Environmental Product Declaration

ENVIRONMENTAL FOOTPRINT INSTITUTE

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

Thermal Insulation Blocks

Gulf Toub Cement LLC

Programme :	**The EFI Program**
Programme Operator :	**The Environment Footprint Institute**
EPD Registration No :	**260903EPD CPR-3100**
Issue Date :	18-09-2026
Valid Until :	17-09-2031
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

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
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: qc@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 : **Thermal Insulated Blocks**

Product identification :

The results presented in this EPD are representative of all thermal insulated concrete masonry blocks manufactured at our production facility. The results are calculated on a per-ton basis, derived from the total production volume and the aggregated consumption of raw materials, energy, and water, as well as the total generation of waste and emissions associated with concrete block manufacturing during the defined reference period.

UN CPC Code	UN CPC 37520 - Concrete blocks, bricks, and other masonry products"
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 :

Product Description :

Thermal Insulated Concrete Masonry Blocks are factory-produced precast concrete masonry units consisting of two outer leaves of normal-weight concrete sandwiching an expanded polystyrene (EPS) insulation core. The products covered by this EPD are manufactured by Gulf Toub Cement L.L.C. and are designed for use primarily in the outer walls of buildings, where they provide thermal insulation against high temperatures, reducing the need for internal air conditioning and contributing to lower energy consumption within the building.

The thermal insulated blocks are manufactured using a controlled industrial production process in which normal-weight concrete is combined with an expanded polystyrene insert to form an integrated insulated masonry unit. The product family includes thermal blocks with 60 mm, 110 mm, and 160 mm expanded polystyrene inserts, depending on the block thickness and configuration. The thermal insulated blocks are manufactured in accordance with BS EN 771-3, with a dimensional tolerance of ±3 mm in accordance with BS EN 772-16.

The thermal insulated blocks have a mean compressive strength of 7.5 N/mm², determined in accordance with BS EN 6073: Part 2. The gross dry density varies depending on the block configuration and insulation insert, with the specified values ranging from approximately 930 to 1450 kg/m³ in the product range. The expanded polystyrene insert has a density of 25 kg/m³, in accordance with ASTM C578, and a maximum thermal conductivity of 0.0377 W/m·K. The blocks have acid-soluble chloride content of less than 0.06% and sulphate content of less than 0.40%, in accordance with BS 1881-124.

DESCRIPTION	SIZE MM	Block Density Kg/M3	WEIGHT KG
THERMAL INSULATED 10" (EP 6cm)	400 x 250 x 200	1330	26
THERMAL INSULATED 8"	400 x 200 x 200	1410	22.5
THERMAL INSULATED 10" (EP 11cm)	400 x 250 x 200	1120	23
THERMAL INSULATED 12" (EP 6cm)	400 x 300 x 200	1330	32
THERMAL INSULATED 12" (EP16cm)	400 x 300 x 200	980	24

LCA Information

Declared Unit :

1 tonne (1,000 kg) of thermal insulated concrete masonry blocks, representing the weighted-average production of thermal insulated concrete masonry blocks manufactured at the Gulf Toub Cement LLC production facility. All environmental impacts and resource use are reported with reference to this declared unit, in accordance with the 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:

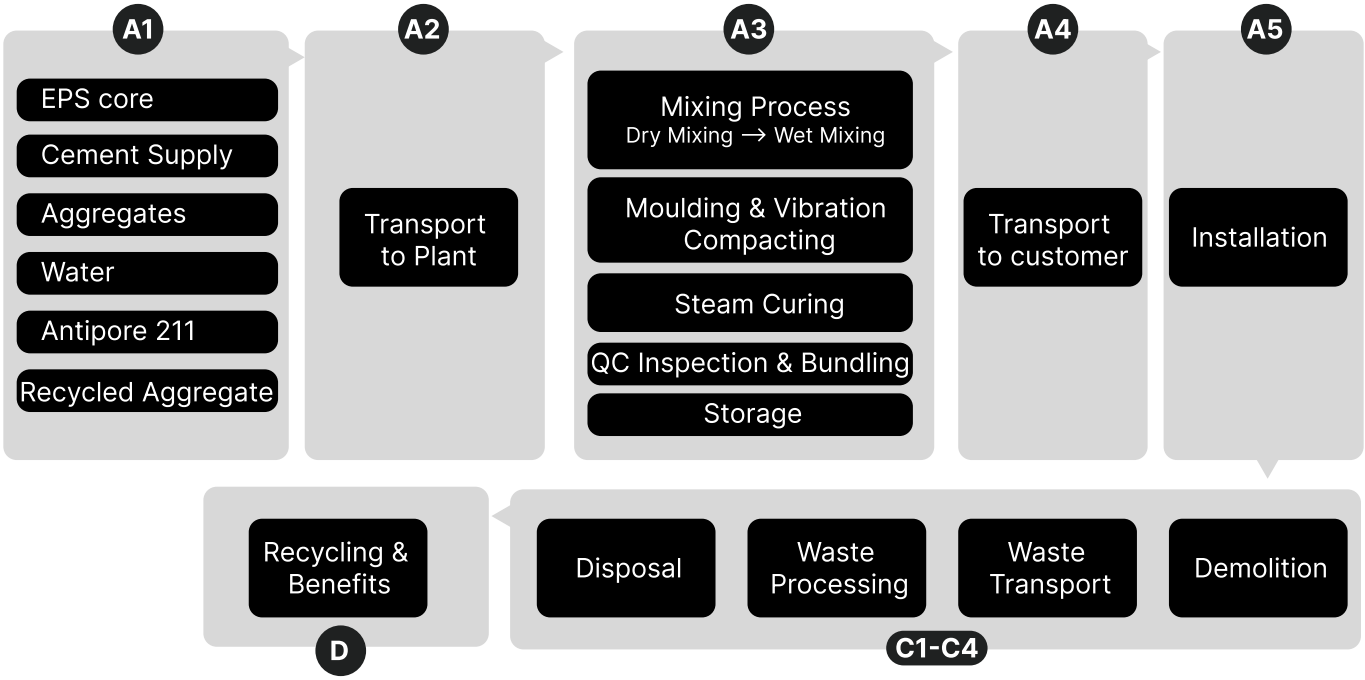
No allocation was required, as the production of Thermal Insulated Concrete Masonry Blocks does not generate co-products with economic value. Where allocation was required for background datasets, the allocation rules applied within the selected databases and system model were followed in accordance 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 Concrete MasonryBlocks.

Use-stage Modules B1–B7 are excluded from the declared scope of this EPD. In accordance with EN 16757, carbonation (CO_2 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, production, and transportation of raw materials used in the production of Concrete Masonry Blocks at Gulf Toub Cement LLC.

A1-Raw Material Supply: The A1 module covers the extraction, processing, and upstream transportation of the raw materials used in the production of Thermal Insulated Concrete Masonry Blocks. This includes cement production; 5–10 mm aggregate (gravel) extraction and processing; 0–5 mm aggregate (gravel) extraction and processing; Antipore 211 (admixture) production; and the production of the expanded polystyrene (EPS) insulation insert. All raw materials and components are sourced locally within the UAE or imported through international suppliers. This stage also accounts for the energy consumption and associated emissions arising from the extraction, processing, and pre-processing of the raw materials prior to block manufacturing.

A2 - Transport: The A2 module includes the transportation of raw materials from their point of extraction or processing to the Gulf Toub Cement LLC manufacturing site in the UAE. Transport of raw materials to the production site is taken as the weight average values for transport from suppliers for the year of 2025.

- 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:
The A3 module covers all processes within the Gulf Toub Cement LLC manufacturing facility, from the receipt and handling of raw materials to the final production of Thermal Insulated Concrete Masonry Blocks. The raw materials include Portland CEM I cement, 5–10 mm aggregate, 0–5 mm aggregate, 0–2 mm limestone, 0–5 mm recycled aggregate, Antipore admixture, EPS foam, and water. The module also includes energy consumption, including electricity and diesel, emissions to air and water, and the generation and management of production waste.

During the 2025 reference period, the total production of Thermal Insulated Concrete Masonry Blocks was 33,112.95 tonnes, with approximately 1,653 tonnes of production waste generated during manufacturing. The production waste consists primarily of manufacturing residues and off-specification material and is crushed and reused internally in the manufacturing process. The electricity consumption associated with crushing the production waste is 1.5 kWh per tonne of waste.

A4 - Transportation of Goods:
Stage A4 includes the transport of finished Concrete Masonry Blocks from the manufacturing facility to customers or distribution points. Transportation is carried out using Euro 5 diesel trucks, including 3.5–7.5 ton and >32 ton vehicles, with carrying capacities of 3.5–7.5 tons and 25 tons, respectively. Diesel consumption is assumed as 0.38 liters/km. Transport impacts are calculated based on the mass of the product and transport distance (ton-kilometer basis).

A5 - Installation :
Module A5 covers the installation of Concrete Masonry Blocks at the construction site, including nylon strap packaging waste and its recycling/disposal. Blocks are installed using cement mortar at an average consumption of 0.164 tonnes of mortar per tonne of blocks, based on 10 mm joints. The environmental impacts of the mortar used for installation are included in this module.

C1 – Deconstruction / Demolition :
Module C1 covers the demolition and removal of the Concrete Masonry Blocks 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 Concrete Masonry Blocks from the demolition site to recycling or disposal facilities. Transport is carried out using Euro 5 diesel trucks, including 3.5–7.5 ton and >32 ton vehicles, with carrying capacities of 3.5–7.5 tons and 25 tons, respectively. An average transport distance of 50 km by road is assumed. Transport impacts are calculated based on the mass of the transported material and distance (ton-kilometer basis).

C3 – Waste Processing
Module C3 includes the processing of demolished blocks for reuse, recycling, or recovery. Activities include sorting and preparation. Energy required for sorting is assumed to be 0.05 kWh per kg of waste material (crushed concrete). A portion of the blocks may be crushed and reused as aggregate in other construction applications.

C4 – Disposal :
The end-of-life scenario for Thermal Insulated Concrete Masonry Blocks 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 only 5% (ibid.). This 5% represents downcycling for use as fill material or sub-base in civil engineering projects. True closed-loop recycling into new concrete products is negligible. Therefore, a conservative distribution of 95% to landfill and 5% to recycling is used for the concrete and masonry fraction in this EPD.

For the expanded polystyrene (EPS) insulation inserts, it is assumed that 100% of the EPS material incorporated within the thermal insulated blocks is directed to landfill at end of life, with no recycling or recovery considered. This assumption reflects the anticipated end-of-life treatment of EPS when it is integrated within the concrete masonry units. No incineration is assumed for either the concrete/masonry or EPS components.

Module D – Benefits and Loads Beyond the System Boundary :
The potential benefits from recycling the concrete/masonry fraction (5% scenario) are calculated based on the avoidance of virgin aggregate production. The recycled concrete aggregate (RCA) is assumed to substitute for 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. for the expanded polystyrene (EPS) insulation inserts, no recycling or recovery is assumed at end of life, with 100% of the EPS directed to landfill. Therefore, no environmental benefits or avoided-product credits are assigned to the EPS component in Module D. Accordingly, Module D accounts only for the credit associated with avoiding virgin aggregate production through the recycling of 5% of the concrete/masonry fraction, while no benefit is assumed for the EPS insulation component.

More Information

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

	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
Module	**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%			--	--	--	--	--	--	--	--

Legend: *X = Included | ND = Not Declared | AE = United Arab Emirates*

Assumptions :

This EPD is based on specific 2025 production data from Gulf Toub Cement LLC, Dubai, UAE. The declared unit is 1 tonne (1,000 kg) of finished Thermal Insulated Concrete Masonry Blocks, based on a total production of 33,112.95 tonnes and 1,653 tonnes of production waste.

Production waste, including fresh concrete waste and off-specification units, is crushed and reused internally in the manufacturing process. The electricity consumption for crushing is 1.5 kWh per tonne of waste. The EPS insulation component is assumed to be 100% landfilled at end of life, with no recycling credit. All other relevant environmental flows are allocated to the finished product.

Content Information

Product Content:

Product Components	Weight %	Post-Consumer material weight -%	Biogenic material, kg C/kg
Cement	10-15	0	0
Aggregate (5-10 mm)	30-40	0	0
Aggregate (0-5 mm)	40-45	0	0
Aggregate Recycled (5-10mm)	0.5-1.5	0	0
EPD Insulation	0.1-0.2	0	0
Antipore 211	0.01-0.05	0	0
Water	6-7	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	3.80E-04	3.80E-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 the Thermal Insulated Concrete Masonry Blocks begins with the controlled batching of cement, aggregates, water, admixture, and other applicable materials according to the specified mix design. The 5–10 mm and 0–5 mm aggregates, cement, and Antipore 211 admixture are accurately proportioned and transferred to an industrial mixer, where the materials undergo controlled dry and wet mixing to produce a homogeneous concrete mixture. The fresh concrete is then transferred to an automated block-making machine and placed into moulds. The concrete is compacted through vibration to achieve the required block geometry and density. The EPS insulation inserts are positioned within the block during the manufacturing process to provide the required thermal insulation performance.

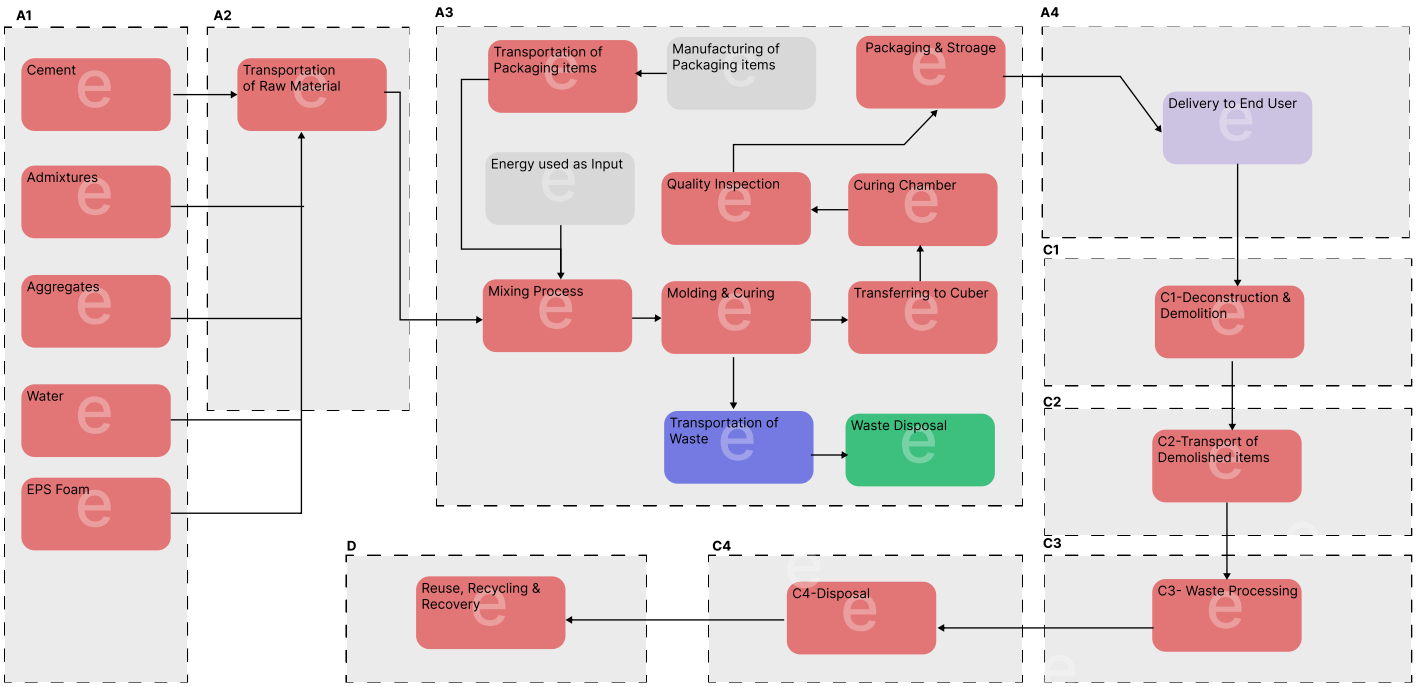
The moulded blocks are subsequently transferred to a steam-curing chamber, where they are cured for approximately 24 hours under controlled conditions. After curing, the blocks are removed, inspected, automatically bundled, and identified using a Lot identification system to ensure product traceability. The finished blocks are then transferred to the storage yard prior to dispatch.

Quality control inspections are carried out throughout the manufacturing process to verify mix properties, dimensions, density, compressive strength, and other applicable product requirements. Production and inspection records are maintained and used to support the Life Cycle Inventory (LCI), including material consumption, water and energy use, EPS insulation inserts, admixture consumption, and production waste generated during the manufacturing process.

Technical information:

For more technical information about the thermal insulated concrete masonry blocks, 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 37520). 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 1000 kg of concrete block produced by Gulf Toub Cement LLC. Due to the integrated nature of the fully automated production line, it was not feasible to isolate the consumption of electricity, water, and raw materials separately for thermal insulated concrete masonry blocks. Consequently, the life cycle inventory (LCI) was calculated using the total annual plant consumption and allocated to the thermal insulated block product family based on the applicable production mass shares.

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.	1.52E+02	2.42E+01	3.44E+01	ND	ND	ND	ND	ND	ND	ND	3.62E+00	9.90E+00	1.60E+01	5.94E+00	-2.01E-01
GWP-fossil	kg CO_2 eq.	1.52E+02	2.42E+01	3.42E+01	ND	ND	ND	ND	ND	ND	ND	3.62E+00	9.89E+00	1.59E+01	5.94E+00	-2.01E-01
GWP-biogenic	kg CO_2 eq.	1.31E-01	5.43E-03	1.92E-01	ND	ND	ND	ND	ND	ND	ND	3.61E-04	2.27E-03	1.76E-02	2.45E-03	-9.38E-06
GWP-luluc	kg CO_2 eq.	4.69E-02	1.08E-02	1.00E-02	ND	ND	ND	ND	ND	ND	ND	3.71E-04	4.54E-03	2.60E-02	3.40E-03	-8.36E-06
ODP	kg CFC 11 eq.	1.08E-06	3.06E-07	1.36E-07	ND	ND	ND	ND	ND	ND	ND	5.38E-08	1.34E-07	2.57E-07	1.65E-07	-3.05E-09
AP	mol H^+ eq.	5.07E-01	8.25E-02	1.21E-01	ND	ND	ND	ND	ND	ND	ND	3.24E-02	2.37E-02	1.20E-01	4.16E-02	-1.85E-03
EP-freshwater	kg P eq.	1.58E-02	2.65E-03	7.06E-03	ND	ND	ND	ND	ND	ND	ND	1.17E-04	1.08E-03	8.92E-03	5.20E-04	-2.54E-06
EP-marine	kg N eq.	1.53E-01	2.63E-02	4.00E-02	ND	ND	ND	ND	ND	ND	ND	1.51E-02	5.52E-03	3.96E-02	1.60E-02	-8.82E-04
EP-terrestrial	mol N eq.	1.67E+00	2.84E-01	4.38E-01	ND	ND	ND	ND	ND	ND	ND	1.65E-01	5.88E-02	4.27E-01	1.74E-01	-9.63E-03
POCP	kg NMVOC eq.	5.35E-01	1.12E-01	1.21E-01	ND	ND	ND	ND	ND	ND	ND	4.94E-02	3.21E-02	1.39E-01	6.29E-02	-2.88E-03
ADP-minerals & metals*	kg Sb eq.	4.53E-04	7.91E-05	3.51E-05	ND	ND	ND	ND	ND	ND	ND	1.26E-06	3.30E-05	4.09E-05	8.64E-06	1.72E-08
ADP-fossil*	MJ	1.01E+03	3.05E+02	2.15E+02	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	2.20E+01	1.89E+00	2.59E+00	ND	ND	ND	ND	ND	ND	ND	1.37E-01	7.99E-01	-6.24E+01	6.45E+00	7.31E-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:
**CO_2 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	3.77E+02	4.64E+00	1.33E+00	ND	ND	ND	ND	ND	ND	ND	2.96E-01	1.93E+00	7.80E+00	1.35E+00	1.79E-02
PERM	MJ	0.00E+00	0.00E+00	3.49E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	1.12E-02	0.00E+00
PERT	MJ	4.34E+01	4.64E+00	4.82E+00	ND	ND	ND	ND	ND	ND	ND	2.96E-01	1.93E+00	7.80E+00	1.36E+00	1.79E-02
PENRE	MJ	1.14E+04	3.34E+02	2.25E+02	ND	ND	ND	ND	ND	ND	ND	4.72E+01	1.37E+02	2.52E+02	1.45E+02	2.86E+00
PENRM	MJ	6.88E+01	0.00E+00	2.28E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	7.36E-03	0.00E+00
PENRT	MJ	1.30E+03	3.34E+02	2.28E+02	ND	ND	ND	ND	ND	ND	ND	4.72E+01	1.37E+02	2.52E+02	1.45E+02	2.86E+00
SM	kg	5.49E-01	1.47E-01	5.17E-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	3.49E+03	1.90E-03	6.78E-04	ND	ND	ND	ND	ND	ND	ND	5.12E-05	7.94E-04	1.15E-03	7.55E-04	3.10E-06
NRSF	MJ	1.14E+02	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	m^3	2.10E+03	4.62E-02	6.21E-02	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.	1.53E+02	2.44E+01	3.46E+01	ND	ND	ND	ND	ND	ND	ND	3.68E+00	9.97E+00	1.62E+01	6.08E+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	2.94E-02	3.77E-03	4.25E-03	ND	ND	ND	ND	ND	ND	ND	2.10E-04	1.57E-03	6.64E-03	1.57E-03	1.27E-05
Materials for energy recovery	kg	1.23E-04	2.23E-05	2.14E-05	ND	ND	ND	ND	ND	ND	ND	6.70E-07	9.30E-06	1.55E-05	2.80E-06	4.06E-08
Exported energy, electricity	MJ	2.01E-01	2.79E-02	9.10E-03	ND	ND	ND	ND	ND	ND	ND	2.23E-03	1.16E-02	4.99E-02	9.44E-03	1.35E-04
Exported energy, thermal	MJ	2.81E-01	4.97E-02	1.42E-02	ND	ND	ND	ND	ND	ND	ND	1.05E-03	2.07E-02	2.01E-02	5.01E-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	4.32E+00	7.65E-01	5.94E-01	ND	ND	ND	ND	ND	ND	ND	5.29E-02	3.13E-01	6.69E-01	1.65E-01	3.21E-03
Non-hazardous waste disposed	kg	1.48E+02	1.47E+01	3.60E+01	ND	ND	ND	ND	ND	ND	ND	7.71E-01	6.03E+00	1.07E+03	3.83E+00	4.67E-02
Radioactive waste disposed	kg	5.64E-04	6.61E-05	5.93E-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".

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