

Environmental Product Declaration



ENVIRONMENTAL FOOTPRINT INSTITUTE

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

Interlocks

Gulf Toub Cement LLC

Programme :	The EFI Program
Programme Operator :	The Environment Footprint Institute
EPD Registration No :	260905EPD CPR-3100
Issue Date :	23-09-2026
Valid Until :	22-09-2031
Geographical Scope :	United Arab Emirates
Reference Year :	2025

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 Gulf Toub Cement LLC





ENVIRONMENTAL FOOTPRINT INSTITUTE

General Information

Programme :	The EFI Programme
Address :	The Environment Footprint Institute Calle Circe 49A Madrid, Spain
Website : Email :	www.environmentalfootprintinstitute.com info@environmentalfootprintinstitute.com

Product Category Rules (PCR)

Product Category Rules (PCR)

PCR review was conducted by: The Environmental Footprint Institute.

Product category rules (PCR): Under the general rules of the Environmental Footprint Institute and PCR P-3100: Construction products in general (EN-15804)

Complementary PCR : EN 16757:2022 for concrete and concrete elements.

Life Cycle Assessment (LCA)

LCA accountability: Mehmood Khan, CQES International LLC



☐ Internal Verification

☒ Third Party Verification

Accredited by: THE ENVIRONMENTAL FOOTPRINT INSTITUTE

Third party verifier: Iván Jiménez
Calle Circe 49A Madrid, Spain

www.environmentalfootprintinstitute.com
info@environmentalfootprintinstitute.com



ENVIRONMENTAL FOOTPRINT INSTITUTE

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

☐ Yes

☒ No

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

EPDs within the same product category but registered in different EPD programs 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 characterization factors); have equivalent content declarations; and be valid at the time of comparison.



Company Information

Owner of the EPD :

Gulf Toub Cement LLC

Contact : Mohammed Raihan

Email: gc@gulf-toub.com

Our company has been a dedicated manufacturer of high-quality concrete products for over a decade, driven by an experienced team committed to innovation and excellence in everything we do. Utilizing state-of-the-art plants and the latest technology, we produce concrete products quickly and efficiently while maintaining the highest standards of quality.

Our operations align with the high standards set by the UAE's construction materials industry, exemplified by Gulf Cement Company (GCC)—a regional leader established in 1977 that has grown into one of the nation's most established industrial cement manufacturers.

GCC has a strong legacy of adopting advanced technologies, being the first in the region to introduce high-efficiency bag filter house technology for environmental performance and pioneering advanced dome silo technology for clinker storage, reflecting a market standard of superior quality and reliability. With GCC operating a significant manufacturing facility in Dubai (UAE) and boasting substantial annual production capacity, our team embodies this same spirit of innovation and excellence, making us a trusted partner in the region's continued growth and development.

Certifications



The data and environmental performance presented in this EPD are supported by our company's certified management systems. We operate under ISO 9001 (Quality Management), ISO 14001 (Environmental Management), and ISO 45001 (Occupational Health and Safety Management) certifications. ISO 14001 ensures systematic identification, monitoring, and control of environmental aspects associated with concrete block production, while ISO 9001 and ISO 45001 guarantee that the product is manufactured under controlled, consistent, and safe operational conditions. Additionally, our facility is certified under the Dubai Central Laboratory (DCL) product conformity scheme, confirming compliance of our concrete masonry blocks, interlocks and Kerbstones with applicable UAE technical requirements. This integrated management and certification framework enhances the reliability, traceability, and robustness of the life cycle inventory data used in this EPD.



Product Information

Product Name : **Interlocks**

Product identification :

This Environmental Product Declaration (EPD) represents the range of concrete interlocking paving blocks (Interlocks) manufactured at the production facility during the defined reference period. The environmental performance results are calculated on a per-tonne basis, using the total production volume and aggregated consumption of raw materials, energy, and water, together with the waste generated and emissions associated with the manufacturing process. The results are representative of the Interlocks covered by the defined product scope and production conditions.

UN CPC Code

UN CPC 37540 – Tiles, flagstones, bricks and similar articles, of cement, concrete or artificial stone.

Reference Service Life (RSL)

100 years (standard practice for concrete masonry products)

Geographical Scope

United Arab Emirates

Location of Production Site :

Saih Shuaib 4, Dubai Industrial City, Dubai, United Arab Emirates

Product Picture & Sizes :

Product Type	Size (mm)	Thickness (mm)	Unit Weight (kg)
 Rectangular	200x100	60 80 100	2.85 3.80 4.80
 80mm Tegula	160x120 240x180 160x160	80 80 80	3.80 7.20 4.6
 Uni-Pavers	225x112.5	60 80 100	3.61 4.81 6.01
 Octagonal	197x197	60	5.53
 I-Shape	200x80	60	2.7
 Cube	80x80	60	0.91
 Square	100x100	60 80	1.38 1.88
 Square	200x200	60	5.70
 Square	300x300	60	13.7

Product Type	Size (mm)	Thickness (mm)	Unit Weight (kg)
 Rhombus	160*80	60	3.45
 Ladana	193/160X80	60	4.5
 La-Plaza	283x100/200	60	7.20
 Marbella	400/200X100	60	4.23



Product Picture & Sizes :

Concrete Interlocks are factory-produced precast concrete paving units manufactured by Gulf Toub Cement LLC for use in roads, pavements, pedestrian areas, parking areas, landscaping, and other external hardscape applications. The products are manufactured through a controlled process involving the batching and mixing of cement, natural aggregates, recycled aggregates where applicable, and water, followed by moulding, compaction, and curing.

The product family covered by this EPD includes Interlocks manufactured in different sizes, shapes, thicknesses, and configurations according to their intended application. The products are designed to provide the required mechanical strength, dimensional stability, durability, and resistance to environmental conditions. Product properties such as compressive strength, density, water absorption, dimensional tolerances, and other performance characteristics depend on the specific Interlock type and configuration.

LCA Information

Declared Unit :

The declared unit is 1 tonne (1,000 kg) of concrete Interlocks, representing the weighted-average production of concrete Interlocks manufactured at the Gulf Toub Cement LLC production facility during the reference period. All environmental impacts, resource use, waste flows, and emissions are reported with reference to this declared unit, in accordance with the applicable requirements of EN 15804.

Time Representativeness :

The Life Cycle Inventory (LCI) data used in this EPD are representative of production activities during the reference period from January 2025 to December 2025.

Database(s) and LCA software used:

The LCA modelling and impact calculations were performed using Air.e LCA™ software (version 3.22.0.7) in combination with the Ecoinvent™ database (version 3.11.0). The EN 15804 system model was applied for the assessment of environmental impacts, using the characterization factors from EN 15804:2012+A2:2019.

Electricity usage in A3 :

A specific dataset with the Life Cycle Inventory (LCI) corresponding to the electricity mix in UAE, has been used for this LCA. 0.6279 kg CO₂eq/kWh (GWP-GHG).

Cut-off rules:

More than 99% of the materials and energy consumption have been included. The Polluter Pays Principle and the Modularity Principle have been followed.

Allocation method:

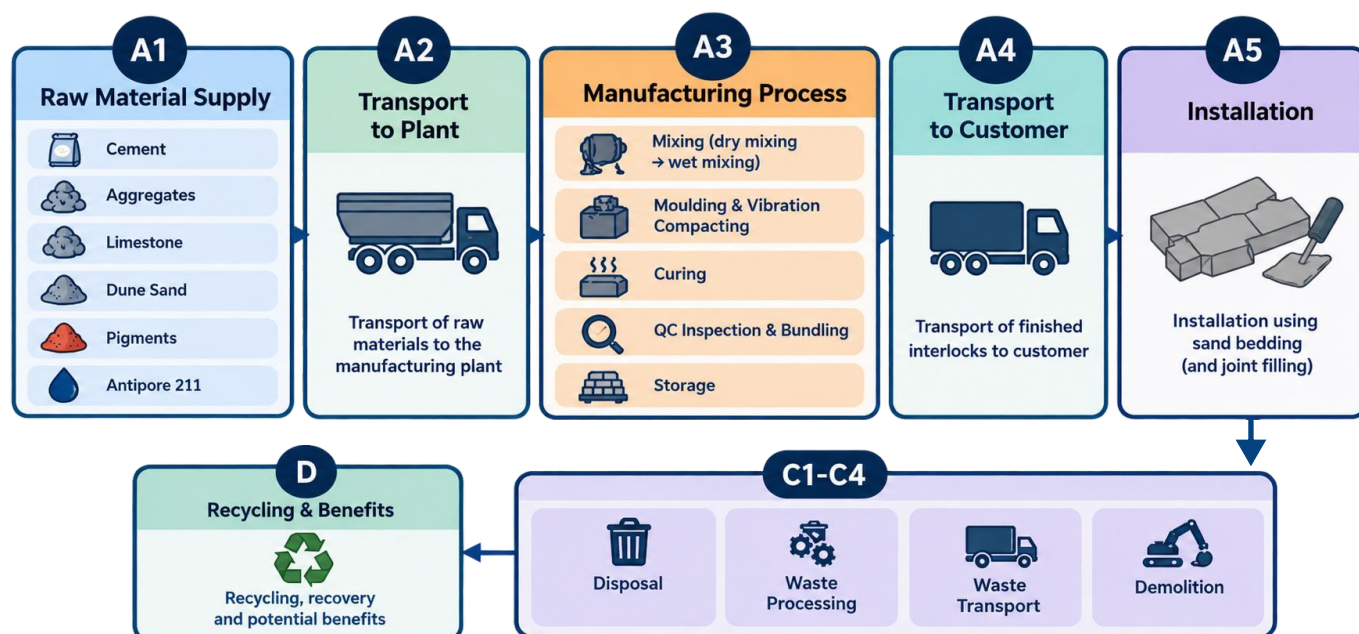
No allocation was required, as the production of concrete Interlocks does not generate co-products with economic value. Where allocation was required for background datasets, the allocation rules applied within the selected databases and system model were followed in accordance with EN 15804.

Description of system boundaries:

This EPD follows a cradle-to-gate with options approach in accordance with EN 15804. It covers Modules A1–A3 (raw material supply, transport, and manufacturing), Module A4 (transport to the construction site), and Module A5 (installation at the construction site).

In addition, end-of-life Modules C1–C4 (deconstruction/demolition, transport, waste processing, and disposal) and Module D (benefits and loads beyond the system boundary) are included based on standardized and scenario-based assumptions applicable to Interlock.

Use-stage Modules B1–B7 are excluded from the declared scope of this EPD. In accordance with EN 16757, carbonation (CO₂ uptake) during the use stage is not considered in this EPD and is therefore excluded from Module B.



Core Processes

Upstream Stage

This stage includes the extraction, processing, production, and transportation of raw materials used in the production of concrete Interlocks at Gulf Toub Cement LLC.

A1-Raw Material Supply: Module A1 covers the extraction, processing, production, and upstream supply of the raw materials used in the manufacture of concrete Interlocks at the Gulf Toub Cement LLC production facility. The raw materials considered in Module A1 include Ordinary Portland Cement (OPC), 10–20 mm limestone, 5–10 mm gabbro aggregate, 0–2 mm fine aggregate, dune sand, admixture and water. The A1 module accounts for the environmental impacts associated with the extraction and processing of natural aggregates, production of OPC, and production and supply of water. The associated upstream energy consumption, resource use, emissions, and other environmental burdens related to the supply of these raw materials are included in this module.

A2 - Transport: The A2 module includes the transportation of the above raw materials from their respective suppliers or sources to the Gulf Toub Cement LLC manufacturing facility in the UAE. Transportation is modelled using the weighted-average transport distances and transport modes for the 2025 reference period, based on the quantities of raw materials supplied to the facility.

- Vehicle used for transport - freight, lorry, 16-32 metric ton, diesel, EURO 5
- Vehicle capacity - average load 5.79 tons and GVW 25 tons
- Fuel type and consumption - Diesel, as per ecoinvent
- Bulk transportation - Mass of the transported product.



A3 - Manufacturing:

Module A3 covers all manufacturing processes carried out at the Gulf Toub Cement LLC production facility, from the receipt and handling of raw materials through batching, mixing, moulding, compaction, curing, and final production of concrete Interlocks. The raw materials used in the manufacturing process include Ordinary Portland Cement (OPC), 10–20 mm limestone, 5–10 mm gabbro aggregate, 0–2 mm fine aggregate, dune sand, concrete admixture (Ha-Be), and water. The module also includes the consumption of electricity and diesel associated with manufacturing activities, where applicable, together with associated emissions and the generation and management of production waste.

During the 2025 reference period, the total production of concrete Interlocks was 17,566.11 tonnes, with approximately 876 tonnes of production waste generated during manufacturing. The production waste consists primarily of fresh concrete residues, off-specification Interlocks, and other manufacturing residues. Where applicable, the production waste is collected, crushed, and internally recovered within the manufacturing process. The electricity consumption associated with crushing the production waste is assumed to be 1.5 kWh per tonne of waste.

A4 - Transportation of Goods:

Module A4 covers the transportation of finished interlocks from the Gulf Toub Cement LLC manufacturing facility to customers or distribution points. Transportation is carried out using Euro 5 diesel trucks, including 3.5–7.5 tonne and >32 tonne vehicles, with carrying capacities of 3.5–7.5 tonnes and 25 tonnes, respectively. Transport impacts are calculated based on the mass of the product and the applicable transportation distance on a tonne-kilometre basis, using the relevant transport datasets.

A5 - Installation :

Module A5 covers the installation of concrete Interlocks at the construction site, including the use of bedding and jointing sand and the energy required for mechanical compaction. The Interlocks are installed over a compacted bedding sand layer, followed by jointing with sand. A diesel-powered plate compactor is used for final compaction. The environmental impacts associated with the production and supply of installation materials and fuel consumption are included in Module A5.

C1 – Deconstruction / Demolition :

Module C1 covers the demolition and removal of the Interlocks at the end of their service life. The demolition process is assumed to be carried out using diesel-powered construction machinery, with an energy consumption of 0.01 kWh/kg (10 kWh/tonne) of demolished product. This value is based on commonly applied demolition energy assumptions for concrete construction products, including the approach documented in concrete-related EPDs and based on Bozdağ & Seçer (2007).

C2 – Transport :

Module C2 includes the transportation of demolished or removed concrete Interlocks from the site to recycling, recovery, or disposal facilities. Transport is carried out using Euro 5 diesel trucks. An average transport distance of 50 km by road is assumed. Transport impacts are calculated based on the mass of the transported material and the transportation distance on a tonne-kilometre basis.

C3 – Waste Processing

Module C3 covers the processing of removed concrete Interlocks for recycling. The Interlocks are assumed to be collected, sorted, crushed, and screened to produce recycled concrete aggregate suitable for subsequent use in construction applications. The electricity consumption associated with crushing and screening is included in this module.



Material losses generated during processing are assumed to be managed according to applicable waste-management practices.

C4 – Disposal :

The end-of-life scenario for Concrete Interlocks in the UAE is based on the latest available regional waste stream analysis for construction and demolition waste (C&DW). Concrete and masonry fractions constitute approximately 80% of all C&DW by weight in the UAE (Dubai Municipality, 2019).

Despite national policies aiming for 75% diversion of C&DW from landfills, the recycling rate for the inert concrete/masonry fraction remains low, estimated at approximately 5% (ibid.). This recycling is assumed to represent downcycling of concrete waste for use as fill material or sub-base in civil engineering applications, while closed-loop recycling into new concrete products is considered negligible.

Therefore, a conservative end-of-life distribution of 95% to landfill and 5% to recycling is applied to the concrete Interlock fraction in this EPD. No incineration is assumed.

Module D – Benefits and Loads Beyond the System Boundary :

The potential benefits from recycling 5% of the concrete Interlock fraction are calculated based on the avoidance of virgin aggregate production. The recycled concrete aggregate (RCA) is assumed to substitute natural aggregate in road sub-base applications.

The burdens associated with processing the recycled concrete, including energy consumption for crushing, are accounted for in Module C3, while the disposal burdens associated with the 95% landfill scenario are accounted for in Module C4.

Accordingly, Module D accounts only for the potential credit associated with avoiding virgin aggregate production through the recycling of 5% of the concrete Interlock fraction. No recycling or recovery benefit is assumed for the remaining 95% disposed of in landfill.

More Information

Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

Module	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 and water use	De-construction demolition	Transport	Waste processing	Disposal	Reuse-Recovery- Recycling-potential
	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	D
Modules declared	X	X	X	X	X	ND	X	X	X	X	X
Geography	AE	AE	AE	AE	AE	--	AE	AE	AE	AE	AE
Specific data used	>10%			--	--	--	--	--	--	--	--



Assumptions :

This EPD is based on specific 2025 production data from Gulf Toub Cement LLC, Dubai, UAE, with a declared unit of 1 tonne (1,000 kg) of finished Concrete Interlocks. The reference production is 17566.11 tonnes, with 876 tonnes of production waste (including evaporation and dust) assumed to be crushed and internally reused, using 1.5 kWh of electricity per tonne of waste processed. End-of-life recycling is limited to the scenarios defined in Modules C4 and D. Installation includes diesel-powered mechanical compaction, assumed at 1.11 L of diesel per tonne of installed Interlocks.

Content Information

Product Content:

Product Components	Weight %	Post-Consumer material weight -%	Biogenic material, kg C/kg
Cement	15-20	0	0
Aggregate (5-10 mm)	15-20	0	0
Aggregate (0-5 mm)	35-45	0	0
Aggregate (0-2 mm)	5-10	0	0
Admixture (Ha-Be)	0.2-0.5	0	0
Dune Sand	5-10	0	0
Water	4-6	0	0
Total	100	0	0

Packaging Material Content:

Packaging Material	Weight (ton)/DU	Weight % (Versus the Product)	Weight biogenic carbon, kg C/kg
Nylon Straps	1.31E-04	1.31E-02	0.00E+00

Dangerous substances from the candidate list of SVHC for Authorisation:

Dangerous substances from the candidate list of SVHC for Authorisation:	EC No.	CAS No.	Weight-% per declared unit
None	--	--	--
None	--	--	--

Biogenic carbon content:

Biogenic carbon content	A1-A3/Unit
Biogenic carbon content in product	0.00E+00 kg C
Biogenic carbon content in accompanying packaging	0.00E+00 kg C



Manufacturing Process:

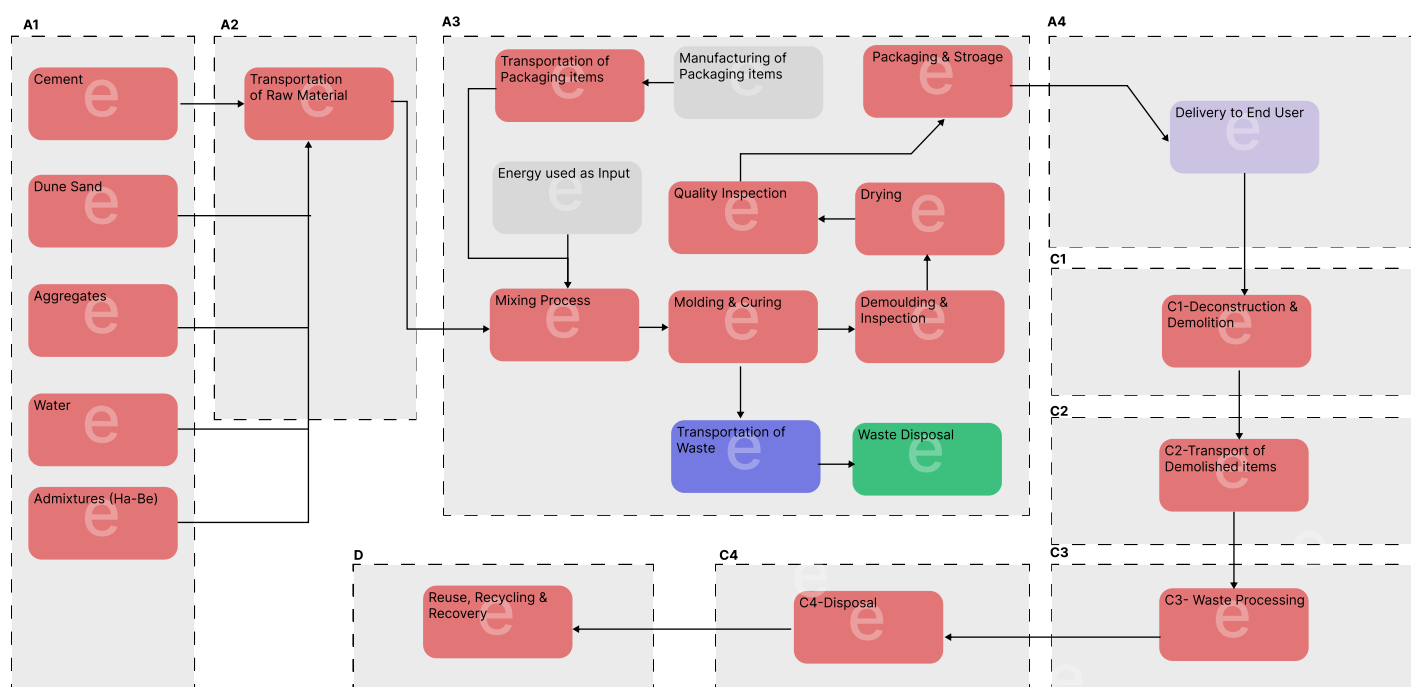
The manufacturing process for Concrete Interlocks begins with the controlled batching of cement, 5–10 mm aggregate, 0–5 mm aggregate, 0–2 mm aggregate, dune sand, Ha-Be admixture, and water according to the specified mix design. The materials are accurately proportioned and mixed to produce a homogeneous concrete mixture.

The fresh concrete is then transferred to the Interlock manufacturing machine, placed into the moulds, and mechanically compacted and vibrated to achieve the required shape, dimensions, density, and strength. The moulded Interlocks are subsequently cured under controlled conditions for the required curing period. After curing, the products are demoulded, inspected, identified for traceability, and transferred to the storage yard for dispatch. Quality control is carried out throughout the process to verify product quality and manufacturing requirements.

Technical information:

For more technical information about the Interlock, please refer to the product TDS.

Life Cycle Assessment Modelling



Data quality:

This EPD was developed in compliance with ISO 14025, ISO 14040/14044, and the core rules of EN 15804:2012+A2:2019, following PCR-3100 for construction products (UN CPC 37540). Primary, site-specific data for the 2025 reference period were collected for raw material supply, transport, and manufacturing (Modules A1-A3) at the Gulf Toub Cement facility in Dubai, UAE. Background system data were sourced from the Ecoinvent 3.11.0 database.

The LCA was modelled using Air.e LCA software v3.22.0.7, applying EN 15804 characterization factors. Data quality objectives prioritized temporal, geographical, and technological representativeness, with over 90% of the mass and energy flows in Modules A1-A3 based on measured plant data.



Environmental Performance

Potential Environment Impacts: The following tables present the environmental performance for the declared unit of 1,000 kg of Concrete Interlocks produced by Gulf Toub Cement LLC, Dubai, UAE. Due to the integrated nature of the production facility and the shared use of manufacturing equipment and utilities, it was not feasible to separately measure the consumption of electricity, water, and certain raw materials exclusively for the Concrete Interlock product. Consequently, the Life Cycle Inventory (LCI) was calculated using the available annual plant consumption data and allocated to the Concrete Interlock product based on the applicable production mass share.

The estimated impact results are relative indicators and do not indicate impact category endpoints, exceedance of threshold values, safety margins, or risks.

Core Environmental Impact Indicators

Impact category indicators according to EN 15804 (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-Total	kg CO ₂ eq.	2.20E+02	1.77E+01	7.78E+00	ND	ND	ND	ND	ND	ND	ND	3.62E+00	9.90E+00	1.60E+01	5.95E+00	-2.02E-01
GWP-fossil	kg CO ₂ eq.	2.20E+02	1.77E+01	7.71E+00	ND	ND	ND	ND	ND	ND	ND	3.62E+00	9.89E+00	1.59E+01	5.94E+00	-2.02E-01
GWP-biogenic	kg CO ₂ eq.	1.70E-01	3.98E-03	6.73E-02	ND	ND	ND	ND	ND	ND	ND	3.61E-04	2.27E-03	1.76E-02	1.84E-03	-9.41E-06
GWP-luluc	kg CO ₂ eq.	6.13E-02	7.95E-03	2.77E-03	ND	ND	ND	ND	ND	ND	ND	3.71E-04	4.54E-03	2.60E-02	3.41E-03	-8.38E-06
ODP	kg CFC 11 eq.	1.64E-06	2.25E-07	1.07E-07	ND	ND	ND	ND	ND	ND	ND	5.38E-08	1.34E-07	2.57E-07	1.66E-07	-3.06E-09
AP	mol H ⁺ eq.	6.96E-01	6.05E-02	6.08E-02	ND	ND	ND	ND	ND	ND	ND	3.24E-02	2.37E-02	1.20E-01	4.16E-02	-1.86E-03
EP-freshwater	kg P eq.	2.25E-02	1.94E-03	7.24E-04	ND	ND	ND	ND	ND	ND	ND	1.17E-04	1.08E-03	8.92E-03	5.20E-04	-2.55E-06
EP-marine	kg N eq.	2.09E-01	1.93E-02	2.55E-02	ND	ND	ND	ND	ND	ND	ND	1.51E-02	5.52E-03	3.96E-02	1.60E-02	-8.83E-04
EP-terrestrial	mol N eq.	2.31E+00	2.09E-01	2.77E-01	ND	ND	ND	ND	ND	ND	ND	1.65E-01	5.88E-02	4.27E-01	1.75E-01	-9.65E-03
POCP	kg NMVOC eq.	7.23E-01	8.20E-02	8.47E-02	ND	ND	ND	ND	ND	ND	ND	4.94E-02	3.21E-02	1.39E-01	6.30E-02	-2.88E-03
ADP-minerals & metals*	kg Sb eq.	6.74E-04	5.81E-05	1.62E-05	ND	ND	ND	ND	ND	ND	ND	1.26E-06	3.30E-05	4.09E-05	8.65E-06	1.71E-08
ADP-fossil*	MJ	1.38E+03	2.24E+02	9.21E+01	ND	ND	ND	ND	ND	ND	ND	4.35E+01	1.25E+02	2.22E+02	1.33E+02	-2.44E+00
WDP*	m ³	2.24E+01	1.39E+00	1.32E+01	ND	ND	ND	ND	ND	ND	ND	1.37E-01	7.99E-01	-6.24E+01	6.46E+00	7.30E-03
PM	U235e	1.21E-05	1.05E-06	1.55E-06	ND	ND	ND	ND	ND	ND	ND	9.25E-07	7.20E-07	9.78E-06	9.57E-07	-4.26E-07
IRP	D.I	2.71E+00	1.51E-01	3.31E-01	ND	ND	ND	ND	ND	ND	ND	2.01E-02	1.12E-01	4.29E-01	8.72E-02	-1.41E-04
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															

Note on Declared Modules:

*CO₂ emissions from fuel combustion in A3 were calculated using standard carbon content factors and the 44/12 molecular weight ratio, in accordance with IPCC guidelines.



Use of Natural Resources

Resource use indicators (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
PERE	MJ	6.34E+01	3.41E+00	6.85E-01	ND	ND	ND	ND	ND	ND	ND	2.96E-01	1.93E+00	7.80E+00	1.36E+00	1.80E-02
PERM	MJ	0.00E+00	0.00E+00	1.20E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	5.96E+01	3.41E+00	1.89E+00	ND	ND	ND	ND	ND	ND	ND	2.96E-01	1.93E+00	7.80E+00	1.36E+00	1.80E-02
PENRE	MJ	1.77E+03	2.45E+02	1.01E+02	ND	ND	ND	ND	ND	ND	ND	4.72E+01	1.37E+02	2.52E+02	1.46E+02	2.86E+00
PENRM	MJ	7.39E+01	0.00E+00	7.87E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.72E+03	2.45E+02	1.02E+02	ND	ND	ND	ND	ND	ND	ND	4.72E+01	1.37E+02	2.52E+02	1.46E+02	2.86E+00
SM	kg	4.92E-01	1.08E-01	5.35E-02	ND	ND	ND	ND	ND	ND	ND	1.95E-02	6.12E-02	9.43E-02	3.62E-02	1.18E-03
RSF	MJ	4.01E+01	1.40E-03	3.61E-04	ND	ND	ND	ND	ND	ND	ND	5.12E-05	7.94E-04	1.15E-03	7.56E-04	3.10E-06
NRSF	MJ	1.31E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m³	9.22E+02	3.39E-02	3.08E-01	ND	ND	ND	ND	ND	ND	ND	3.33E-03	1.95E-02	-1.45E+00	1.51E-01	2.02E-04
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															

Environmental Impact -GWP-GHG

Additional mandatory and voluntary impact category indicators (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG	kg CO ₂ eq.	2.22E+02	1.79E+01	7.92E+00	ND	ND	ND	ND	ND	ND	ND	3.68E+00	9.97E+00	1.62E+01	6.09E+00	2.23E-01

End of Life - Outflows

Output flow indicators (Results per declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Material for recycling	kg	3.64E-02	2.77E-03	3.24E-03	ND	ND	ND	ND	ND	ND	ND	2.10E-04	1.57E-03	6.64E-03	1.58E-03	1.27E-05
Materials for energy recovery	kg	1.74E-04	1.64E-05	4.17E-06	ND	ND	ND	ND	ND	ND	ND	6.70E-07	9.30E-06	1.55E-05	2.80E-06	4.07E-08
Exported energy, electricity	MJ	2.55E-01	2.05E-02	1.37E-02	ND	ND	ND	ND	ND	ND	ND	2.23E-03	1.16E-02	4.99E-02	9.45E-03	1.35E-04
Exported energy, thermal	MJ	1.87E-01	3.65E-02	9.18E-03	ND	ND	ND	ND	ND	ND	ND	1.05E-03	2.07E-02	2.01E-02	5.02E-03	6.34E-05

End of Life - waste

Waste indicators (Results per functional or declared unit)																
Indicator	Unit	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste disposed	kg	6.29E+00	5.61E-01	2.22E-01	ND	ND	ND	ND	ND	ND	ND	5.29E-02	3.13E-01	6.69E-01	1.66E-01	3.21E-03
Non-hazardous waste disposed	kg	1.98E+02	1.08E+01	4.47E+00	ND	ND	ND	ND	ND	ND	ND	7.71E-01	6.03E+00	1.07E+03	3.83E+00	4.68E-02
Radioactive waste disposed	kg	6.78E-04	4.85E-05	3.05E-05	ND	ND	ND	ND	ND	ND	ND	4.93E-06	2.73E-05	1.04E-04	2.12E-05	2.99E-07



Additional information

No additional information is provided.

Information related to Sector EPD

This is not sector EPD.

Differences versus previous versions

This is the first version of the EPD.

References

LCA Report: Life Cycle Inventory of Gulf Toub Cement LLC, Dubai (UAE).

Software: Air.e LCA Version 3.22.0.7 www.solidforest.com

Main database: Ecoinvent 3.11.0 www.ecoinvent.org

Geographical scope of the EPD: United Arab Emirates

ISO 14040:2006 "Environmental management -- life cycle assessment -- principles and framework";

ISO 14044:2006 "Environmental management -- life cycle assessment -- requirements and guidelines";

ISO 14020:2000 "Environmental Labels and declarations - General Principles

ISO 14025:2006 "Environmental labels and declarations -- type III environmental declarations - principles and procedures".

EN 15804+A2:2019/AC:2021 European Committee for Standardization: Sustainability of construction works – Environmental product declarations – Core rules for the product category of construction products.

Dubai Municipality. (2019). Title of the specific report on Construction and Demolition Waste Management in Dubai. Dubai, United Arab Emirates.

Ministry of Climate Change and Environment (MOCCAE). (2019). Ministerial Resolution No. 21 of 2019 on the Use of Recycled Aggregates from Construction and Demolition Waste. United Arab Emirates.

Bozdağ, Ö. & Seçer, M. (2007), [demolition energy consumption basis] — commonly cited as 10 kWh/m² for demolition. Using an assumed average concrete building mass of 1,000 kg/m², this corresponds to 0.01 kWh/kg or 10 kWh/tonne.

U.S. Environmental Protection Agency (EPA). (2006). AP-42, Fifth Edition, Volume I, Chapter 11, Section 11.12: Concrete Batching. June 2006. Office of Air Quality Planning and Standards, Research Triangle Park, NC.



GULF TOUB CEMENT

**Saih Shuaib 4, Dubai Industrial City,
Dubai, United Arab Emirates
Phone: +971 4 304 5555**