Environmental Product Declaration

ENVIRONMENTAL FOOTPRINT INSTITUTE

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

Kerbstones

Gulf Toub Cement LLC

Programme :	**The EFI Program**
Programme Operator :	**The Environment Footprint Institute**
EPD Registration No :	**260904EPD CPR-3100**
Issue Date :	21-09-2026
Valid Until :	20-09-2031
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 : **Kerbstone**

Product identification :

The results presented in this EPD are representative of all concrete kerbstones manufactured at the production facility. The results are calculated on a per-tonne 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 kerbstone manufacturing during the defined reference period.

UN CPC Code	UN CPC Code: 375–Articles of concrete, cement and plaster
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 :

Concrete Kerbstones are factory-produced precast concrete units manufactured by Gulf Toub Cement LLC. for use in road, pavement, landscaping, and other external civil infrastructure applications. The products are designed to provide a durable and defined edge between carriageways, pedestrian areas, paved surfaces, landscaped areas, and other hardscape applications.

The kerbstones are manufactured using a controlled industrial production process in which cement, natural aggregates, recycled aggregates where applicable, and water are accurately batched, mixed, moulded, compacted, and cured to produce the required kerb unit geometry and performance characteristics.

The product family covered by this EPD includes concrete kerbstones manufactured in different dimensions and configurations according to the intended application.

The kerbstones are designed to provide the required mechanical strength, dimensional stability, durability, and resistance to environmental conditions associated with their intended use. Product properties, including compressive strength, density, water absorption, dimensional tolerances, and other performance characteristics, depend on the specific kerbstone type and configuration.

Length (mm)	Width (mm)	Height (mm)
600	100-200	450/420/400
600	100-200	300/350
915	100-150	305
915	100-150	255/200/150

LCA Information

Declared Unit :

1 tonne (1,000 kg) of concrete kerbstones, representing the weighted-average production of concrete kerbstones 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:

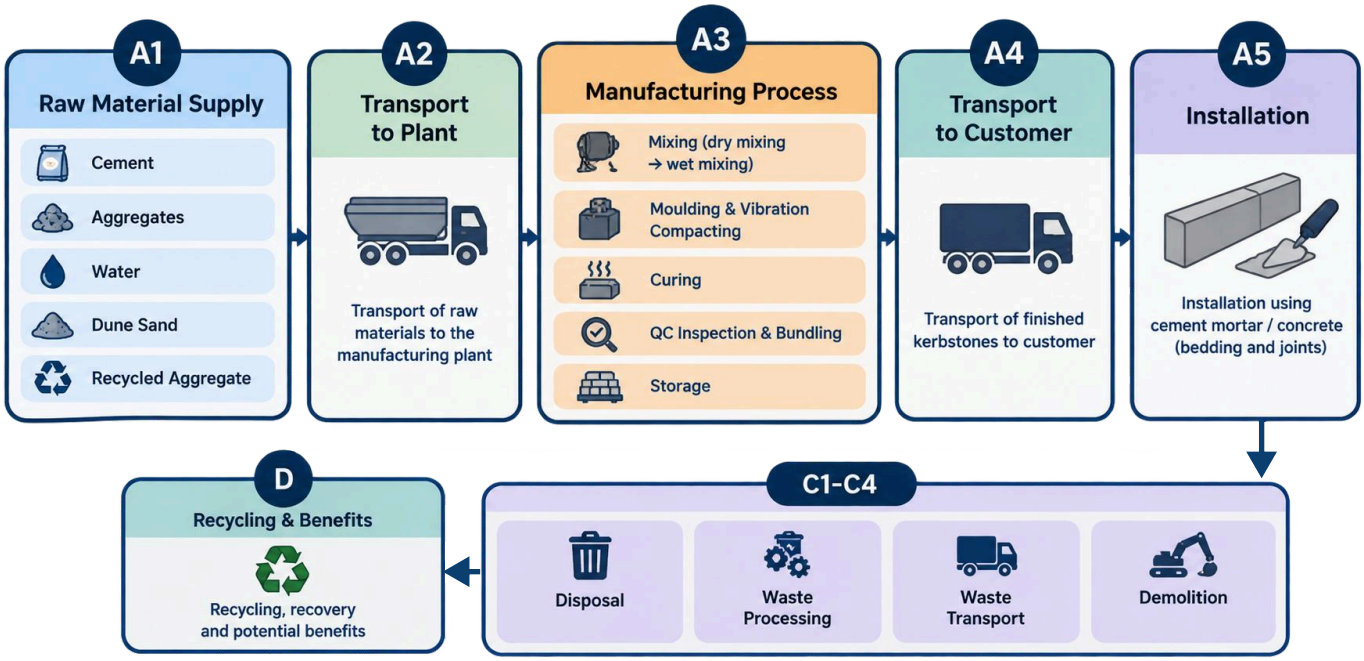
No allocation was required, as the production of concrete kerbstones does not generate co-products with economic value. Where allocation was required for background datasets, the allocation rules applied within the selected databases and system model were followed in accordance with EN 15804.

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 kerbstone.

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, processing, production, and transportation of raw materials used in the production of concrete kerbstones at Gulf Toub Cement LLC.

A1-Raw Material Supply: The A1 module covers the extraction, processing, production, and upstream supply of the raw materials used in the manufacture of concrete kerbstones at the Gulf Toub Cement LLC production facility. The raw materials considered in this stage include OPC (Ordinary Portland Cement), 10–20 mm limestone, 5–10 mm gabbro, 0–5 mm recycled gabbro aggregate, 0–2 mm fine aggregate, dune sand, and water.

The A1 module accounts for the environmental impacts associated with the extraction and processing of aggregates, production of cement, processing of recycled aggregate, and production and supply of water prior to their use in kerbstone manufacturing. The relevant upstream energy consumption, resource use, emissions, and associated environmental impacts 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:
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 concrete kerbstones. The raw materials include OPC (Ordinary Portland Cement), 10–20 mm limestone, 5–10 mm gabbro, 0–5 mm recycled gabbro aggregate, 0–2 mm fine aggregate, dune sand, and water. The module also includes the consumption of electricity and diesel, where applicable, associated emissions, and the generation and management of production waste.

During the 2025 reference period, the total production of concrete kerbstones was 2,678.66 tonnes, with approximately 120 tonnes of production waste generated during manufacturing. The production waste consists primarily of fresh concrete residues and off-specification kerbstones. The production waste is crushed and reused internally in the manufacturing process, where applicable. 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 concrete kerbstones 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 :
Concrete kerbstones are installed on a prepared bedding layer using cement-based mortar or concrete, with additional material used for joints and lateral restraint where applicable. For the LCA calculation, an installation material consumption of 0.143 tonnes of cement mortar per tonne of finished kerbstones is assumed, representing a preliminary average installation scenario.

C1 – Deconstruction / Demolition :
Module C1 covers the demolition and removal of the kerbstones 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 kerbstones 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 kerbstones for recycling. The kerbstones 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 Kerbstones 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 kerbstone 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 kerbstone 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 kerbstone 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):

	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 Concrete Kerbstones, based on a total production of 2,678.66 tonnes and 120 tonnes of production waste. Production waste, including fresh concrete waste and off-specification kerbstones, is crushed and reused internally in the manufacturing process. The electricity consumption for crushing is assumed to be 1.5 kWh per tonne of waste. No recycling or recovery of materials is assumed at end of life beyond the recycling scenario specified in Modules C4 and D. 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	15-25	0	0
Aggregate (5-10 mm)	15-20	0	0
Aggregate (0-5 mm)	20-25	0	0
Aggregate Recycled (5-10mm)	15-20	0	0
Limestone	5-10	0	0
Dune Sand	9-11	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	5.23E-04	5.23E-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 Concrete Kerbstones begins with the controlled batching of Ordinary Portland Cement (OPC), 10–20 mm limestone, 5–10 mm gabbro, 0–5 mm recycled gabbro, 0–2 mm fine aggregate, dune sand, and water according to the specified mix design. The raw materials are accurately proportioned and transferred to an industrial mixer, where they undergo controlled mixing to produce a homogeneous concrete mixture.

The fresh concrete is then transferred to the kerbstone manufacturing machine and placed into the designated moulds. The concrete is compacted using mechanical and/or vibration compaction to achieve the required kerbstone geometry, dimensions, density, and strength.

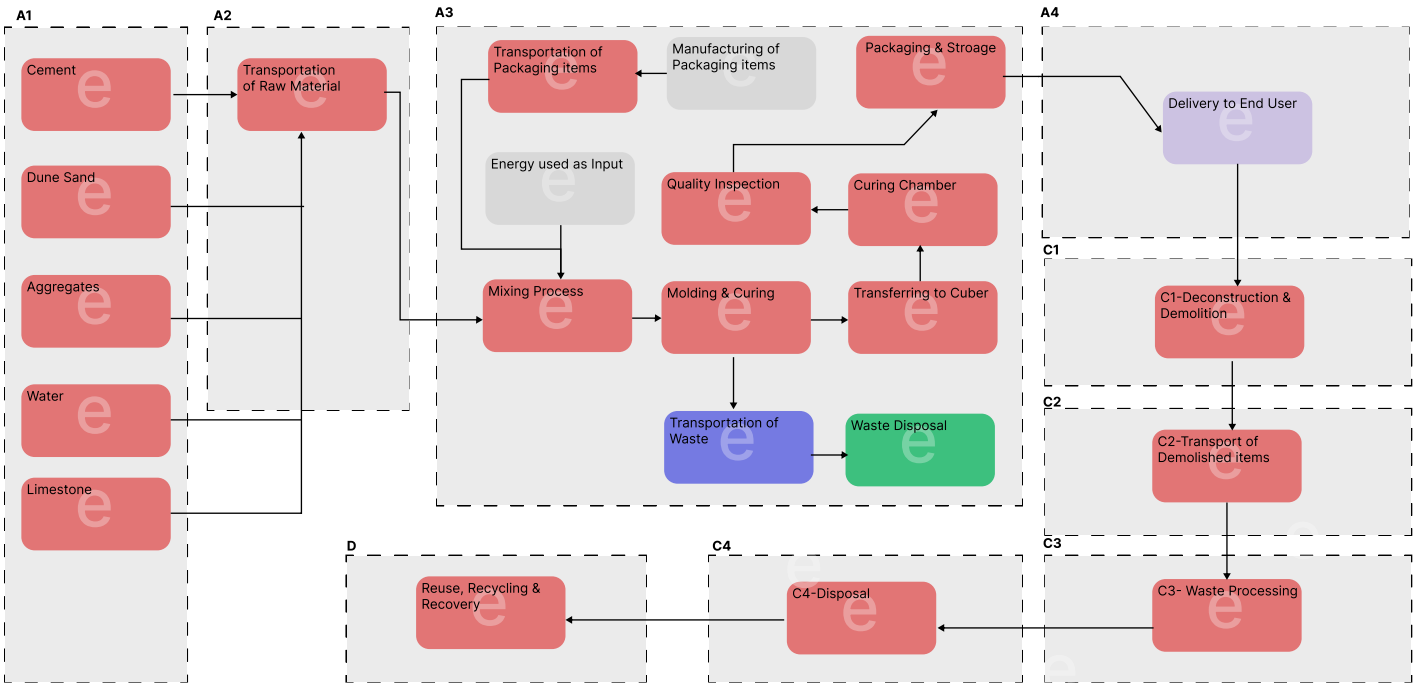
The moulded kerbstones are subsequently transferred to the designated curing area or curing chamber, where they are cured under controlled conditions for the required curing period. After curing, the kerbstones are demoulded, inspected, and identified using a Lot identification system to ensure product traceability. The finished kerbstones 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 raw material consumption, water and energy use, and production waste generated during the manufacturing process.

Technical information:

For more technical information about the kerbstone, 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 1,000 kg of Concrete Kerbstones 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 Kerbstone product. Consequently, the Life Cycle Inventory (LCI) was calculated using the available annual plant consumption data and allocated to the Concrete Kerbstone 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.	2.68E+02	1.82E+01	3.01E+01	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.	2.68E+02	1.82E+01	2.98E+01	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.	2.09E-01	4.09E-03	2.62E-01	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.	5.07E-02	8.17E-03	8.72E-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.	1.78E-06	2.31E-07	1.18E-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.	7.94E-01	6.22E-02	1.05E-01	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.	2.53E-02	2.00E-03	6.16E-03	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.	2.34E-01	1.98E-02	3.52E-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.	2.56E+00	2.14E-01	3.81E-01	ND	ND	ND	ND	ND	ND	ND	1.65E-01	5.88E-02	4.27E-01	1.75E-01	-9.64E-03
POCP	kg NMVOC eq.	7.91E-01	8.43E-02	1.05E-01	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.	9.01E-04	5.96E-05	3.06E-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	1.29E+03	2.30E+02	1.87E+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	3.42E+01	1.43E+00	2.23E+00	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:

**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	9.96E+01	3.50E+00	-6.04E-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	4.80E+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	7.97E+01	3.50E+00	4.20E+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	2.57E+03	2.52E+02	1.95E+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	1.61E+01	0.00E+00	3.14E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	1.98E+03	2.52E+02	1.98E+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	4.83E-01	1.11E-01	4.51E-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	2.07E+02	1.43E-03	5.91E-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	6.79E+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	m^3	1.62E+02	3.48E-02	5.34E-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.	2.70E+02	1.84E+01	3.03E+01	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	6.42E-02	2.84E-03	3.70E-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	1.90E-04	1.68E-05	1.87E-05	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	2.66E-01	2.11E-02	7.93E-03	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	1.51E-01	3.75E-02	1.24E-02	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	6.96E+00	5.77E-01	5.17E-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	1.50E+02	1.11E+01	3.19E+01	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	1.28E-03	4.98E-05	5.17E-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.

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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.

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