TURKEY EPD®

ENVIRONMENTAL PRODUCT DECLARATIONS

ECO PLATFORM EPD EN 15804 VERIFIED

# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and EN 15804:2012+A2:2019 for

## **Mosaic** from **SILKARSTONE**

SILKARSTONE

| | | |
|---|---|---|
| **Programme:** | EPD Turkey, a fully aligned regional programme<br>www.epdturkey.org | The International EPD® System<br>www.environdec.com |
| **Programme operator:** | EPD Turkey:<br>SÜRATAM – Turkish Centre for Sustainable Production Research & Design<br>Nef 09 B Blok No:7/15<br>34415 Kagıthane/Istanbul,<br>TURKEY | EPD International AB |
| **EPD registration number:** | S-P-01983 | |
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| **Validity date:** | 17.11.2025 | |
| **Revision date:** | 01.09.2021 | |
| **Revision version:** | 1.1 | |
| **Geographical scope:** | Global | |

## Owner of the EPD :

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*Product name and brand name changed from earlier version to version 1.1 along with minor editorial changes.

# Programme Information

| | | |
|---|---|---|
| Programme | EPD Turkey, a fully aligned regional programme<br><br>SÜRATAM – Turkish Centre for Sustainable<br>Production Research & Design<br>Nef 09 B Blok No:7/15<br>34415 Kağıthane/Istanbul, TURKEY<br><br>www.epdturkey.org<br>info@epdturkey.org | The International EPD® System<br><br>EPD International AB<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden<br><br>www.environdec.com<br>info@environdec.com |

Product Category Rules (PCR): 2019:14 Version 1.0, 2019-12-20, Construction Products and CPC 54 Construction Services, EN 15804:2012 + A2:2019 Sustainability of Construction Works

Independent third-party verification of the declaration and data, according to ISO 14025:2006:

EPD process certification EPD verification ✓

Third party verifier: Vladimír Kočí, PhD

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes No ✓

The EPD owner has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programmes may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804.

# About Company

At SilkarStone, we are proud to be a leading stone manufacturer, producing a variety of natural stone, mosaics, slabs, and tiles, and exporting product to over 35 countries across the globe.

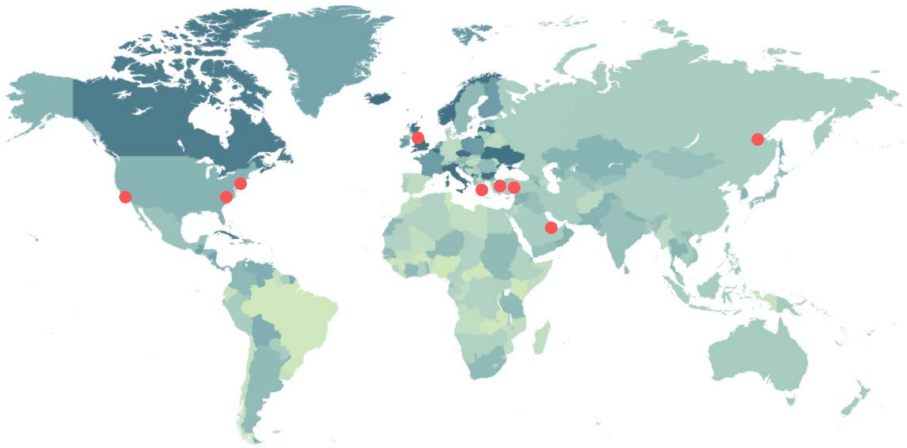
Our company was established over thirty years ago, owns multiple quarries in Turkey and Greece, and two factories in Turkey. This vertical integration allows product quality to be controlled from start to finish while providing unparalleled service to clients planning complex architectural projects. With showrooms in London and Istanbul, as well as a joint venture in Qatar, China and the United States, we are able to assist with projects all over the world, providing quality custom products for large-scale bespoke projects.

Through our sister company AKDO Intertrade, exclusive products are distributed to more than 350 dealers under the “AKDO” brand in the luxury tile and stone market of the United States.

Silkar is one of the largest mosaic manufacturers in the world, with exclusive designs and an impressive palette of natural stone colors. Our ability to produce incredible details custom mosaics and exclusive mosaic tiles make Silkar a unique company in the design world.

In addition to offering slabs, mosaics, and cut-to-size tile, we continually invest in innovation beyond traditional stone product. Because of investments in new technologies such as lightweight laminated stone panels, Silkar has experienced great success within industries such as luxury yachting, furniture, interior, and exterior wall cladding, and more.

After working with mother nature’s product for so long, we respect the earth and green movements. To date, Silkar continues to set standards in the natural stone industry with sustainable manufacturing. As a result of EPD (environmental product deceleration) studies, we have calculated our environmental impact within the complete life cycle for nine products according to ISO 14044 standard and published third-party approved statements. Silkar has EN ISO 9001 Quality Management System, EN ISO 14001 Environmental Management System and ISO 45001 Occupational Health & Safety Management System Certifications. We hope to be your solution partner in the natural stone business. Allow us to show you why SilkarStone has become an international leader in the natural stone industry.



# Product Information

Mosaic lighten the surfaces by covering them. The motifs in the mosaic provide a patterned coating surface and give an optical depth. The use of mosaics in the surface is intended the destroy the masses and the contradictions of the structure; the surface becomes bright & shiny and looks like a multicolored mantle made of delicate, soft, and superficial material. In every design, mosaics imply different ways of living and feeling; and the mosaic stories give a different spirit to every living space, besides wet spaces such as kitchen, bathroom, sauna, and pool.

Silkar offers custom design, and production services for individuals and architectural projects apart from its portfolio with over 4000 different mosaic models. The mosaic surfaces offered by the architectural projects are completed with mosaic patterns, borders, liners, molding, and medallions.

SILKARSTONE Mosaic is a natural stone with a density of 2.7 tons/$m^3$. Weighing in 24 kg, SILKAR  Mosaic is supported by 2% glue and glass wool net by weight.

The UN CPC code of the product is 3761.

**Weight**

24 kg/$m^2$

**Installation**

Adhesion;
Cement, Epoxy,
Silicone

# LCA Information

| | |
|---|---|
| **Declared Unit** | 1 $m^2$ of of SILKARSTONE Mosaic weights 24 kg |
| **Time Representativeness** | 2019 |
| **Database(s) and LCA Software Used** | TLCID ver. 1.0 (Turkish Lifecycle Inventory Database), Ecoinvent 3.6, SimaPro 9.1 |

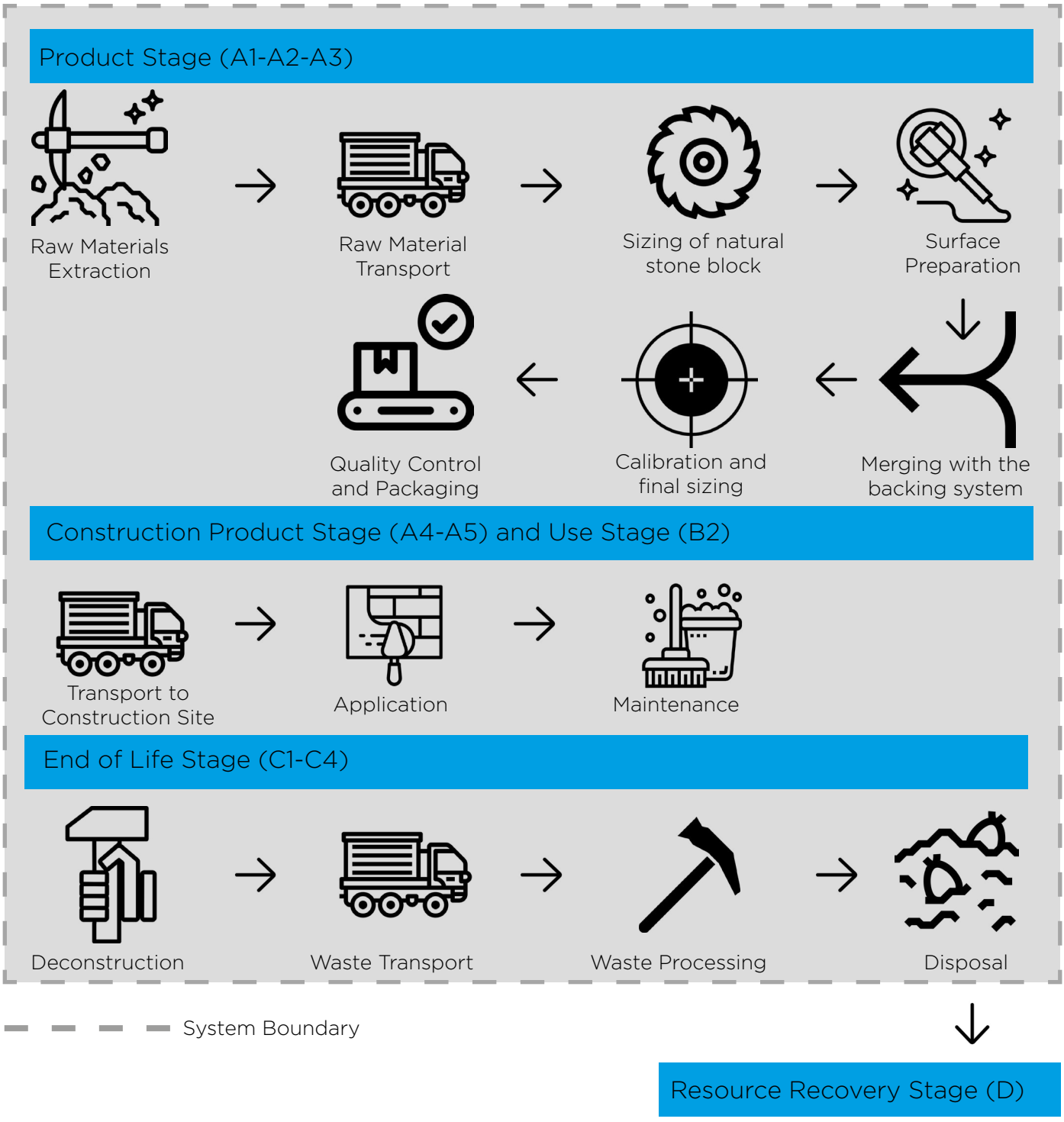
The inventory for the LCA study is based on the 2019 production figures for SILKAR Mosaic by SILKARSTONE production plants in Bilecik, Turkey.

This EPD's system boundary is cradle to grave. The system boundary covers A1 - A3 product stages, A4 - A5 construction, B1 - B7 use and C1 – C4 end of life and D stages.

| Upstream | Core | | Downstream | | | | | | | | | | | | Other Environmental Information |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Raw Material Supply | Transport | Manufacturing | Transport | Construction Installation | Use | Maintenance | Repair | Replacement | Refurbishment | Operational Energy Use | Operational Water Use | Deconstruction, demolition | Transport | Waste Processing | Disposal | Future reuse, recycling or energy recovery potentials |
| A1 | A2 | A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X | X |

X = Included in LCA

## Description of System Boundary




**Excluded Lifecycle Stages:** Travel to and from work by personnel, business travel, etc. are excluded life cycle stages.

**A1: Raw Material Supply**
SILKARSTONE's productions start from mining. The company supplies its raw materials necessary from its mine sites or other mines. Raw material supply includes raw material extraction/preparation and pre-treatment processes before production.

**A2: Transportation**
Transport is relevant for delivery of raw materials and other materials to the plant and the transport of materials within the plant. Transport of raw materials to production site is taken as the weight average values for transport from raw materials supplier in 2019.

**A3: Manufacturing**
The first phase starts with selecting the suitable raw material according to the order received; if necessary, the procurement of new raw material will be done. The raw material that are brought to the facilities are processed depending on the requested thickness and finish, then cut to size to the requested dimensions and taken to the mosaic workshop as mosaic chips. These mosaic chips will be processed into mosaic products. If it's a standart item, we will use rubber/metal molds that we already have at our side; and if it's a special request, we will print graphic designs laid on the floor to make a custom mosaic production with the special dimensions that is requested by our customers.

At multiple stages of the production, there are quality control processes. After the mosaic chips are processed into mosaic products, the final quality control will be made by the team captains. They will check each item and make corrections on these items if necessary, before putting them inside the mosaic boxes.

**A4: Transport From the Gate to the Site**
Transport of final product to construction site is taken as the weight average values for transport to customers in 2019.

| Scenario Information | Value (expressed per functional/declared unit) |
|---|---|
| Vehicle Type | Road, Lorry, >32 metric ton, Euro 5 Motor Sea, Container Ship |
| Data Type | Related transport data from Ecoivent 3.6 |
| Distance to Construction Site | 189 km weighted average by lorry to all markets 12500 km weighted average by ship to all markets |
| Bulk Density of Transported Products | 2700 kg/$m^3$ |

**A5: Assembly**
This stage includes the SILKAR Mosaic application on the construction site. There is no energy use during installation, manpower is sufficient. For the installation of SILKAR Mosaic to the surface, 6-7 kg/$m^2$ cement based adhesive mortar is used according to the product technical datasheet.

| Scenario Information | Value (expressed per functional/declared unit) |
|---|---|
| Ancillary Materials for Installation | 6-7 kg/$m^2$ cement based adhesive mortar |
| Water Use | included in the mortar 0.00065 $m^3$ water |
| Other Resource Use | Not necassary |
| Quantitative description of energy type (regional mix) and consumption during the installation process | Not necassary |

**B1 : Use Stage** is related to any impacts done during use of the product.

**B2 : Maintenance**
This stage is related to any activities to maintain the function of the product in its life time. It includes cleaning with water and detergent. SILKARSTONE recommends using detergent containing stain remover or neutral low-sulphate and rinse with tap water after cleaning.

Monthly for about 50 years, 5 gr detergent and 0.1 L water use are assumed to clean the surfaces of natural stone products.

| Scenario Information | Value (expressed per functional/declared unit) |
|---|---|
| Maintenance Process | Cleaning the surface of product |
| Maintenance Cycle | Monthly during 50 years (600 times) |
| Ancillary Materials for Maintenance | 3 kg during whole cycle |
| Net Fresh Water Consumption | 0.012 $m^3$ |
| Energy Input During Maintenance | Not necassary |

**B3 : Repair** is not necessary in use.

**B4 : Replacement** is not necessary in use.

**B5 : Refurbishment** is not necessary in use

**B6 : Operational Energy Use**
No energy is used in operation.

**B7 : Operational Water Use**
No water is used in operation.

**C1 : Deconstruction and Demolition**
There is no energy use during uninstallation, manpower and some tools are sufficient.

**C2 : Transport**
This stage includes the transportation of the discarded conductors to final disposal. Average distance from demolition site to waste processing site for final disposal is assumed to be 100 km.

**C3 : Waste Processing**
If the wastes are going to landfill or to be inert filler, there is no need for any waste process.

**C4 : Disposal**
Disposal is the final stage of product life. SILKAR Mosaic may dispose with any disposal scenario after construction and demolition as their final fate and modelled as such for this EPD. It is assumed that 25% of the wastes used as inert filler, 75% of the wastes send to the inert landfill site.

**D : Benefits and Loads**
In this stage, inert filler benefits were calculated specified in the disposal stage.

## More Information

The results of the LCA with the indicators as per EPD requirement are given in the LCA result tables. All energy calculations were obtained using Cumulative Energy Demand (LHV) methodology, while fresh water use is calculated with selected inventory flows in SimaPro according to the PCR.

There are no co-products in the production. Hence, there is no need for co-product allocation.

Energy consumptions and transports datasets were allocated based on the production figures in 2019 and the weighted averaged of environmental impacts for the SILKARSTONE's products was presented.

Accordingly, hazardous and non-hazardous waste amounts were also allocated from 2019 total waste arisings. The natural stone sector has a high amount of production wastage due to its nature. All production wastage is included in the LCA model. Wastes arising from production are disposed in accordance with regional legal regulations and sent to inert waste sites.

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in SILKARSTONE's products, either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

# LCA Results

| Environmental Impacts for 1 $m^2$ of Mosaic | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact Category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| GWP - Fossil | kg $CO_2$ eq | 1.23 | 1.44 | 5.57 | 8.24 | 3.24 | 1.68 | 0 | 2.98 | 0 | 0 | 0 | 0 | 0 | 0 | 0.218 | 0 | 0.126 | -0.225 |
| GWP - Biogenic | kg $CO_2$ eq | 3.74E-3 | 572E-6 | -2.13E+0 | -2.13 | -557E-6 | 29.0E-3 | 0 | -6.95 | 0 | 0 | 0 | 0 | 0 | 0 | 158E-6 | 0 | 251E-6 | -179E-6 |
| GWP - Luluc | kg $CO_2$ eq | 4.27E-3 | 545E-6 | 41.5E-3 | 0.046 | 2.07E-3 | 770E-6 | 0 | 4.29E+0 | 0 | 0 | 0 | 0 | 0 | 0 | 63.7E-6 | 0 | 35.3E-6 | -130E-6 |
| GWP - Total | kg $CO_2$ eq | 1.24 | 1.44 | 3.48 | 6.16 | 3.24 | 1.71 | 0 | 0.322 | 0 | 0 | 0 | 0 | 0 | 0 | 0.218 | 0 | 0.127 | -0.226 |
| ODP | kg CFC-11 eq | 161E-9 | 322E-9 | 297E-9 | 780E-9 | 664E-9 | 105E-9 | 0 | 496E-9 | 0 | 0 | 0 | 0 | 0 | 0 | 51.3E-9 | 0 | 52.1E-9 | -43.7E-9 |
| AP | mol H+ eq | 0.010 | 0.018 | 0.030 | 0.059 | 0.094 | 0.007 | 0 | 0.041 | 0 | 0 | 0 | 0 | 0 | 0 | 0.001 | 0 | 0.001 | -0.002 |
| EP - Freshwater | kg $PO_4$ eq | 498E-6 | 84.1E-6 | 4.21E-3 | 0.005 | 140E-6 | 261E-6 | 0 | 1.27E-3 | 0 | 0 | 0 | 0 | 0 | 0 | 15.4E-6 | 0 | 13.0E-6 | -33.3E-6 |
| EP - Marine | kg N eq | 0.003 | 0.005 | 0.006 | 0.014 | 0.023 | 0.002 | 0 | 0.040 | 0 | 0 | 0 | 0 | 0 | 0 | 0.0003 | 0 | 0.0004 | -0.001 |
| EP - Terrestrial | mol N eq | 11.3 | 15.6 | 81.1 | 108 | 28.4 | 31.0 | 0 | 368 | 0 | 0 | 0 | 0 | 0 | 0 | 2.70 | 0 | 2.29 | -3.35 |
| POCP | kg NMVOC | 0.010 | 0.015 | 0.016 | 0.041 | 0.067 | 0.005 | 0 | 0.019 | 0 | 0 | 0 | 0 | 0 | 0 | 0.001 | 0 | 0.001 | -0.002 |
| ADPE | kg Sb eq | 3.40E-6 | 18.4E-6 | 16.9E-6 | 38.7E-6 | 28.0E-6 | 109E-6 | 0 | 204E-6 | 0 | 0 | 0 | 0 | 0 | 0 | 3.72E-6 | 0 | 1.16E-6 | -5.44E-6 |
| ADPF | MJ | 16.2 | 21.0 | 69.1 | 106 | 42.5 | 11.6 | 0 | 31.4 | 0 | 0 | 0 | 0 | 0 | 0 | 3.39 | 0 | 3.54 | -3.21 |
| WDP | $m^3$ depriv. | 1.37 | 0.055 | 5.00 | 6.42 | 0.074 | 0.175 | 0 | 11.6 | 0 | 0 | 0 | 0 | 0 | 0 | 0.011 | 0 | 0.158 | -0.279 |
| PM | disease inc. | 1.30E-6 | 134E-9 | 175E-9 | 1.61E-6 | 124E-9 | 75.4E-9 | 0 | 605E-9 | 0 | 0 | 0 | 0 | 0 | 0 | 19.7E-9 | 0 | 23.3E-9 | -21.4E-9 |
| IR | kBq U-235 eq | 0.064 | 0.103 | 0.120 | 0.287 | 0.196 | 0.064 | 0 | 0.195 | 0 | 0 | 0 | 0 | 0 | 0 | 0.017 | 0 | 0.016 | -0.017 |
| ETP - FW | CTUe | 11.3 | 15.6 | 81.1 | 108 | 28.4 | 31.0 | 0 | 368 | 0 | 0 | 0 | 0 | 0 | 0 | 2.70 | 0 | 2.29 | -3.35 |
| HTTP - C | CTUh | 767E-12 | 540E-12 | 1.78E-9 | 3.09E-9 | 1.73E-9 | 521E-12 | 0 | 10.2E-9 | 0 | 0 | 0 | 0 | 0 | 0 | 66.6E-12 | 0 | 53.0E-12 | -164E-12 |
| HTTP - NC | CTUh | 8.71E-9 | 16.3E-9 | 45.2E-9 | 70.2E-9 | 24.5E-9 | 15.6E-9 | 0 | 249E-9 | 0 | 0 | 0 | 0 | 0 | 0 | 3.08E-9 | 0 | 1.64E-9 | -3.43E-9 |
| SQP | Pt | 1.94 | 16.9 | 205 | 223 | 12.2 | 19.2 | 0 | 321 | 0 | 0 | 0 | 0 | 0 | 0 | 3.89 | 0 | 7.41 | -6.79 |
| Acronyms | GWP-total: Climate change, GWP-fossil: Climate change- fossil, GWP-biogenic: Climate change - biogenic, GWP-luluc: Climate change - land use and transformation, ODP: Ozone layer depletion, AP: Acidification terrestrial and freshwater, EP-freshwater: Eutrophication freshwater, EP-marine: Eutrophication marine, EP-terrestrial: Eutrophication terrestrial, POCP: Photochemical oxidation, ADPE: Abiotic depletion - elements, ADPF: Abiotic depletion - fossil resources, WDP: Water scarcity, PM: Respiratory inorganics - particulate matter, IR: Ionising radiation, ETP-FW: Ecotoxicity freshwater, HTP-c: Cancer human health effects, HTP-nc: Non-cancer human health effects, SQP: Land use related impacts, soil quality. | | | | | | | | | | | | | | | | | | |
| Legend | A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3, A4: Transport to Site, A5: Installation, C1: De-Construction, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Benefits and Loads Beyond the System Boundary. | | | | | | | | | | | | | | | | | | |
| Disclaimer 1 | 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. | | | | | | | | | | | | | | | | | | |
| Disclaimer 2 | The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator. | | | | | | | | | | | | | | | | | | |

| Resource Use for 1 $m^2$ of Mosaic | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact Category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| PERE | MJ | 1.2 | 0.220 | 37.9 | 39.3 | 0.324 | 1.253 | 0 | 61.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0.043 | 0 | 0.029 | -0.066 |
| PERM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PERT | MJ | 1.2 | 0.220 | 37.9 | 39.3 | 0.324 | 1.253 | 0 | 61.2 | 0 | 0 | 0 | 0 | 0 | 0 | 0.043 | 0 | 0.029 | -0.066 |
| PENRE | MJ | 16 | 21.0 | 69.1 | 106 | 42.5 | 11.6 | 0 | 37.4 | 0 | 0 | 0 | 0 | 0 | 0 | 3.39 | 0 | 3.54 | -3.21 |
| PENRM | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| PENRT | MJ | 16 | 21.0 | 69.1 | 106 | 42.5 | 11.6 | 0 | 37.4 | 0 | 0 | 0 | 0 | 0 | 0 | 3.39 | 0 | 3.54 | -3.21 |
| SM | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NRSF | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| FW | $m^3$ | 0.132 | 0.004 | 0.089 | 0.225 | 0.005 | 0.034 | 0 | 0.881 | 0 | 0 | 0 | 0 | 0 | 0 | 0.001 | 0 | 0.004 | -0.021 |

| Waste & Output Flows for 1 $m^2$ of Mosaic | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact Category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B1 | B2 | B3 | B4 | B5 | B6 | B7 | C1 | C2 | C3 | C4 | D |
| HWD | kg | 0 | 0 | 0.012 | 0.012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| NHWD | kg | 0 | 0 | 27.7 | 27.7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| RWD | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| CRU | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MFR | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| MER | kg | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EE (Electrical) | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| EE (Thermal) | MJ | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Acronyms | PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding 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, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water, HWD: Hazardous waste disposed, NHWD: Non-hazardous waste disposed, RWD: Radioactive waste disposed, CRU: Components for reuse, MFR: Material for recycling, MER: Materials for energy recovery, EE (Electrical): Exported energy electrical, EE (Thermal): Exported energy, Thermal. | | | | | | | | | | | | | | | | | |

| Result per functional declared unit | | |
|---|---|---|
| Biogenic Carbon Content | Unit | A1-A3 |
| Biogenic carbon content in product | kg C | 0 |
| Biogenic carbon content in packaging | kg C | 0.55 |
| Note: It was assumed 50% of the wood packaging material is biogenic carbon. | | |

# Additional Information

For the American market, environmental impacts were calculated with the TRACI 2.1 method as additional information. The results of the calculations taken with the same LCA model are given in the table below.

| Environmental Impacts for 1 $m^2$ of Mosaic | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Impact Category | Unit | A1 | A2 | A3 | A1-A3 | A4 | A5 | B2 | C2 | C4 | D |
| GWP | kg $CO_2$ eq | 1.22 | 1.42 | 5.49 | 8.13 | 3.21 | 1.68 | 7.17 | 0.216 | 0.123 | -0.222 |
| ODP | kg CFC-11 eq | 175E-9 | 340E-9 | 338E-9 | 854E-9 | 701E-9 | 114E-9 | 526E-9 | 54.3E-9 | 55.0E-9 | -46.5E-9 |
| Smog | kg $O_3$ eq | 0.214 | 0.316 | 0.295 | 0.825 | 1.469 | 0.111 | 0.274 | 0.018 | 0.026 | -0.042 |
| AP | kg $SO_2$ eq | 0.009 | 0.016 | 0.025 | 0.050 | 0.079 | 0.006 | 0.029 | 0.001 | 0.001 | -0.002 |
| EP | kg N eq | 0.004 | 0.002 | 0.032 | 0.038 | 0.005 | 0.003 | 0.051 | 0.0002 | 0.0002 | -0.0004 |
| Carcinogenics | CTUh | 64.6E-9 | 40.4E-9 | 382E-9 | 487E-9 | 103E-9 | 40.6E-9 | 246E-9 | 5.74E-9 | 4.79E-9 | -11.3E-9 |
| No Carcinogenics | CTUh | 180E-9 | 244E-9 | 1.30E-6 | 1.73E-6 | 274E-9 | 257E-9 | 2.63E-6 | 51.8E-9 | 14.8E-9 | -56.3E-9 |
| RE | kg PM2.5 eq | 0.275 | 0.001 | 0.026 | 0.303 | 0.005 | 0.001 | 0.006 | 0.0002 | 0.0001 | -0.0002 |
| Ecotixicity | CTUe | 7.84 | 8.60 | 41.3 | 57.7 | 13.4 | 9.39 | 136 | 1.67 | 0.723 | -2.89 |
| FFD | MJ surplus | 1.90 | 3.04 | 6.58 | 11.5 | 6.23 | 1.13 | 3.16 | 0.486 | 0.512 | -0.423 |
| Acronyms | GWP: Global Warming Potential, ODP: Ozone Layer Depletion, AP: Acidification Potantial, EP: Eutrophication Potantial, RE: Respiratory Effects, FFD: Fossil fuel Depletion. | | | | | | | | | | |
| Legend | A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3, A4: Transport to Site, A5: Installation, C1: De-Construction, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Benefits and Loads Beyond the System Boundary. | | | | | | | | | | |

# References

/GPI/ General Programme Instructions of the International EPD® System. Version 3.0.

/EN ISO 9001/ Quality Management Systems - Requirements

/EN ISO 14001/ Environmental Management Systems - Requirements

/ISO 45001/ Occupational Health & Safety Management System - Requirements

/ISO 14020:2000/ Environmental Labels and Declarations — General principles

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/The International EPD® System/ The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD®s as well as keeping a library of EPD®s and PCRs in accordance with ISO 14025. www.environdec.com

/Ecoinvent / Ecoinvent Centre, www.ecoinvent.org

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

/TLCID/ Turkish Life Cycle Inventory Database, Turkish Center for Sustainable Production Research and Design (SURATAM), www.suratam.org

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