



ENVIRONMENTAL PRODUCT DECLARATION

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

Çimsa ISIDAÇ40 Calcium Aluminate Cement



Programme:

The International EPD® System
www.environdec.com

Programme Operator:

EPD International AB

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EPD Turkey

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Programme Information

Programme

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Product Category Rules (PCR): 2019:14 Version 1.11, 2021-02-05, 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: Prof. Vladimír Kocí

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

Çimsa, which is an affiliate of Sabancı Holding, was established in Mersin in 1972. Today, Çimsa runs its manufacturing operations through its 5 integrated factories in Mersin, Eskişehir, Kayseri, Niğde and Afyonkarahisar, and its grinding plant in Ankara.

Being one of the leading brands in white cement around the world, Çimsa continues its operations in the international arena through Cimsa Sabanci Cement BV, which was formed by combining its operational capability with the financial strength of Sabancı Holding, its main shareholder.

Thanks to its market-oriented approach and large distribution network, Çimsa fully meets the needs of its customers in a timely manner. As a reliable business partner for its stakeholders, it provides the necessary supplies to build living spaces and infrastructure for the next generations.

Çimsa leads the Turkish cement and construction materials industry in innovation with its special products such as white cement and calcium

aluminate cement, as well as gray cement.

Driving value and focusing on profitable growth for all of its stakeholders, Çimsa also aims to maintain this in the future.

About Çimsa Sabancı Cement Bv

In line with the objective of Sabancı Holding and Çimsa to be a leading player in the global white cement market by combining their operational and financial power and to build a more efficient and stronger platform in this area, the company named Cimsa Sabanci Cement BV, located in the Netherlands, was established in November 2020, in which Sabancı Holding has a capital share of 60% and Çimsa has 40%.

Cimsa Sabanci Cement BV has become an international player in the white cement industry with its white cement factory in Valencia (Spain), which it has recently incorporated, its grinding plant in Houston (USA), and its terminals in Hamburg (Germany), Trieste (Italy) ve Sevilla (Spain).



About Product

The declared product is Çimsa ISIDAÇ40 manufactured in accordance with /EN14647/ by Çimsa. ISIDAÇ40 is defined under the special cement class. Calcium aluminate cement is composed of hydraulic calcium aluminates as main constituent.

Cement is the adhesive or glue which, when sets, binds particles of fine aggregate together to produce mortar. When mixed with water the cement forms a paste called the fine matrix.

Cements are hydraulic materials, this means that they depend upon a reaction with water rather than air for strengthening. When water is added to cement a chemical reaction called hydration commences immediately. The reaction continues while water is still present. After hardening, it retains its strength and stability even under water.

The UN CPC of product is 37440.



Usage Area

With the superior strength characteristics it has, it provides far more strength beyond grey cements and it is primarily preferred by especially dry-mix, refractory and technical concrete producers. It is preferred in the building chemicals and refractory sectors.



Technical Features

It is a calcium aluminate cement developed for the first time in Turkey by Çimsa Research and Development Center and sold to more than 60 countries with more than 20 years of experience.



Sector - Specific Advantages

It is preferred in the building chemicals and precast sector for both dosage advantage provided by high strength and also by the early manufacturing advantage. High whiteness level adds value to the products



Selling Type

Bag-Without Palette: Mersin
Bag-With Pallet: Mersin
Casting: Bulk
Bigbag: Mersin



Composition

Bauxite : 40-60 %
Limestone : 40-60 %

Please click or scan the QR code for more information about Çimsa Products



Declared Unit

1 tonne of Çimsa ISIDAÇ40 Calcium Aluminate Cement

Time Representativeness

2020

Database(s) and LCA Software Used Ecoinvent 3.6, SimaPro 9.1

The inventory for the LCA study is based on the 2020 production figures for Çimsa ISIDAÇ40 Calcium Aluminate Cement by Çimsa production plants in Mersin, Turkey.

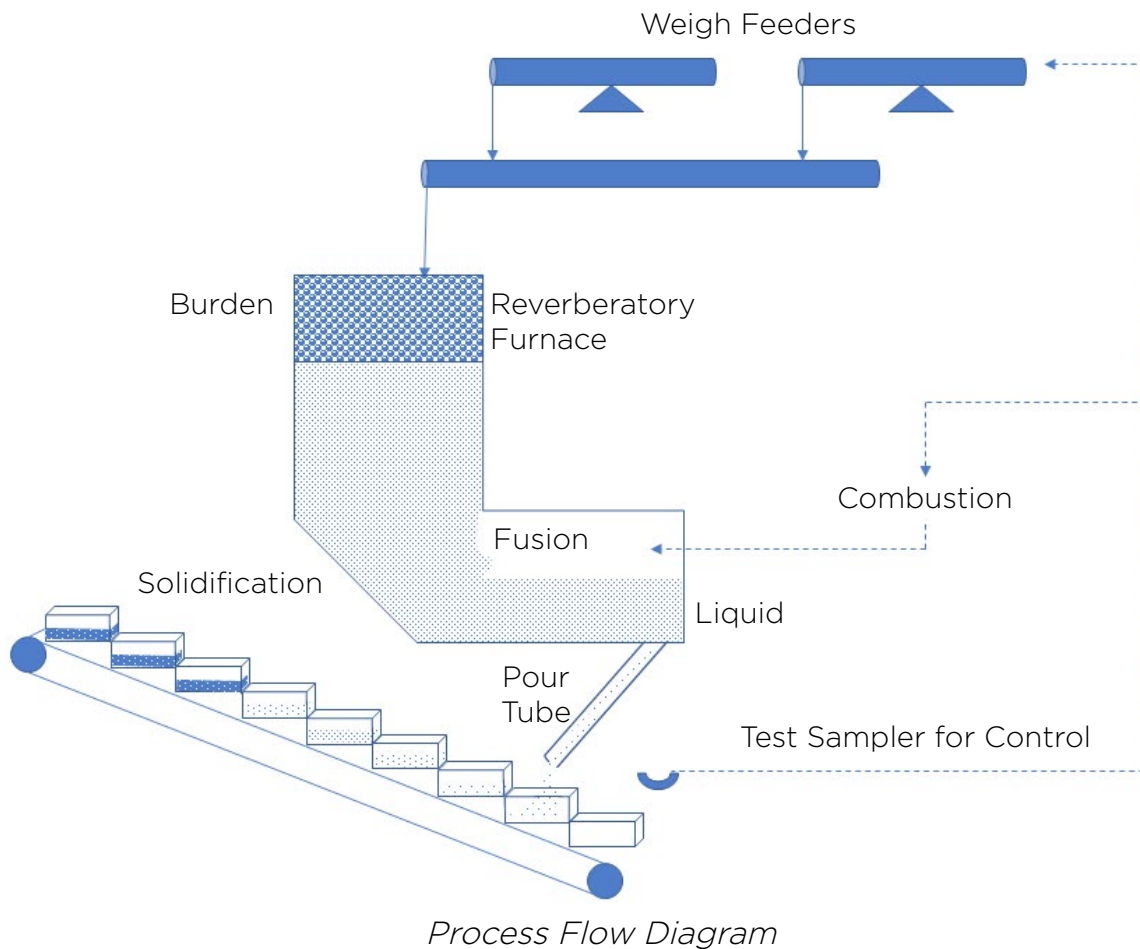
This EPD's system boundary is cradle to grave. The results of the LCA with the indicators as per EPD requirement are given in the following tables for product manufacture (A1, A2, A3), construction process stage (A4). According to EN 15804+A2:2019 standard, if the product or material is physically integrated with other products during installation then they cannot be physically separated at the end of life stage. For this reason, modules C1-C4 and Module D are excluded.

The system boundaries in tabular form for all modules are shown in the table above.

| Product Stage | | | Construction Process Stage | | Use Stage | | | | | | | End of Life Stage | | | | Benefits and Loads |
|---------------------|-----------|---------------|----------------------------|---------------------------|-----------|-------------|--------|-------------|---------------|------------------------|-----------------------|----------------------------|-----------|------------------|----------|---|
| 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 | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND | ND |

X = Included in LCA, ND = Not Declared

System Boundary



A1: Raw Material Supply

Production for each product starts with mainly locally sourced but some transported from other parts of the world. 'Raw material supply' includes raw material extraction and pretreatment processes before production.

A2: Raw Material Transport

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 2020.

A3: Manufacturing

Cement production starts with quarry operation. After the crushing and homogenization process, raw materials go to the mills. Production continue with burning and cooling. Finally, additional raw materials are added to the mixture, mixed and ready for use.

A4: Transport to Customer

Transport of final product to construction site is taken as the weight average values for transport to customers in 2020. The product shipment distance is calculated according to the domestic and international sales rates over the assumed distances. It has been accepted as an average of 250 km by road.

Allocations

Water consumption, energy consumption and raw material transportation were weighted according to 2020 production figures.

In addition, hazardous and non-hazardous waste amounts were also allocated from the 2020 total waste generation.

Cut-Off Criteria

1% cut-off applied. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

REACH Regulation

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

LCA Modelling, Calculation and Data Quality

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-product allocations within the LCA study underlying this EPD.

The SimaPro 9.1 LCA software and the Ecoinvent 3.6 LCA database were used to calculate the environmental impacts. The regional energy datasets were used for all energy calculations.

Geographical Scope

The geographical scope of this EPD is global.



LCA Results

| Environmental Impacts for 1 tonne Çimsa ISIDAÇ40 Calcium Aluminate Cement | | | |
|---|---|---------|---------|
| Impact Category | Unit | A1-A3 | A4 |
| GWP - Fossil | kg CO ₂ eq | 963 | 23.4 |
| GWP - Biogenic | kg CO ₂ eq | -1.23 | 0.013 |
| GWP - Luluc | kg CO ₂ eq | 0.201 | 0.007 |
| GWP - Total | kg CO ₂ eq | 962 | 23.5 |
| ODP | kg CFC-11 eq | 38.6E-6 | 5.32E-6 |
| AP | mol H+ eq | 5.74 | 0.100 |
| EP - Freshwater | kg P eq | 0.232 | 0.002 |
| *EP - Freshwater | kg PO ₄ eq | 0.709 | 0.006 |
| EP - Marine | kg N eq | 0.947 | 0.030 |
| EP - Terrestrial | mol N eq | 10.2 | 0.327 |
| POCP | kg NMVOC | 4.21 | 0.104 |
| ADPE | kg Sb eq | 0.001 | 394E-6 |
| ADPF | MJ | 6551 | 358 |
| WDP | m ³ depriv. | 52.9 | 1.30 |
| PM | disease inc. | 74.7E-6 | 2.09E-6 |
| IR | kBq U-235 eq | 40.2 | 1.70 |
| ETP - FW | CTUe | 25979 | 307 |
| HTTP - C | CTUh | 3.51E-6 | 7.09E-9 |
| HTTP - NC | CTUh | 7.36E-6 | 328E-9 |
| SQP | Pt | 1349 | 405 |
| 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. | | |
| 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. | | |
| *Disclaimer 3 | EP-freshwater: This indicator has been calculated as "kg P eq" as required in the characterization model. (EUTREND model, Struijs et al, 2009b, as implemented in ReCiPe; http://eplca.jrc.ec.europa.eu/LCDN/developerEF.xhtml) | | |

| Resource Use for 1 tonne Çimsa ISIDAÇ40 Calcium Aluminate Cement | | | |
|--|---|-------|-------|
| Impact Category | Unit | A1-A3 | A4 |
| PERE | MJ | 281 | 3.85 |
| PERM | MJ | 0 | 0 |
| PERT | MJ | 281 | 3.85 |
| PENRE | MJ | 0 | 0 |
| PENRM | MJ | 6551 | 358 |
| PENRT | MJ | 0 | 0 |
| SM | kg | 6551 | 358 |
| RSF | MJ | 0 | 0 |
| NRSF | MJ | 0 | 0 |
| FW | m ³ | 1.97 | 0.075 |
| 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. | | |
| Legend | A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3, A4: Transport to Site. | | |

| Waste&Output Flows for 1 tonne Çimsa ISIDAÇ40 Calcium Aluminate Cement | | | |
|--|--|-------|----|
| Impact Category | Unit | A1-A3 | A4 |
| HWD | kg | 0.041 | 0 |
| NHWD | kg | 0.490 | 0 |
| RWD | kg | 0 | 0 |
| CRU | kg | 0 | 0 |
| MFR | kg | 0 | 0 |
| MER | kg | 0 | 0 |
| EE (Electrical) | MJ | 0 | 0 |
| EE (Thermal) | MJ | 0 | 0 |
| Acronyms | 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. | | |
| Legend | A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A1-A3: Sum of A1, A2, and A3, A4: Transport to Site. | | |

References

/GPI/ General Programme Instructions of the International EPD® System. Version 4.0.

/EN ISO 9001/ Quality Management Systems - Requirements

/EN ISO 14001/ Environmental Management Systems - Requirements

/EN ISO 50001/ Energy Management Systems - Requirements

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

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

/ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

/ISO 14040/44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)






/PCR for Construction Products and CPC 54 Construction Services/ Prepared by IVL Swedish Environmental Research Institute, Swedish Environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, The International EPD System, 2019:14 Version 1.11 DATE 2019-12-20

/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

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