | | | | |
| Use of renewable primary energy excluding renewable primary energy resources used as raw materials | PERE | MJ | 5,69 | 0,11 | 14,65 | 20,45 | 0,20 | 1,74 | 0,05 | 0,01 | 0,06 | 0,00 | -0,10 | 22,42 |

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| Impact Category | Abbreviations | UNIT | A1 | A2 | A3 | Total 'Cradle-to-Gate' | A4 | A5 | B2 | C2 | C3 | C4 | D | Total 'Cradle-to-Grave' |
|--|---------------|------|----------|----------|----------|------------------------|----------|----------|----------|----------|----------|----------|-----------|-------------------------|
| Use of renewable primary energy resources used as raw materials | PERM | MJ | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| Total use of renewable primary energy resources | PERT | MJ | 5,69 | 0,11 | 14,65 | 20,45 | 0,20 | 1,74 | 0,05 | 0,01 | 0,06 | 0,00 | -0,10 | 22,42 |
| Use of non-renewable primary energy excluding non-renewable primary energy resources used as raw materials | PENRE | MJ | 25,78 | 7,02 | 103,63 | 136,42 | 19,59 | 13,25 | 1,71 | 1,18 | 1,25 | 0,56 | -2,00 | 171,97 |
| Use of non-renewable primary energy resources used as raw materials | PENRM | MJ | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 | 0,00 |
| Total use of non-renewable primary energy resources | PENRT | MJ | 25,78 | 7,02 | 103,63 | 136,42 | 19,59 | 13,25 | 1,71 | 1,18 | 1,25 | 0,56 | -2,00 | 171,97 |
| Total Energy | PET | MJ | 31,46 | 7,13 | 118,28 | 156,87 | 19,79 | 14,99 | 1,76 | 1,19 | 1,30 | 0,57 | -2,09 | 194,39 |
| Use of secondary material | SM | kg | 0,766 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0,766 |
| Use of renewable sec.fuels | RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Use of non-renewable secondary fuels | NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Use of net fresh water | FW | m3 | 0,01 | 0,00 | 0,02 | 0,03 | 0,00 | 0,01 | 0,02 | 0,00 | 0,00 | 0,00 | 0,00 | 0,06 |
| Output flows and waste categories | | | | | | | | | | | | | | |
| Hazardous waste disposed | HWD | kg | 4,09E-05 | 4,57E-06 | 3,30E-03 | 3,35E-03 | 1,18E-05 | 1,80E-04 | 1,33E-06 | 7,07E-07 | 9,38E-07 | 3,55E-07 | -5,90E-06 | 3,54E-03 |
| Non-hazardous waste disposed | NHWD | kg | 0,43 | 0,29 | 0,18 | 0,90 | 0,88 | 0,25 | 0,00 | 0,07 | 1,34 | 3,27 | -0,05 | 6,67 |
| Radioactive waste disposed | RWD | kg | 8,19E-05 | 4,45E-05 | 6,39E-05 | 1,90E-04 | 1,25E-04 | 3,65E-05 | 1,70E-06 | 7,49E-06 | 7,89E-06 | 3,51E-06 | -9,46E-06 | 3,63E-04 |
| Components for re-use | CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Materials for recycling | MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7,63 | 0 | 7,634 | 7,63 |
| Materials for energy recovery | MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exported energy | EE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exported energy thermic | EET | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Exported energy electric | EEE | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

7 / References

[1] 'ISO 14040: Environmental management - Life cycle assessment – Principles and Framework', International Organization for Standardization, ISO14040:2006.

[2] 'ISO 14044: Environmental management - Life cycle assessment - Requirements and guidelines', International Organization for Standardization, ISO14044:2006.

[3] EN 15804+A2:2019 - Sustainability of construction works - Environmental product declarations - Core rules for the product category of construction products.

[4] 'ISO 14025: Environmental labels and declarations -- Type III environmental declarations -- principles and procedures', International Organization for Standardization, ISO14025:2006.

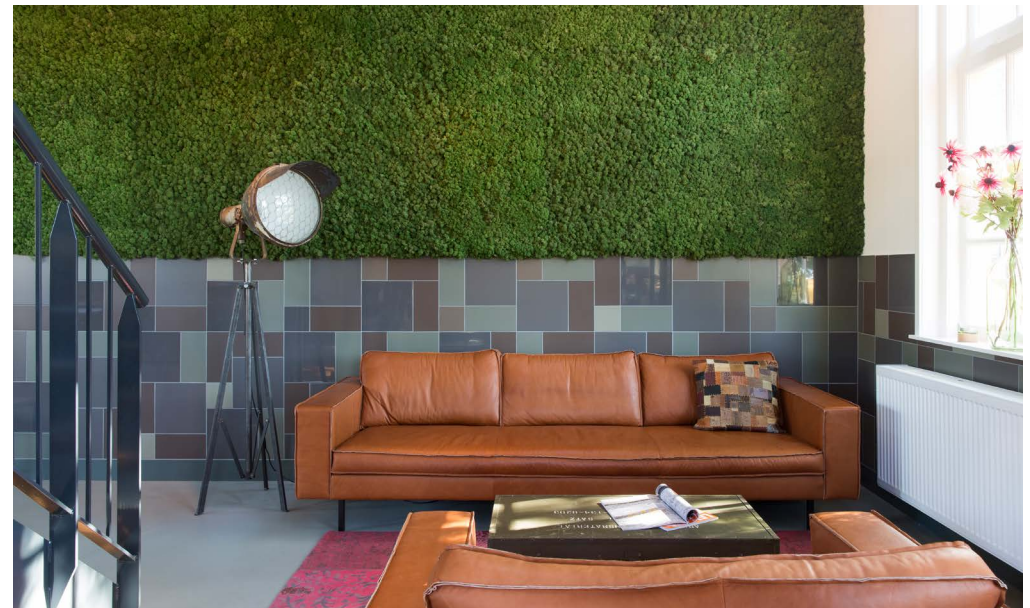
[5] 'SBK Bepalingsmethode Milieuprestatie Gebouwen en GWW werken', Stichting Bouwkwaliiteit, versie 3.0. Januari 2019, aangepast .

[6] EN 17160:2019 - Product category rules for ceramic tiles.

[7] L. Hillege & T. van der Kruk (2020) LCA background report Royal Mosa wall and floor tile factory - report conform the Dutch Assessment Method Environmental Performance version 3.0 and EN-17160

[8] Ecochain 2.7.6, 2020, web: <http://app.ecochain.com>.

[9] Wikipedia, Detergent. 30 juli 2020. Web: <https://en.wikipedia.org/wiki/Detergent>



Mosa.



Sustainability as foremost priority

We cherish our rich past, but we look to the future. Our history has taught us that change is the only constant, which is why we are constantly looking for ways of doing things better. It's what drives us. We listen, look, research and experiment. We know what's going on in the world around us, and we respond to the challenges of today and tomorrow. Time and again, we reinvent our traditional product. Only by being at the forefront we can continue our heritage for future generations. What sets our products apart are their aesthetic and functional properties, and their sustainability. We are aware of the impact that our decisions, and those of our customers, make every day, so we go for long-term solutions.

Circularity is part of everything we do. In fact, we have taken that so far that we aligned our business and production with the Cradle to Cradle principles in full. This has resulted in us being the only tile manufacturer in the world with Cradle to Cradle Certified® Gold certification version 3.1.

Cradle to Cradle

Cradle to Cradle is based on five main criteria: Material Health, Product Circularity, Clean Air & Climate Protection, Water & Soil Stewardship and Social Fairness. Our Cradle to Cradle products contribute to a healthy indoor climate and are VOC-free. In addition to having positive national and international material scores, our products contribute to green building labels such as LEED, WELL, BREEAM, DGNB, and HQE.

Our journey continues ...

As sustainability will always be the foremost priority at Mosa, we are driven to look beyond tiles. We are committed to excel in the various applicable criteria to lay the foundation for the Cradle to Cradle Certified® Gold certification version 4.0 before the end of 2025.



Mosa.

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We believe that people deserve healthy living environments that lasts. Our tiles are not an end product. They are the start of creating spaces where people live, work and socialize, which is why we co-develop our products with the architects and builders who bring our tiles to life. We inspire them with our passion, knowledge and experience. And they, in turn, inspire us. Because making a difference is something we do together. This is how Mosa contributes to creating distinctive, healthy, sustainable buildings of lasting value.

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If we printed this for you, we printed on naturally renewable paper sourced from responsibly managed forests. We hope you do the same if you decide to print it.