# ENVIRONMENTAL PRODUCT DECLARATION

***In accordance with ISO 14025 and EN 15804:2012+A2:2019/AC:2021 for:***

# *LARGE TILE & STONE MORTAR gray*

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| Programme: | Programme operator: | EPD registration number: | Publication date: | Valid until: | Geographical scope: |
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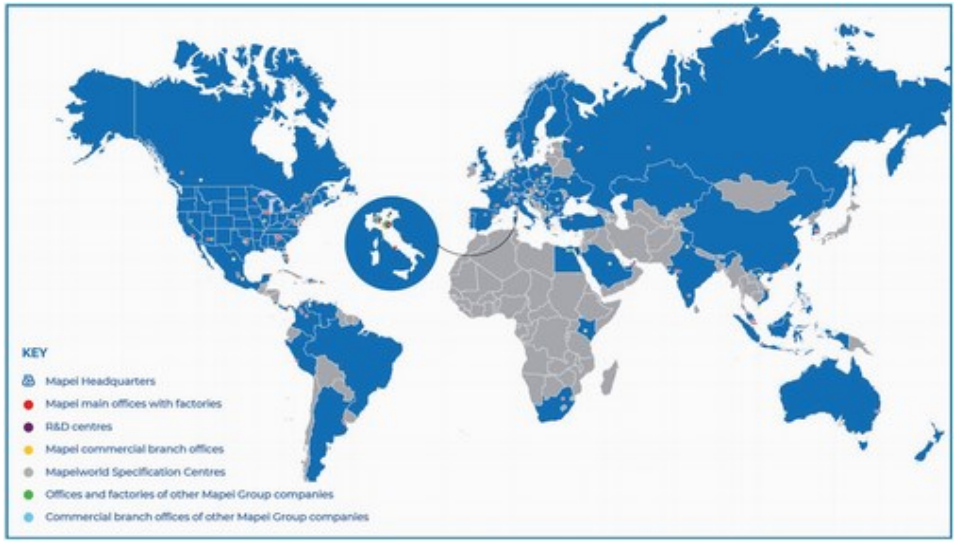
| **The International EPD® System; www.environdec.com** | **EPD International AB** | **S-P-11514** | **12/01/2024** | **11/01/2029** | **Global** |

MAPEI®

# 1 COMPANY DESCRIPTION / GOAL & SCOPE

Founded in 1937 in Milan, Italy, Mapei produces adhesives and complementary products for laying all types of floor, wall and coating materials, and also specializes in other chemical products used in the building industry, such as waterproofing products, specialty mortars, admixtures for concrete, cement additives, products for underground constructions and for the restoration of concrete and historical buildings.

There are currently 102 subsidiaries in the Mapei Group, with a total of 90 production facilities located around the world in 35 different countries and in 5 different continents. Mapei also has 32 central laboratories. Most locations are ISO 9001 and ISO 14001 or EMAS-certified. Mapei invests 12% in its company's total workforce and 5% of its turnover in Research & Development; in particular, 70% of its R&D efforts are directed to develop eco-sustainable and environmentally friendly products, which give important contribution to all major green rating systems for eco-sustainable buildings such as LEED and BREEAM. Furthermore,




Mapei has developed a sales and technical service network with offices all over the world and offers an efficient Technical Assistance Service that is valued by architects, engineers, contractors and owners.

The goal of the study is to provide necessary data and documentation to produce an EPD according to the requirements of PCR Environdec (Version 1.3.1, 2023-07-08) under EN 15804:2012+A2:2019/AC:2021 and to have more comprehension about the environmental impacts related to **Large Tile & Stone Mortar gray** manufactured in Mapei Inc. located in Laval (QC), Delta (BC) and Brampton (ON) including packaging of the finished products.

Target audiences of the study are customers and other parties with an interest in the environmental impacts **Large Tile & Stone Mortar gray**. This analysis shall not support comparative assertions intended to be disclosed to the public.

## 2 PRODUCT DESCRIPTION

**Large Tile & Stone Mortar gray** is a premium, regular-setting, polymer-enriched (“modified”) large-and-heavy-tile mortar that is ideal for installing large-format tile and stone on floors, walls and countertops. This mortar can also be used in thin-set applications to install smaller-format tile over a diverse range of substrates.

**Large Tile & Stone Mortar gray** is available in 22.7 kg bags (50 lbs.).

For more information about the product see the TDS (Technical Data Sheet) on Mapei website.

# 3 CONTENT DECLARATION

The main components and ancillary materials of the products included in this EPD are the following:

Table 1: Composition referred to 1 kg of product packaged in 22.7 kg bags (50 lbs.)

| Materials | Percentage (%) by mass | Post-consumer recycled material weight-% | Biogenic Material, weight-% and kgC/kg |
|---|---|---|---|
| Inorganic Binders | < 41.2% | 0 | 0 resp. 0 |
| Organic Binders | <5.3% | 0 | 0 resp. 0 |
| Fillers | <70.6% | 0 | 0 resp. 0 |
| Additives | <2.88% | 0 | 0 resp. 0 |
| **Packaging Materials** | **Weight-% (versus the product)** | | **Weight biogenic carbon, kg C/kg** |
| LDPE | < 0.3% | | 0 |
| Wood | < 1.5% | | 0.43 |

The product does not contain a concentration higher than 0.1% (by unit weight) of either carcinogenic substances or substances of very high concern (SVHC) on the REACH Candidate List published by the European Chemicals Agency.

# 4 DECLARED UNIT AND REFERENCE SERVICE LIFE

**The declared unit is 1 kg of finished product packaging included.**

Due to the selected system boundary, the reference service life of the products is not specified.

# 5 SYSTEM BOUNDARIES AND ADDITIONAL TECHNICAL INFORMATION

The approach is “cradle to gate” (A1–A3) with modules C1–C4 and module D and optional modules (A1–A3 + A4 – A5 + C + D):

- A1, A2, A3 (Product stage): extraction and processing of raw materials and packaging (A1), transportation up to the factory gate (A2), manufacturing of the finished product (A3).

- A4 – A5 (Construction process stage): transport of the finished product to final customers and installation into the building.

- C1, C2, C3, C4 (End of Life stage): With a collection rate of 100% as C&D waste, the transports are carried out by lorry over 100 km (C2). A recycling ratio (C3) of 31% is considered. The remaining 69% is landfilled (C4).

- D (Resource recovery stage): contains credits from the recycling of the product in module C3 and the credit from the incineration of a fraction of packaging waste. The product can be collected and recycled for use in substitution of virgin raw aggregates.

Table 2: System boundaries

| | 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 | X | X | MND | MND | MND | MND | MND | MND | MND | X | X | X | X | X |
| Geography | US, CAN, EU | US, CAN | CAN | US, CAN | US, CAN | - | - | - | - | - | - | - | US, CAN | US, CAN | US, CAN | US, CAN | US, CAN |
| Specific data | >90% | | | | | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | 0% | | | | | - | - | - | - | - | - | - | - | - | - | - | - |
| Variation – sites | <10% | | | | | - | - | - | - | - | - | - | - | - | - | - | - |

MND: Module Not Declare

A brief description of production process is the following:
The production process starts from raw materials, that are purchased from external and intercompany suppliers and stored in the plant. Bulk raw materials are stored in specific silos and added automatically in the production mixer, according to the formula of the product. Other raw materials, supplied in bags, big bags or tanks, are stored in the warehouse and added automatically or manually in the mixer. The production is a discontinuous process, in which all the components are mechanically mixed in batches. The semi-finished product is then packaged, put on wooden pallets and stored in the finished products warehouse. The quality of final products is controlled before the sale.

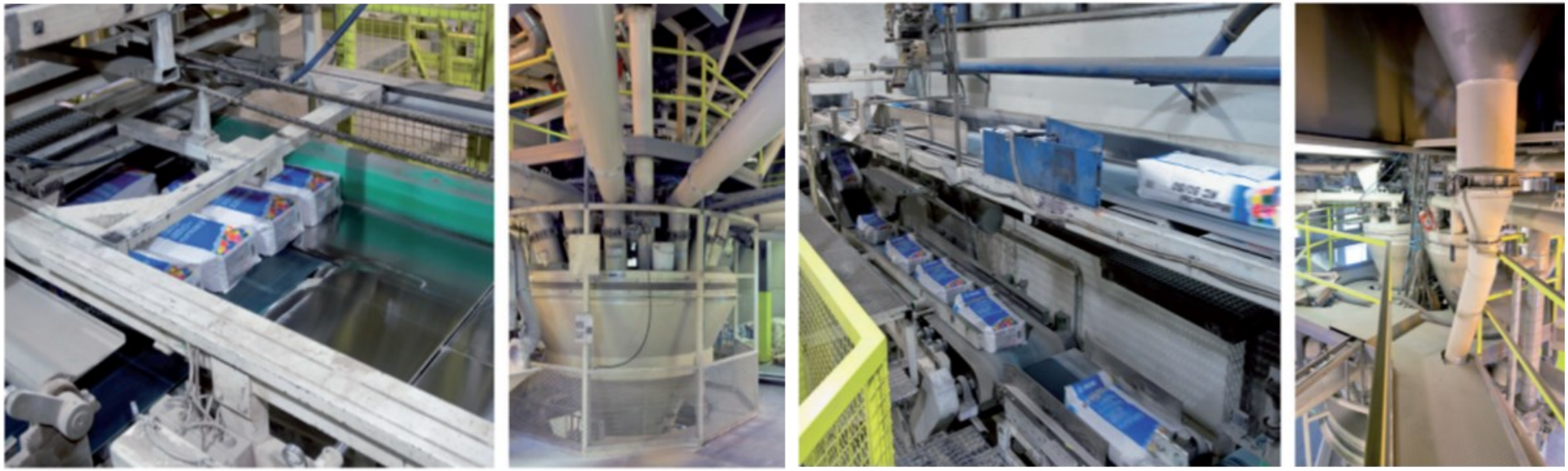


Figure 1: production process detail - © Photo Halvor Gudim

Table 3: Transport to the building site (A4)

| Scenario information | Value | Unit |
|---|---|---|
| Means of transport: truck-trailer euro 6, gross weight 34-40 t, payload capacity 27 t | | |
| Diesel consumption | 0.002 | l/100km |
| Transport distance | 1000 | km |
| Capacity utilisation (including empty runs) | 85 | % |
| Gross density of products transported | ~ 1400 | kg/m$^3$ |
| Capacity utilisation volume factor | 1 | - |

Table 4: Installation into the building (A5)

| Scenario information | Value | Unit |
|---|---|---|
| Ancillary materials for installation | 0 | kg |
| Water use | 0.00031 | m$^3$ |
| Other resources use | 0 | kg |
| Electricity grid mix (US) | 0.00063 | MJ |
| Waste materials on building site before waste processing, generated by the product's installation (specified by type) | 0.00288 (Plastics)<br>0.015 (Wood)<br>0.0108 (C&D waste) | kg |
| Output materials (specified by type) as result of waste processing at the building site e.g. of collection for recycling, for energy recovery, disposal (specified by route) | 0.0179 (Incineration)<br>0.0108 (Landfill) | kg |
| Direct emission to ambient air, soil and water | 0 | kg |

Table 5: End of Life (C1-C4)

| Scenario information | Value | Unit |
|---|---|---|
| Collected separately | 0 | kg |
| Collected with mixed construction waste | 1 | kg |
| Reuse | 0 | kg |
| Recycling | 0.31 | kg |
| Energy recovery | 0 | kg |
| Landfill | 0.69 | km |
| Transport to recycling | 100 | km |
| Transport to landfill | 100 | km |

# 6 CUT-OFF RULES AND ALLOCATION

Criteria for the exclusion of inputs and outputs (cut-off rules) in the LCA, information modules and any additional information are intended to support an efficient calculation procedure. They are not applied in order to hide data. Cut-off criteria, where applied, are described in Table 6.
Input flows are covered for the whole formula.

Table 6: Cut-off criteria

| Process excluded from study | Cut-off criteria | Quantified contribution from process |
|---|---|---|
| A3: production (auxiliary materials) | Less than $10^{-5}$ kg/kg of finished product | Sensitivity study demonstrates a relative contribution lower than 0.5% |

For the allocation procedure and principles consider the following table Table 7:

Table 7: Allocation procedure and principles

| Module | Allocation Principle |
|---|---|
| A1 | All data are referred to 1 kg of product<br>A1: electricity is allocated to the specific production line |
| A3 | All data are referred to 1 kg of packaged product<br>A3-wastes: all data are allocated to the whole production plant |

# 7 ENVIRONMENTAL PERFORMANCES AND INTERPRETATION

**GWP**

**Climate change**
GWPtotal - Global Warming Potential refers to the emission/presence of GHGs (greenhouse gases) in the atmosphere (mainly CO2, N2O, CH4) which contribute to the increase in the temperature of the planet.
GWP-total considers:
- GWP-fossil
- GWP-biogenic
- GWP-luluc (land use and land use change)

**POCP**

**Photochemical ozone formation**
The Photochemical Ozone Creation Potential is the ozone formation in low atmosphere. This is quite common in the cities where a great amount of pollutants (like VOC and NOx) are emitted every day (industrial emissions and vehicles). It is mainly diffused during the summertime.

**ODP**

**Ozone Depletion**
Ozone Depletion Potential refers to the degradation of the stratospheric layer of the ozone involved in blocking the UV component of sunrays. Depletion is due to particularly reactive components that originate from chlorofluorocarbon (CFC) or chlorofluoromethane (CFM).

**ADP minerals&metals**

**Depletion of abiotic resources – minerals and metals**
Abiotic Depletion Potential elements refers to the depletion of the mineral resources.

**AP**

**Acidification**
Acidification Potential refers to the emission of specific acidifying substances (i.e. NOx, SOx) in the air. These substances decrease the pH of the rainfall with predictable damages to the ecosystem.

**ADP-fossil**

**Depletion of abiotic resources – fossil fuel**
Abiotic Depletion Potential fossil fuel refers to the depletion of the fossil fuel resources.

**EP**

**Eutrophication**
Eutrophication Potential refers to the nutrient enrichment, which determines unbalance in ecosystems and causes the death of the fauna and decreased biodiversity in flora.
It considers:
- EP-freshwater: acquatic freshwater
- EP-marine: acquatic marine
- EP-terrestrial

**WDP**

**Water use**
It expresses the potential deprivation of water, that consists in not having the water needs satisfied.

The following tables show the environmental impacts for the products considered according to the requirements of EN15804:2012+A2:2019/AC:2021. The results are referred to the declared unit (see § 4) and are representative of the weighted average of the data of the plants covered by the following EPD. The additional environmental indicators are not declared. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. We discourage the use of the outcomes from modules A1-A3 without considering the results obtained from modules C.

## LARGE TILE & STONE MORTAR gray
## (1 kg of product in 22.7 kg)

Table 8: Large Tile & Stone Mortar gray: Potential environmental impact – mandatory indicators according to EN 15804 referred to 1 kg of product in packaging.

| Indicator | Unit | A1 – A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| **$GWP_{TOTAL}$** | (kg $CO_2$ eq.) | 4.99E-01 | 3.20E-02 | 4.00E-02 | 3.15E-03 | 8.45E-03 | 8.41E-04 | 1.10E-02 | -1.13E-02 |
| $GWP_{FOSSIL}$ | (kg $CO_2$ eq.) | 5.14E-01 | 3.06E-02 | 2.32E-02 | 3.15E-03 | 8.35E-03 | 8.31E-04 | 1.09E-02 | -1.13E-02 |
| $GWP_{BIOGENIC}$ | (kg $CO_2$ eq.) | -1.44E-02 | 1.32E-03 | 1.67E-02 | 8.14E-07 | 8.04E-05 | 3.16E-06 | 3.06E-05 | -7.78E-06 |
| $GWP_{LULUC}$ | (kg $CO_2$ eq.) | 8.34E-05 | 3.57E-05 | 1.45E-06 | 1.99E-07 | 9.77E-06 | 6.36E-06 | 3.44E-05 | -3.37E-06 |
| ODP | (kg CFC 11 eq.) | 8.83E-09 | 3.85E-15 | 5.23E-15 | 1.55E-14 | 9.03E-16 | 1.42E-15 | 2.81E-14 | -2.31E-14 |
| AP | (mol $H^+$ eq.) | 1.53E-03 | 2.70E-05 | 1.35E-05 | 4.47E-06 | 7.26E-06 | 4.42E-06 | 7.84E-05 | -1.13E-05 |
| $EP_{FRESHWATER}$ | (kg P eq.) | 1.28E-04 | 1.54E-07 | 8.28E-09 | 1.89E-09 | 4.22E-08 | 2.88E-09 | 2.23E-08 | -5.37E-09 |
| $EP_{MARINE}$ | (kg N eq.) | 1.92E-04 | 1.12E-05 | 5.11E-06 | 9.95E-07 | 3.02E-06 | 2.03E-06 | 2.03E-05 | -3.95E-06 |
| $EP_{TERRESTRIAL}$ | (mol N eq.) | 2.06E-03 | 1.26E-04 | 5.79E-05 | 1.08E-05 | 3.42E-05 | 2.24E-05 | 2.23E-04 | -4.35E-05 |
| POCP | (kg NMVOC eq.) | 7.14E-04 | 2.62E-05 | 1.34E-05 | 2.84E-06 | 7.02E-06 | 5.50E-06 | 6.11E-05 | -1.07E-05 |
| $ADP_{MINERALS\&METALS}$* | (kg Sb eq.) | 1.64E-07 | 2.06E-09 | 7.73E-11 | 2.03E-10 | 5.70E-10 | 9.06E-10 | 5.11E-10 | -5.28E-10 |
| $ADP_{FOSSIL}$* | (MJ) | 5.61E00 | 4.12E-01 | 2.06E-02 | 5.38E-02 | 1.12E-01 | 1.67E-02 | 1.47E-01 | -1.84E-01 |
| WDP* | ($m^3$ world eq.) | 1.32E-01 | 1.83E-03 | 1.62E-02 | 7.16E-04 | 4.94E-04 | 1.65E-04 | 1.21E-03 | -7.99E-04 |

**$GWP_{TOTAL}$**: Global Warming Potential total; **$GWP_{FOSSIL}$**: 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; **$EP_{FRESHWATER}$**: Eutrophication Potential, freshwater; **$EP_{MARINE}$**: Eutrophication Potential, marine; **$EP_{TERRESTRIAL}$**: Eutrophication Potential, terrestrial; **POCP**: Formation potential of tropospheric ozone; **$ADP_{MINERALS\&METALS}$**: Abiotic Depletion Potential for non-fossil resources; **$ADP_{FOSSIL}$**: Abiotic Depletion Potential for fossil resources; **WDP**: Water Deprivation Potential.

Table 9: Large Tile & Stone Mortar gray: Potential environmental impact – additional mandatory and voluntary indicators referred to 1 kg of product in packaging.

| Indicator | Unit | A1 – A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| **GWP-GHG** | (kg $CO_2$ eq.) | 5.12E-01 | 3.06E-02 | 2.33E-02 | 3.15E-03 | 8.37E-03 | 8.41E-04 | 1.10E-02 | -1.13E-02 |

**GWP-GHG**: 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 $CO_2$ is set to zero. This new indicator cannot be compared with the GWP-GHG of the EPD according to the old PCR 1.2 (and earlier versions).

Table 10: Large Tile & Stone Mortar gray: Use of resources referred to 1 kg of product in packaging.

| Indicator | Unit | A1 – A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| PERE | MJ | 2.72E-01 | 1.76E-02 | 2.89E-01 | 1.29E-02 | 4.70E-03 | 1.55E-03 | 2.40E-02 | -1.75E-02 |
| PERM | MJ | 2.85E-01 | 0.00E00 | -2.85E-01 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| PERT | MJ | 5.57E-01 | 1.76E-02 | 3.54E-03 | 1.29E-02 | 4.70E-03 | 1.55E-03 | 2.40E-02 | -1.75E-02 |
| PENRE | MJ | 5.52E00 | 4.42E-01 | 1.54E-01 | 5.39E-02 | 1.21E-01 | 1.67E-02 | 1.47E-01 | -1.84E-01 |
| PENRM | MJ | 1.33E-01 | 0.00E00 | -1.33E-01 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| PENRT | MJ | 5.65E00 | 4.42E-01 | 2.10E-02 | 5.39E-02 | 1.21E-01 | 1.67E-02 | 1.47E-01 | -1.84E-01 |
| SM | kg | 3.29E-02 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| RSF | MJ | 1.87E-02 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| NRSF | MJ | 1.80E-01 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| FW | $m^3$ | 3.11E-03 | 6.04E-05 | 3.79E-04 | 2.17E-05 | 1.63E-05 | 4.75E-06 | 3.72E-05 | -3.34E-05 |

**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 (primary energy and primary energy resources used as raw materials); **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 resources (primary energy and primary energy resources used as raw materials); **SM**: Use of secondary material; **RSF**: Use of renewable secondary fuels; **NRSF**: Use of non-renewable secondary fuels; **FW**: Net use of fresh water.

Table 11: Large Tile & Stone Mortar gray: Waste production and output flows referred to 1 kg of product in packaging.

| Indicator | Unit | A1 – A3 | A4 | A5 | C1 | C2 | C3 | C4 | D |
|---|---|---|---|---|---|---|---|---|---|
| HWD | kg | 3.73E-04 | 1.27E-12 | 4.49E-13 | -7.14E-13 | 3.60E-13 | -4.32E-14 | 3.21E-12 | -1.80E-11 |
| NHWD | kg | 3.77E-03 | 3.85E-05 | 1.40E-02 | 1.79E-05 | 1.04E-05 | 4.39E-06 | 7.37E-01 | -6.74E-03 |
| RWD | kg | 3.23E-05 | 1.27E-06 | 6.85E-07 | 5.30E-06 | 2.96E-07 | 2.24E-07 | 1.68E-06 | -5.90E-06 |
| Components for re-use | kg | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| Materials for recycling | kg | 3.07E-03 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| Materials for energy recovery | kg | 0.00E00 | 0.00E00 | 1.79E-02 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| Exported energy, electricity | MJ | 0.00E00 | 0.00E00 | 2.51E-02 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |
| Exported energy, thermal | MJ | 0.00E00 | 0.00E00 | 4.71E-02 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 | 0.00E00 |

**HWD**: Hazardous waste disposed; **NHWD**: Non-Hazardous waste disposed; **RWD**: Radioactive waste disposed

Table 12: Large Tile & Stone Mortar gray: Information on biogenic carbon content at the factory gate referred to 1 kg of product in packaging.

| Biogenic Carbon Content | Unit | Quantity |
|---|---|---|
| Biogenic carbon content in product | kg C | 0.00E00 |
| Biogenic carbon content in packaging | kg C | 6.45E-03 |

More details about electrical mix used in this EPD, is shown below:

| | Data source | GWP-GHG | Unit |
|---|---|---|---|
| Electricity residual mix (CAN) - 2020 | IEA | 0.558 | kg $CO_2$-eqv/kWh |

# 8 DATA QUALITY

Table 13: Data quality

| Dataset & Geographical reference | Database (source) | Temporary reference |
|---|---|---|
| | A1; A3 | |
| Inorganic binder | Sphera Database | 2022 |
| Organic binder | Sphera Database | 2022 |
| Filler | Ecoinvent 3.9.1 | 2022 |
| Additives | Ecoinvent 3.9.1 | 2022 |
| Electricity grid mix (US) | Sphera Database | 2022 |
| Packaging components (EU) | Sphera Database | 2022 |
| | A2 | |
| Truck, Euro 5, 27t payload (GLO) | Sphera Database | 2022 |
| Light train, gross tonne weight 500t / 363t payload (GLO) | Sphera Database | 2022 |
| Oceanic ship (27500 DWT – GLO) | Sphera Database | 2022 |
| Diesel for transport (US) | Sphera Database | 2019 |
| Heavy Fuel Oil (US) | Sphera Database | 2019 |
| Electricity grid mix (US) | Sphera Database | 2019 |
| | A4 | |
| Truck, Euro 6, 27t payload (GLO) | Sphera Database | 2022 |
| Diesel for transport (US) | Sphera Database | 2019 |
| | A5 | |
| Tap water from surface water | Sphera Database | 2022 |
| Commercial waste in municipal waste incineration plant | Sphera Database | 2022 |
| Inert matter on landfill | Sphera Database | 2022 |
| Electricity grid mix (US) | Sphera database | 2019 |

| C1-C4 | | |
|---|---|---|
| Truck (EURO 6 - 9,3 ton payload – GLO) | Sphera Database | 2022 |
| Electricity grid mix (US) | Sphera Database | 2019 |
| Diesel for transport (US) | Sphera Database | 2019 |
| Construction waste dumping (EU) | Sphera Database | 2022 |
| Construction waste treatment (EU) | Sphera Database | 2022 |

All data included in table above refer to a period between 2018 and 2021; the most relevant ones are specific from supplier, while the others (i.e. transport and minor contribution dataset), come from European and global databases. All dataset are not more than 10 years old according to EN 15804 §6.3.8.2 “Data quality requirements”.
The Quality level concerning datasets used in the EPD can be considered as ”very good” or ”good” according to Annex E of the EN 15804 (current version).
Primary data concern the year 2022 and represent the whole annual production.

# 8 ADDITIONAL INFORMATION

## 9.1 $CO_2$ offset

Total $CO_2$ emissions measured throughout the entire life cycle have been offset through the purchasing of certified carbon credits in support of renewable energy and forestry protection projects.

## 9.2 Traci 2.1

Table 14: Large Tile & Stone Mortar gray: Potential environmental impact – additional voluntary indicators referred to 1 kg of product in packaging.

| Indicator | Unit | A1-A3 |
|---|---|---|
| AP | (kg SO2 eq.) | 1.35E-03 |
| EP | (kg N eq.) | 9.89E-04 |
| GWP | (kg CO2 eq.) | 5.77E-01 |
| ODP | (kg CFC 11 eq.) | 1.82E-09 |
| Resources | (MJ) | 8.30E-01 |
| SFP | (kg O3 eq.) | 1.34E-02 |
| IPCC AR5 $GWP_{100}$ | (kg CO2 eq.) | 5.84E-01 |
| $ADP_{FOSSIL}$ – CML 2001 -Jan 2016 | (MJ) | 6.14E+00 |

**AP**: Acidification Potential; **EP**: Eutrophication Potential; **GWP**: Global Warming Air, excl. biogenic carbon; **ODP**: Depletion Potential of the stratospheric Ozone layer; **Resources**: Resources, Fossil fuels [MJ surplus energy] **SFP**: Smog Formation Potential; **IPCC AR5**: GWP100, incl. cc fb, excl. biogenic carbon; **$ADP_{FOSSIL}$**: Abiotic Depletion Potential for fossil resources;

## 9.3 Biogenic carbon content

For **Large Tile & Stone Mortar gray** the biogenic carbon content in packaging at the factory gate referred to 1 kg of product with packaging is 6.45E-03.

## 9.4 Recycled content

| Product | Recycled material content (Pre-Consumer) |
|---|---|
| **Large Tile & Stone Mortar gray** | 3.29% |

## 9.5 Disassembly

The finished product is potentially suitable for disassembly through selective demolition.

## 9.6 VOC emission

The product has been tested with CDPH/EHLB Standard Method (CA 01350) v1.2-2017.

**Large Tile & Stone Mortar gray** meets all of the necessary qualifications to be certified for the following claim: **Indoor Advantage™ Gold** Indoor Air Quality Certified to SCS-EC10.3-2014 v4.1

- Registration: # SCS-IAQ-06042

# 10 VERIFICATION AND REGISTRATION

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

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterisation factors); have equivalent content declarations; and be valid at the time of comparison. For further information about comparability, see EN 15804 and ISO 14025.

| CEN standard EN15804 served as the Core Product Category Rules (PCR) | |
|---|---|
| PCR: | PCR 2019:14 Construction products (EN 15804:A2), Version 1.3.1, 2021-02-05, UN CPC code 54 |
| PCR review was conducted by: | The Technical Committee of the International EPD® System. See www.environdec.com/TC for a list of members.<br><br>Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact. |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006: | ☒ EPD Process Certification<br><br>☐ EPD Verification |
| Third party verifier: | Certiquality S.r.l.<br><br>Number of accreditations: 0008PRD rev.000 |
| Accredited or approved by: | Accredia |
| Procedure for follow-up of data during EPD validity involves third-party verifier | ☒ Yes ☐ No |

# 11 REFERENCES


- PCR 2019:14 CONSTRUCTION PRODUCTS (EN 15804: A2), UN CPC CODE 54; VERSION 1.3.1
- EN 13813 “SCREEDS AND MATERIALS FOR SCREEDS – MATERIALS FOR SCREEDS – PROPERTIES AND REQUIREMENTS”
- EN 15804: SUSTAINABILITY OF CONSTRUCTION WORKS - ENVIRONMENTAL PRODUCT DECLARATIONS - CORE RULES FOR THE PRODUCT CATEGORY OF CONSTRUCTION PRODUCTS
- GENERAL PROGRAMME INSTRUCTIONS OF THE INTERNATIONAL EPD® SYSTEM. VERSION 4.0
- ISO 14025 ENVIRONMENTAL LABELS AND DECLARATIONS - TYPE III ENVIRONMENTAL DECLARATIONS - PRINCIPLES AND PROCEDURES
- ISO 14044 ENVIRONMENTAL MANAGEMENT – LIFE CYCLE ASSESSMENT – REQUIREMENTS AND GUIDELINES
- UNITED STATES RESIDUAL MIXES - IEA WEBSITE - TOTAL ENERGY SUPPLY (TES) BY SOURCE
- CANADA RESIDUAL MIXES - IEA WEBSITE - TOTAL ENERGY SUPPLY (TES) BY SOURCE
- EPA, UNITED STATES ENVIRONMENTAL PROTECTION AGENCY - NATIONAL OVERVIEW: FACTS AND FIGURES ON MATERIALS, WASTES AND RECYCLING

## CONTACT INFORMATION

| | |
|---|---|
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