# Environmental Product Declaration

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

## ’2545-A’ glass mosaic from Ezarri S.A.

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| Programme: | The International EPD® System, www.environdec.com |
| Programme operator: | EPD International AB |
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| Publication date: | 2022-06-02 |
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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*



# General information

## Programme information

| | |
|---|---|
| **Programme:** | The International EPD® System |
| **Address:** | EPD International AB<br>Box 210 60<br>SE-100 31 Stockholm<br>Sweden |
| **Website:** | www.environdec.com |
| **E-mail:** | info@environdec.com |

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|---|
| CEN standard EN 15804 serves as the Core Product Category Rules (PCR) |
| Product category rules (PCR): *PCR 2019:14 Construction products, version 1.11* |
| PCR review was conducted by:<br>The Technical Committee of the International EPD® System. A full list of members available on www.environdec.com. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via info@environdec.com. |
| Independent third-party verification of the declaration and data, according to ISO 14025:2006:<br>☒ External ☐ Internal<br>Covering<br>☐ EPD process certification ☒ EPD verification |
| Third party verifier:<br><br>Tecnalia R&I Certificacion, SL<br>info@tecnaliacertificacion.com<br>Accredited by: ENAC nº125/C-PR283 accreditation. |
| Procedure for follow-up of data during EPD validity involves third party verifier:<br><br>☒ 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. For further information about comparability, see EN 15804 and ISO 14025.

# Company information

**Owner of the EPD:** Ezarri, S.A.

**Description of the organisation:**

EZARRI S.A is a company specialised in the manufacture and marketing of glass mosaic from 100% recycled glass. We are the first glass mosaic company to be awarded the ISO 9001 Quality Certificate, which recognises the efficiency and maturity of our manufacturing system which is completely undertaken at our own facilities of more than 10,000 m2 in Lazkao (Spain).

The perfection and quality of our mosaics make them the best option for any decoration project. Continuous development allows us to offer the highest safety standards in our anti-slip mosaics, manufactured with a special silicon-based treatment, which guarantees the highest results in all current tests and standards.

EZARRI is a growing brand in full expansion, exporting our products to more than 100 countries. We are continually progressing to offer you more decorative possibilities everyday with the finest, most attractive and state-of-the-art material that has become our passion - the glass mosaic.

EZARRI's glass mosaic provides a type of vitreous coating which along with its natural beautiful shine, also encompasses other properties which make it unique to the market. The combination of properties such as a wide range of colours and textures, the possibility of adapting to curved surfaces, high durability and easy to clean, health and safety standards with water resistance, makes it the ideal material for wet and humid environments

## ENVIRONMENTAL COMMITMENT

EZARRI is a company fully committed to caring for the environment and sustainable development. 100% of the glass used as a raw material in our productive processes is recycled glass. The company has undertaken a self-declared environmental claim under ISO 14021 certification (type II environmental labelling), which certifies that the product contains 100% recycled glass.

EZARRI is part of the Green Building Council, a prestigious non-profit organisation which works to promote sustainability in building and awards several internationally recognised environmental certifications.

**Name and location of production site:**

Zubierreka Industrialdea, 58
20210 Lazkao (Gipuzkoa) Spain

**Contact:**

Anakoz Arratibel
Production Coordinator/Quality ManagerQuality department
anakoz@ezarri.com

# Product information

**Product name:** ’2545-A’ glass mosaic
**Product identification and product description:** EZARRI’s glass mosaic provides a type of vitreous coating which along with its natural beautiful shine, also encompasses other properties, which make it unique in the market. The combination of properties such as a wide range of colours and textures, the possibility of adapting to curved surfaces, high durability and easy to clean, health and safety standards and water resistance, makes it the ideal material for covering swimming pools, spa, baths and damp environments in general.

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|---|---|
| **Product weight (per 1m$^2$)** | 9,4 kg |
| **Recycled material (glass) content** | 96,68% |

**UN CPC code:** Under the UN-CPC product classification system, the code corresponding to the product manufactured by EZARRI is: 37117 “Paving blocks, bricks, tiles and other articles of pressed or moulded glass, of a kind used for building or construction purposes; leaded lights and the like; multicellular or foam glass in blocks, plates or similar forms”.

# LCA information

**Declared unit:** 1 m$^2$ of ’2545-A’ glass mosaic.
**Reference service life:** Not relevant for this EPD.
**Geographical scope:** The geographical scope of this EPD is international.
**Time representativeness:** The data collection from factory (primary data) is from 2020/01/01 to 2020/12/31. The electricity mix is from 2020 year. In this study, no datasets older than 10 years were used
**Database(s) and LCA software used:** All the data used to model the process and obtain the Life Cycle Inventory are specific data and have been obtained by measurements made during the year 2020. They are representative of the different processes implemented during the manufacturing process. The data has been measured directly at production factories. In addition, the most complete and highest quality European life cycle inventory database, Ecoinvent 3.6, has been used, as this database contains the most extensive and updated information and its scope coincides with the geographical, technological and temporal area of the project. The LCA was modelled with Simapro 9.1.1.1.
**Description of system boundaries:**
Cradle to gate with modules C1–C4 and module D (A1–A3 + C + D). The life cycle stages A4-A5, B1-B7 were excluded from the LCA study.

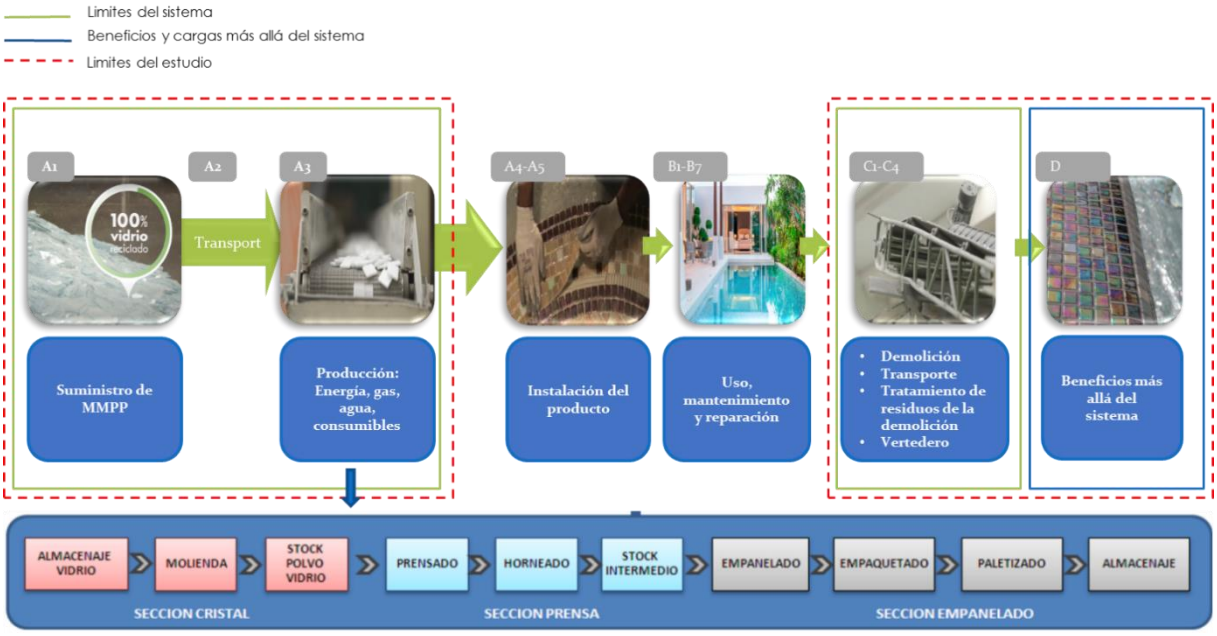
**Manufacturing process:**

The manufacture of ’2545-A’ glass mosaic begins with the reception of recycled glass at the facilities of EZARRI. Recycled glass amounts to more than 96% of the total final product.

From the raw material obtained, the glass is dried and crushed until glass powder is obtained. Then, colouring agents are added to the powder. Next, the mixture is pressed in hydraulic presses and sintered in furnaces.

Finally, baked glass blocks are bonded to make panels and packed for sale through panelling machines and adhesive, using Joint Point technology. Cardboard is used as packaging. Once packed, the product is palleted for further storage and delivery to the customer.

This process can be broken and summarised in the three different stages described as follows:




**Author of the Life Cycle Assessment:**

IK ingenieria
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48970 Basauri, Bizkaia (Spain)

**Data quality**

The environmental impact of the ’2545-A’ glass mosaic has been calculated based on the international standards established for the development of environmental product declarations, such as ISO 14025 for the preparation of the environmental product declaration, ISO 14040 and ISO 14044 for the preparation ofthe life cycle analysis, UNE-EN 15804_2012+A2_2020 (MARCH 2020) and the Product Category Rules PCR - "2019:14 CONSTRUCTION PRODUCTS " (Version 1.1) of the CPC 37117. Data has been collected in 2020 and is representative of that year. Data for raw material supply, transport to fabrication plant and production (A1-A3) is based on specific consumption data for the each production factory. Generic background datasets were used for the downstream processes. SimaPro v9.1.1.1. software was used to prepare the life cycle analysis together with the Ecoinvent 3.6 database. Characterization factors from EN15804: 2012 + A2:2019.

**Assumptions**

The following assumptions have been made in this EPD:

- ✓ It does not include the manufacturing processes of the capital goods or spare parts and/or maintenance with a life of more than three years.
- ✓ The environmental impact of infrastructure for general management, office, and headquarters operations is not included.
- ✓ The impact caused by people (common activities, travel for work...) will not be considered.
- ✓ The processes associated with fuel production are intrinsically included in the indicators in ECOINVENT's database used in carrying out the LCA.
- ✓ The environmental impact of external transport has been calculated using lorries from the ECOINVENT 3.6 database. These lorries have been selected to reflect the most realistic scenario possible.

**Cut-off rules**

The standard ISO 14025 and the PCR -"2019:14 CONSTRUCTION PRODUCTS" indicate that the life cycle inventory data should include a minimum of 95% of the total inputs (materials and energy) for each stage. This cut-off rule does not apply for hazardous materials and substances. In this study, the cut-off criterion has been applied to auxiliary materials in the manufacturing process and waste generated in the manufacturing process.

**Allocation.**

The consumption of machine maintenance, auxiliary materials and waste of the production process, have been allocated by the total weight of the production.

**Greenhous gas emission from the use of electricity in the manufacturing phase**

The mix of renewable energy used in production process is based in the year 2020. Specific renewable electricity mix, high voltage (direct emissions and losses in grid) electricity is considered for the manufacturing process.

| Electricity mix | Amount | Units |
|---|---|---|
| Specific electricity mix | 0,042 | Kg $CO_2$-eq/kWh |

# LCA Scenarios and additional technical information

These are representative end of life scenarios for the analized product systems:

**Dismantling/demolition (module C1):**

Since they are not products with a structural use, the energy consumption of this phase is considered not relevant.

**Transport (module C2)**

With a collection rate of 100%, the transports are carried out by lorry (EURO 5) over 50 km.

**Waste processing (modules C3 and C4)**

With the data provided by the statistics on Recovery rate of construction and demolition waste published by Eurostat: (https://ec.europa.eu/eurostat/databrowser/view/CEI_WM040__custom_354944/bookmark/table?lang=en&bookmarkId=7e4febc4-a0fd-444b-aae0-94643539ce0dl) it has been possible to obtain the percentage of construction waste that is recycled: 88%. The most current data possible (2018) have been taken, corresponding to Europe and which can be extrapolated to the geographical scope of this study. The remaining 12% is considered to be sent to landfill.

**Recyclability potentials (module D)**

Module D contains the credits from the recycling of the glass mosaic (in the form of CDW) given in module C3. The glass mosaic as construction and demolition waste, is recycled to give an aggregate of recycled origin as a substitute for virgin aggregate.

***LCA Scenarios for end of life***

| Processes | Per Declared unit | |
|---|---|---|
| Collection process specified by type | 0,00 | Kg collected separatelly |
| | 9,40 | Kg collected with mixed construction waste |
| Recovery system specified by type | 0,00 | Kg for reuse |
| | 8,27 | Kg for recycling |
| | 0,00 | Kg for energy recovery |
| Disposal specified by type | 1,13 | Kg for final disposal |
| Assumptions for scenario transportation | Lorry 16-32 metric ton, EURO5<br>Consumption: 0,03kg/km<br>Distance:50 km | |

**Modules declared, geographical scope, share of specific data (in GWP-GHG indicator) and 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 | ND | x | x | x | x | | x |
| Geography | EU | EU | EU | ND | ND | ND | ND | ND | ND | ND | ND | ND | GLO | GLO | GLO | GLO | | GLO |
| Specific data used | >95% | | | | | | | - | - | - | - | - | - | - | - | - | - | - |
| Variation – products | - | | | | | - | - | - | - | - | - | - | - | - | - | - | | - |
| Variation – sites | - | | | | | - | - | - | - | - | - | - | - | - | - | - | | - |

# Content information (per 1m² of product):

| Product components | Weight, kg | Post-consumer material, weight-% | Renewable material, weight-% |
|---|---|---|---|
| Recycled glass | 9,09 | 100,00% | 0,00% |
| Colouring agent & additives | 0,0518 | 0,00% | 0,00% |
| Water | 0,260 | 0,00% | 0,00% |
| **TOTAL** | **9,40** | **96,68%** | **0,00%** |

| Packaging materials | Weight, kg | Weight-% (versus the product) |
|---|---|---|
| Cardboard | 0,102 | 85,97% |
| Timber | 0,0130 | 10,99% |
| Plastic | 0,00360 | 3,05% |
| **TOTAL** | **0,118** | **100,00%** |

Packaging: Product packaging includes plastic packing film, cardboard and pallets. The pallets used by EZARRI are compliant with the PEFC certification – certified sustainable wood.

No substances included in the Candidate List of Substances of Very High Concern for authorization under REACH Regulations are present in these glass mosaic manufactured by EZARRI, either above the threshold for registration with the European Chemicals Agency or above 0,1% (wt/wt).

Recycled raw materials - such as the glass used by EZARRI to produce our glass mosaic - are considered as secondary flows.

It is worth highlighting that 100% of the glass used is from recycled sources and represents 96% of the product weight. The waste generated through the entire process is managed by authorised waste management companies and EZARRI is registered as a small producer of hazardous and inert waste.

# Environmental Information

## Potential environmental impact – mandatory indicators according to EN 15804

| Results per declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP-fossil | kg $CO_2$ eq. | 1,61 | 0,00 | 0,0783 | 0,0173 | 0,00594 | 0,00452 |
| GWP-biogenic | kg $CO_2$ eq. | -0,189 | 0,00 | 0,0000418 | 0,000377 | 0,0000118 | 0,0000516 |
| GWP-luluc | kg $CO_2$ eq. | 0,0361 | 0,00 | 0,0000274 | 0,0000124 | 0,00000166 | 0,00000214 |
| GWP-total | kg $CO_2$ eq. | 1,46 | 0,00 | 0,0784 | 0,0177 | 0,00595 | 0,00458 |
| ODP | kg CFC 11 eq. | 0,000000534 | 0,00 | 0,0000000178 | 0,00000000378 | 0,00000000245 | 0,000000000644 |
| AP | mol $H^+$ eq. | 0,00599 | 0,00 | 0,000320 | 0,000113 | 0,0000564 | 0,0000452 |
| EP-freshwater | kg $PO_4^{3-}$ eq. | 0,000121 | 0,00 | 0,00000189 | 0,00000144 | 0,000000204 | 0,000000279 |
| EP-freshwater | kg P eq. | 0,0000393 | 0,00 | 0,000000615 | 0,000000470 | 0,0000000666 | 0,0000000907 |
| EP-marine | kg N eq. | 0,00118 | 0,00 | 0,0000950 | 0,0000373 | 0,0000194 | 0,0000133 |
| EP-terrestrial | mol N eq. | 0,0152 | 0,00 | 0,00105 | 0,000418 | 0,000214 | 0,00019 |
| POCP | kg NMVOC eq. | 0,00373 | 0,00 | 0,000322 | 0,000116 | 0,0000621 | 0,0000415 |
| ADP-minerals&metals* | kg Sb eq. | 0,0000237 | 0,00 | 0,00000212 | 0,000000368 | 0,0000000544 | 0,00000150 |
| ADP-fossil* | MJ | 15,8 | 0,00 | 1,18 | 0,359 | 0,166 | 0,0540 |
| WDP | $m^3$ eq | 2,50 | 0,00 | 0,00329 | 0,00189 | 0,00744 | 0,00126 |
| 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 and voluntary indicators

| Results per declared unit | | | | | | |
|---|---|---|---|---|---|---|
| **Indicator** | **A1-A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| GWP-GHG[1] | 1,64 | 0,00 | 0,0777 | 0,0172 | 0,00583 | 0,00445 |

## Use of resources

| Results per declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| PERE | MJ | 34,6 | 0,0 | 0,0167 | 0,100 | 0,00134 | 0,00250 |
| PERM | MJ | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| PERT | MJ | 34,6 | 0,0 | 0,0167 | 0,100 | 0,00134 | 0,00250 |
| PENRE | MJ | 15,8 | 0,0 | 1,18 | 0,359 | 0,166 | 0,0540 |
| PENRM | MJ. | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| PENRT | MJ | 15,8 | 0,0 | 1,18 | 0,359 | 0,166 | 0,0540 |
| SM | kg | 10,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| RSF | MJ | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| NRSF | MJ | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| FW | $m^3$ | 0,0347 | 0,0 | 0,000124 | 0,000347 | 0,000177 | 0,000553 |
| 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] The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. This indicator is thus equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

## Waste production and output flows

### Waste production

| Results per declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| Hazardous waste disposed | kg | 0,0000232 | 0,0 | 0,00000310 | 0,000000616 | 0,000000248 | 0,000000350 |
| Non-hazardous waste disposed | kg | 0,220 | 0,0 | 0,0565 | 0,0114 | 1,13 | 0,00109 |
| Radioactive waste disposed | kg | 0,0000528 | 0,0 | 0,00000805 | 0,00000314 | 0,00000109 | 0,000000291 |

### Output flows

| Results declared unit | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Indicator** | **Unit** | **A1-A3** | **C1** | **C2** | **C3** | **C4** | **D** |
| Components for re-use | kg | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Material for recycling | kg | 1,20 | 0,0 | 0,0 | 8,27 | 0,0 | 0,0 |
| Materials for energy recovery | kg | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Exported energy, electricity | MJ | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |
| Exported energy, thermal | MJ | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 | 0,0 |

### Information on biogenic carbon content

| Results per declared unit | | |
|---|---|---|
| **BIOGENIC CARBON CONTENT** | **Unit** | **QUANTITY** |
| Biogenic carbon content in product | kg C | 0,0 |
| Biogenic carbon content in packaging | kg C | 0,0785 |

*Note: 1 kg biogenic carbon is equivalent to 44/12 kg $CO_2$.*

# VERIFICATION STATEMENT CERTIFICATE

## *CERTIFICADO DE DECLARACIÓN DE VERIFICACIÓN*

*Certificate No. / Certificado nº: EPD05802*

TECNALIA R&I CERTIFICACION S.L., confirms that independent third-party verification has been conducted of the Environmental Product Declaration (EPD) on behalf of:
TECNALIA *R&I CERTIFICACION S.L., confirma que se ha realizado verificación de tercera parte independiente de la Declaración Ambiental de Producto (DAP) en nombre de:*

**EZARRI, S.A.**
**Zubierreka Industrialdea, 58**
**20210 LAZKAO (Gipuzkoa) SPAIN**

for the following product(s):
*para el siguiente(s) producto(s):*

**'2545-A' GLASS MOSAIC**
***MOSAICO DE VIDRIO '2545-A'***

with registration number **S-P-06132** in the International EPD® System *(www.environdec.com).*
*con número de registro **S-P-06132** en el Sistema International EPD® (www.environdec.com).*

it´s in conformity with:
*es conforme con:*

- **ISO 14025:2010 Environmental labels and declarations. Type III environmental declarations.**
- **General Programme Instructions for the International EPD® System v.3.01.**
- **PCR 2019:14 Construction products (EN 15804:A2) v.1.11.**
- **UN CPC 37117 Paving blocks, bricks, tiles and other articles of pressed or moulded glass, of a kind used for building or construction purposes; leaded lights and the like; multicellular or foam glass in blocks, plates or similar forms.**

| | |
|---|---|
| Issued date / *Fecha de emisión:* | 02/06/2022 |
| Update date / *Fecha de actualización:* | 02/06/2022 |
| Valid until / *Válido hasta:* | 31/05/2027 |
| Serial Nº / *Nº Serie:* | EPD0580200-E |

Carlos Nazabal Alsua
*Manager*

ENAC
CERTIFICACIÓN
Nº 125/C-PR283

*This certificate is not valid without its related EPD.*
*Este certificado no es válido sin su correspondiente EPD.*

El presente certificado está sujeto a modificaciones, suspensiones temporales y retiradas por TECNALIA R&I CERTIFICACION.
*This certificate is subject to modifications, temporary suspensions and withdrawals by TECNALIA R&I CERTIFICACION.*

El estado de vigencia del certificado puede confirmarse mediante consulta en www.tecnaliacertificacion.com.
*The validity of this certificate can be checked through consultation in www.tecnaliacertificacion.com.*

# Additional information

The technical datasheet can be found in www.ezarri.com or contact:

Anakoz Arratibel
Production Coordinator/Quality Manager Quality department
anakoz@ezarri.com

# Information related to Sector EPD

This is an individual EPD®

# Differences versus previous versions

This is the first version of the EPD®.

# References

General Programme Instruction of the International EPD®System. Version 3.01.

ISO 14020:2000 Environmental labels and declarations-General principles.

ISO 14025:2010 Environmental labels and declarations-Type III Environmental Declarations-Principles and procedures.

ISO 14040:2006 Environmental Management-Life Cycle Assessment-Principles and framework.

ISO 14044:2006 Environmental Management-Life Cycle Assessment-Requirements and guidelines.

PCR 2019:14 Construction products. version 1.11

EN 15804:2012+A2:2019 Sustainability of construction works-Environmental Product Declarations-Core rules for the product category of construction products