



# ENVIRONMENTAL PRODUCT DECLARATION

## RECON MC5mm

In accordance with ISO 14025 & EN 15804:2012+A2:2019/AC:2021

EPD Program	Title	Details
<b>International Climate Intelligence System</b>  71-75 Shelton Street Covent Garden, London, WC2H 9JQ United Kingdom <a href="mailto:office@climateintell.com">office@climateintell.com</a>	Registration Number	ICIS-202603-116
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For the most current version and to confirm the validity of an EPD within International Climate Intelligence System, please refer to [www.climateintell.com](http://www.climateintell.com). EPDs are subject to revision or removal if conditions vary.



Leading the Middle East, **Conmix**  
delivers innovative concrete and  
plaster solutions.

# TABLE OF CONTENTS

**04**

Overview

**05**

Product Information

**08**

About Conmix

**09**

Product Description

**11**

Manufacturing Details

**14**

Content Declaration

**16**

LCA Knowledge

**28**

Environmental Performance

**35**

Review and Verification

**36**

Contact Details

**37**

Acronyms

**38**

Standards and References

# OVERVIEW

This Environmental Product Declaration (EPD) presents verified, transparent environmental performance data for ReCon MC5mm, manufactured by Conmix Ltd. at its facility in Sharjah, United Arab Emirates, for the reporting period August 2024 to July 2025. The declared unit for this assessment is 1 kg of ReCon MC5mm.

The LCA follows the requirements of ISO 14025 and EN 15804:2012 + A2:2019/AC:2021, covering all relevant life cycle stages within the defined system boundary. This EPD enables architects, engineers, contractors, and sustainability consultants to make informed material choices by providing consistent, third-party-verified environmental information suitable for certification schemes, embodied-carbon reporting, and procurement transparency.



# PRODUCT INFORMATION



## Product Name

ReCon MC5mm



## Product Type

High Strength, Non-Shrink Micro Concrete and Cementitious Grout



## Declared Unit

1 kilogram



## PCR & Version

ICIS PCR 2026:18 v1.2.6  
(EN 15804 + A2 aligned)



## Scope

Cradle-to-Gate with  
options (A1-A4, C1-D)



## Production Route

Dry-mix cementitious  
formulation



## Recycled Content

Not intentionally added  
(inherent recycled content only)



## Electricity Mix

UAE grid mix from Ecoinvent 3.11  
(cut-off). Natural Gas (89.42%),  
Nuclear (7.06%), Oil (0.60%),  
Solar (0.18%) and others.



## LCA Tool and Database

Air.e.LCA v3.20.1.0 and  
Ecoinvent v3.11 (Cut-Off)



## Geographical Scope

United Arab Emirates

# PRODUCT INFORMATION



## Verification

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## Product Group Classification

UN CPC 3744 (Cement mortars & grouts)

## Environmental Performance Summary (A1-A3)

Indicator	Result	Unit
Climate change (GWP) - total	5.08E-01	Kg CO <sub>2</sub> e
Climate change (GWP) - fossil	5.05E-01	Kg CO <sub>2</sub> e
Ozone Depletion (ODP)	7.68E-09	Kg CFC-11e
Abiotic depletion of fossil resources	5.85E+00	MJ

## Hotspot Summary

Process	Share of Total GWP (%)
Raw Material Supply (A1)	70.28
Raw Material Transportation (A2)	1.28
Manufacturing (A3)	21.6
Remaining Modules (A4, C1-C4)	6.84



# PRODUCT INFORMATION

## Where This Adds Value

Scheme / Area	Relevance to ReCon MC5mm
LEED v4.1 (USGBC) – MR Credit: EPDs (aligned with emerging LEED v5 requirements)	The Type III EPD for ReCon MC5mm supports Material Disclosure credits and contributes toward whole-building embodied carbon reporting. Commonly used in UAE and Oman projects delivered under LEED certification.
Estidama Pearl Rating System (Abu Dhabi)	Provides verified environmental data required for LBo-6 and material transparency pathways. ReCon MC5mm is used for pile cap reprofiling, void filling, and structural reinstatement on Pearl projects.
GSAS (Qatar)	Supports materials submittals requiring environmental documentation for GSAS Material & Waste credits. ReCon MC5mm’s quantified impacts enable transparent comparison during material evaluation and approval.
BREEAM (UK/UAE Adaptations)	EPD contributes to MAT 01 and MAT 02 credits for responsible sourcing and building LCA. Relevant for many UK-based consultants working on Dubai and Muscat projects.
Whole-Building LCA Tools	The cradle-to-gate with options LCA model for ReCon MC5mm can be directly used in digital LCA models for GCC mega-projects (airports, metros, mixed-use developments).
Government & Giga-Project Requirements	Major clients like NEOM, Red Sea Global, Diriyah Gate, ADNOC, DEWA increasingly require verified product-specific EPDs. ReCon MC5mm’s EPD enables acceptance during material pre-qualification.
Procurement Transparency (GCC Contractors)	Supports sustainability submissions for contractors, consultants, and material engineers who require documented environmental impacts to comply with tender specifications.

# ABOUT CONMIX

Founded in 1975, Conmix Ltd. is one of the UAE's longest-established manufacturers of construction materials and has grown into a leading producer of ready-mix concrete, pre-mix plasters, mortars, grouts, coatings, and construction chemicals in the Middle East. Strategically headquartered in Sharjah, the company has supported regional infrastructure development for decades through its extensive range of high-performance, quality-certified products.

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Conmix operates a fully integrated manufacturing network with multiple production facilities across the UAE, covering ready-mix concrete, dry-mix plasters, grouts, repair mortars, waterproofing systems, and specialty construction chemicals. Its products are supplied to major building and infrastructure projects across the GCC, Asia, and Africa.

The company's operations are supported by a skilled workforce of over 1,000 personnel, including engineers, lab technicians, QC specialists, production experts, and technical support teams.

Conmix promotes a culture of innovation, operational excellence, and customer service, with dedicated teams overseeing formulation development, sustainability initiatives, and project-specific technical support.

Conmix maintains a comprehensive portfolio,

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including:

- ISO 9001:2015 – Quality Management System.
- ISO 14001:2015 – Environmental Management System.
- ISO 45001:2018 – Occupational Health & Safety.
- Dubai Central Laboratory (DCL) product conformity certifications covering plasters, grouts, and repair systems.
- BS, ASTM, EN, and DIN compliance across multiple dry-mix and chemical product categories.
- CE Marking for selected product lines exported to international markets.

Conmix continues to enhance its manufacturing capabilities and quality systems to meet the evolving requirements of large-scale construction and infrastructure projects across the region.

# PRODUCT DESCRIPTION

ReCon MC5mm is a ready-to-use, polymer-modified cementitious micro concrete designed for large-volume grouting and structural repair applications. Supplied as a single-component grey powder, it requires only the addition of clean water on site to produce a flowable, pumpable micro concrete suitable for shutter-and-cast placement or manual installation. The formulation incorporates graded limestone sand/aggregates (up to 5 mm), Ordinary Portland Cement (OPC), silica fume, Ground Granulated Blast Furnace Slag (GGBFS), and performance additives (polymer modifiers and superplasticizer) that enhance workability, stability, and bond while supporting low heat of hydration and high durability.

ReCon MC5mm is engineered for filling voids and reinstating concrete continuity in sections typically 20–250 mm thick in a single layer. It achieves high early and long-term compressive strength, exhibits low permeability and rapid chloride resistance, and maintains non-shrink behaviour through controlled expansion. Typical uses include pile cap reprofiling, encasements, bridge repairs, column and floor reinstatement, and pipeline surround works. The product is supplied in 25 kg and 50 kg bags for site flexibility across GCC projects.

## Sectors & Corresponding Uses

Sector	Application / Use Case
Structural Concrete Repair	Micro concrete reinstatement for damaged or honeycombed sections in pile caps, columns, slabs, beams, and foundations
Repair & Rehabilitation	Large-volume repair of voids or deteriorated zones requiring structural continuity and non-shrink performance
Infrastructure & Civil Works	Reprofiling and restoration of bridges, culverts, retaining elements, and concrete members where patch repair is impractical
Industrial & Utility Structures	Micro concrete placement for equipment bases, plinths, pipe surround works, and zones requiring high durability
Building Maintenance & Retrofit	Corrective reinstatement during refurbishment or strengthening works for reinforced concrete buildings and structural elements

## Technical Specifications

Parameter	Details / Specification
Form	Single-component, cementitious repair mortar

# PRODUCT DESCRIPTION

Mixing Water	12.5% ± 0.5% (3.0 - 3.25 ltr / 25 Kg bag)
Fresh Wet Density	2.30 kg/ltr ± 0.05
Consistency	ASTM C1107 – Flowable (Flow: 125–140% as per ASTM C1437)
Compressive Strength	23 N/mm <sup>2</sup> at 1 day; 48 N/mm <sup>2</sup> at 7 days; 65 N/mm <sup>2</sup> at 28 days
Flexural Strength	10 N/mm <sup>2</sup> at 28 days
Tensile Strength	4.5 N/mm <sup>2</sup> at 28 days
Water Absorption (ISAT)	< 0.01 ml/m <sup>2</sup> /sec at 2 hrs
Water Permeability	< 10 mm
Rapid Chloride Permeability	< 1000 coulombs
Drying Shrinkage	< 750 microstrain at 28 days
Modulus of Elasticity	> 27,000 N/mm <sup>2</sup>
Setting Time	Initial: 6 - 7 hrs; Final: 9 - 10 hrs
Application Method	Shutter-and-cast placement; pumping in layers; manual placing



# MANUFACTURING DETAILS

The production of ReCon MC5mm at Conmix begins with the receipt and inspection of key raw materials, primarily graded limestone sand/aggregates (up to 5 mm), Ordinary Portland Cement (OPC), silica fume, Ground Granulated Blast Furnace Slag (GGBFS), polymer modifiers and superplasticising admixtures. All incoming materials are subjected to quality inspection to verify conformity with internal specifications (including fineness, moisture condition, and contamination checks) before being transferred to dedicated silos, bins, or moisture-controlled storage locations based on material sensitivity.

During precise batching, each constituent is accurately dosed using calibrated weighing systems to ensure consistency in the micro concrete formulation. The materials are then conveyed to the dry blending unit, where high-efficiency mixers homogenise the cementitious binder system with graded mineral aggregates to ensure uniform distribution. A controlled admixture mixing stage ensures consistent dispersion of polymers and performance additives, supporting ReCon MC5mm's flowability, non-shrink characteristics, and suitability for large-volume placement. No chemical reactions occur during manufacturing; the process remains entirely physical and controlled under standard production conditions.

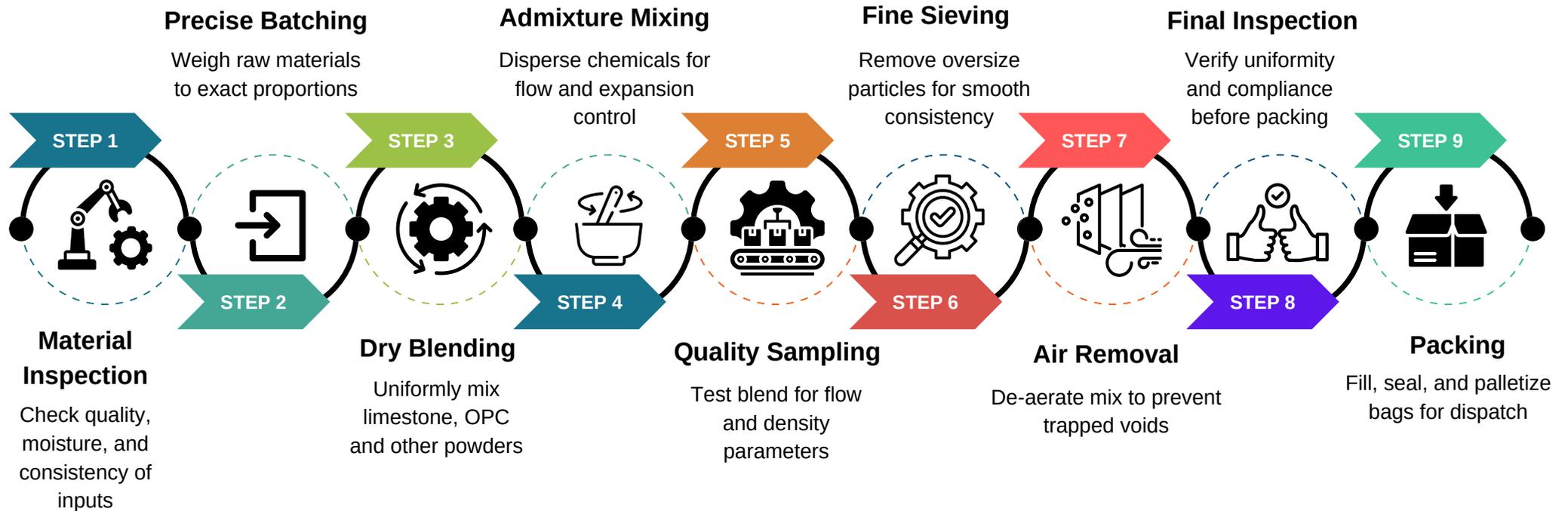
Following blending, the powder mix passes through fine sieving to remove oversized particles and ensure consistent grading and pumpability. Air removal improves bulk density and handling stability, supporting reliable packaging and placement performance. Representative samples are collected for quality sampling and verification, including checks on bulk density and flow consistency prior to final release. Conforming batches undergo final inspection and are packed into moisture-resistant 25 kg and 50 kg bags, batch-coded, palletised, stretch-wrapped, and dispatched from the Conmix Sharjah manufacturing facility.

For a visual representation of the full manufacturing workflow, refer to the illustrated flow chart on the next page. A screenshot of the process flow as modeled in the LCA software is provided on the page that follows.



# MANUFACTURING DETAILS

## Schematic overview of ReCon MC5mm manufacturing process





# CONTENT DECLARATION

The content declaration provides a transparent breakdown of all raw materials used in the formulation of ReCon MC5mm, expressed per 1 kg of product. The mix is primarily composed of graded limestone sand/aggregates (up to 5 mm), Ordinary Portland Cement (OPC), Ground Granulated Blast Furnace Slag (GGBFS), and silica fume, supported by small quantities of performance-enhancing additives that provide flow retention, stability, and non-shrink characteristics. The total of all listed components equals 1 kg, matching the declared unit and ensuring complete material accounting in line with EN 15804 and ISO 14025 requirements.

Component	Weight (kg/Declared unit)	Post-consumer recycled (%)	Pre-consumer recycled (%)	Biogenic Content (%)	Biogenic Carbon (kg C/DU)
Limestone sand	0.68	0	0	0	0
OPC	0.22	0	0	0	0
GGBFS	0.08	0	0	0	0
Silica Fume	0.01	0	0	0	0
Additives and Polymers	0.01	0	0	0	0
<b>Total</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

## Substances of Very High Concern (SVHC)

According to the requirements of the ECHA Candidate List, ReCon MC5mm contains no substances of very high concern (SVHCs) above the 0.1% (w/w) threshold in the final product or its ancillary materials.

All raw materials used in the formulation—Limestone Sand, OPC, GGBFS, Silica Fume, additives, and fillers—were reviewed against the latest published SVHC list at the time of reporting. Based on manufacturer declarations and available safety data, no SVHCs are present.

## Packaging Material Declaration

Packaging materials used for ReCon MC5mm include wooden pallets, multi-wall kraft cement bags, and LDPE liners. These materials serve distinct functions within the product supply chain—wooden pallets provide structural stability during handling and transport, kraft cement bags protect the dry powder product during storage, and LDPE liners prevent moisture ingress and preserve flowability. All packaging components are included in the life cycle assessment because they contribute to upstream manufacturing impacts and generate recoverable material streams at end-of-life.

# CONTENT DECLARATION

Packaging Material	Biogenic Content (%)	Biogenic Carbon Fraction (kg C/kg material)	Notes & References
Wooden Pallet	~100% biogenic (solid wood)	0.50 kg C per kg wood (approx. 50% of dry mass is carbon)	Wood carbon fraction widely documented in forestry & IPCC (2006) guidelines — wood contains 50% carbon by dry weight
Cement Bags	~100% biogenic (paper fibre)	0.44 kg C per kg paper (44% carbon content)	Paper/pulp industry data and IPCC default values for lignocellulosic biomass
LDPE Liners	0% biogenic	0 kg C/kg	Petroleum-based plastic; contains no biogenic carbon

Wood and cement bags contain significant biogenic carbon because they originate from biomass; LDPE does not. These biogenic fractions are reported for transparency and to reflect the renewable carbon temporarily stored in packaging materials. Their treatment in the LCA model follows EN 15804+A2 guidance, with flows presented in the Packaging Composition and Biogenic Carbon table below.

Packaging Material	Weight (kg/Declared Unit)	Share of Packaging (%)	Biogenic Carbon (kg C/DU)	End-of-Life Handling
Wooden Pallet	2.50E-02	82.24	1.25E-02	Reuse / Recycle / Energy Recovery
LDPE Liners	1.40E-03	4.60	0.00E+00	Recycle / Energy Recovery
Cement Bags	4.00E-03	13.16	1.76E-03	Recycle
<b>Total</b>	<b>3.04E-02</b>	<b>100</b>	<b>1.43E-02</b>	-

Note - Biogenic content in packaging materials **exceed the 5% threshold** of the total packaging weight as stated in **ICIS PCR 2026:18**. Hence, these biogenic emissions are added in **module A3 and balanced out in module A5**.

# LCA KNOWLEDGE

## Declared Unit

The declared unit for this EPD is 1 kg of ReCon MC5mm at the factory gate. All material inputs, energy use, emissions, transportation, packaging, and end-of-life modelling are quantified relative to this unit. This ensures consistent comparison across life cycle stages and aligns with EN 15804+A2 requirements for construction products. No functional performance is assigned to the product in this declaration, as the EPD is based on a declared unit rather than a functional unit.

## Temporal, Geographical and Technological Representativeness

**Temporal Representativeness:** Primary data for ReCon MC5mm reflects the reporting period August 2024 to July 2025, in line with EN 15804+A2 requirements that primary manufacturing data must be no older than five years. All on-site information—including raw material consumption, energy use, water use, and waste generation—represents current operational conditions at the Sharjah plant during the defined reporting year. Background data used in the study are consistent with the temporal validity provided in their respective datasets to ensure alignment with the modelling year.

**Geographical Representativeness:** The LCA model for ReCon MC5mm reflects the actual manufacturing and supply conditions of Conmix Ltd.'s Sharjah facility in the United Arab Emirates, where all primary data was collected. The study represents production and operations within UAE, with UAE-specific or GCC-specific conditions applied wherever available—particularly for raw material sourcing patterns, electricity grid characteristics, water production, and end-of-life treatment routes.

Where UAE-specific datasets or regional factors were not available, GCC-appropriate or globally representative datasets were used. All transport distances, energy consumption figures, and end-of-life scenarios are based on realistic UAE and GCC practice, ensuring geographical relevance of the final results.

**Technological Representativeness:** The manufacturing process modelled for ReCon MC5mm accurately reflects the actual production technology used at Conmix Ltd.'s Sharjah facility. The product is produced through a dry-mix blending process, incorporating graded limestone sand/aggregates (up to 5 mm), OPC, GGBFS, silica sand and performance additives using industrial mixers, controlled batching systems, and automated sieving equipment. No chemical reactions, heating, or wet processes occur during production, and no by-products are generated. The technological assumptions used in the LCA are therefore fully representative of real operations at the plant, ensuring that the results reflect true site-specific conditions.

# LCA KNOWLEDGE

## LCA Software and Database

The life cycle model for ReCon MC5mm was developed using Air.e.LCA v3.20.1.0, with all background inventory data sourced from Ecoinvent v3.11 (Allocation, cut-off by classification). The software was used to structure process flows, assign datasets, calculate environmental indicators, and perform all module-by-module inventory tracking. The database provides consistent, peer-reviewed life cycle inventories for raw materials, energy supply, transportation, and waste management processes. All datasets selected reflect technologies and supply chains relevant to the product and regional context, ensuring reliable integration of foreground data with established international life cycle inventories.

## System Boundary

This EPD covers all product stages from “cradle to gate with options”, i.e. this LCA covers Production stage A1-A3, Transportation A4, End-of-life stages C1-C4 and Resource recovery stage D according to EN 15804:2012 + A2:2019 / AC:2021.

The procedures that are not controlled by the company, but are included in this environmental study, are:

- The extraction and production of fuels and electricity.

All related direct and indirect environmental impacts related to these elements have been calculated and were included in the LCA and this EPD. Personnel-related processes, such as transportation of employees to and from work is excluded. Also, the production and end-of-life processes of infrastructure or capital goods used in the product system are excluded.

## Module A1 - Raw Material Supply

Module A1 encompasses all upstream processes related to the sourcing and preparation of raw materials used in the manufacture of ReCon MC5mm. The primary constituents—graded limestone sand/aggregates up to 5 mm, Ordinary Portland Cement (OPC), Ground Granulated Blast Furnace Slag (GGBFS), and silica fume—are procured from established suppliers within the United Arab Emirates, ensuring reliable quality, consistent grading, and compatibility with local construction requirements. Sodium naphthalene sulphonate (superplasticizer) is sourced from Dammam, Saudi Arabia, in line with product performance requirements and supplier availability. All upstream activities such as raw material extraction, intermediate processing, and packaging of inputs are included within this module.

## Module A2 - Raw Material Transportation

Module A2 covers the transportation of all raw materials from their respective suppliers to the Conmix manufacturing facility in Sharjah, United Arab Emirates. Key inputs—including graded limestone sand/aggregates, Ordinary Portland Cement (OPC), Ground Granulated Blast Furnace

# LCA KNOWLEDGE

Slag (GGBFS), and silica fume—are sourced from suppliers within the UAE, reflecting the established local supply network for ReCon MC5mm. The superplasticizer sodium naphthalene sulphonate is sourced from Dammam, Saudi Arabia, and transported by road to the Sharjah plant in line with procurement practice. All inbound movements are modelled using >32-ton Euro 6—equivalent road transport, representing typical logistics for bulk powders, bagged materials, and palletised chemical inputs. The environmental impacts in this stage arise from fuel consumption, tailpipe emissions, and transport distances associated with the delivery of each material. Load efficiencies and realistic supplier-to-plant distances used in the LCA model reflect actual UAE–GCC logistics conditions and are applied consistently across all raw materials in the product system.

## **Module A3 - Manufacturing**

Manufacturing impacts cover all processes required to convert raw materials into the finished ReCon MC5mm product at the Conmix facility in Sharjah. Production follows a controlled dry-mix workflow comprising nine sequential steps: Material Inspection, Precise Batching, Dry Blending, Admixture Mixing, Quality Sampling, Fine Sieving, Air Removal, Final Inspection, and Packing. Each stage ensures accurate dosing, uniform dispersion of additives, consistent mix quality, and compliance with internal technical specifications.

Environmental loads in this module include electricity use for mixing, sieving, and material handling; fuel use from internal forklift movement; water used for equipment wash-down; and solid waste generated during fine sieving (primarily inert mineral residues). Wastewater from cleaning operations is directed to appropriate treatment. This module also accounts for all ancillary inputs used on-site, including packaging materials (LDPE liners, cement bags, and wooden pallets). All emissions from equipment operation, internal transport, dust handling, and waste processing are included within the A3 boundary.

## **Module A4 - Delivery**

Module A4 accounts for the transportation of finished ReCon MC5mm from the Conmix manufacturing facility in Sharjah to customer locations. As ReCon MC5mm is supplied within the United Arab Emirates and Oman, outbound transport is modelled using regional road freight only. Road deliveries are modelled using Euro 6, >32-ton trucks consistent with Ecoinvent v3.11 cut-off system model assumptions, reflecting typical heavy-duty vehicles used for bagged cementitious micro concrete materials in the region.

As a dry powder packaged in bags and palletised for shipment, the product is transported as consolidated loads with full capacity utilisation. Transport distances are based on representative

# LCA KNOWLEDGE

average delivery routes within the UAE and cross-border routes to Oman, covering distribution to construction sites, contractors, and infrastructure projects. Environmental impacts in this module include diesel consumption, tailpipe emissions, and load-dependent fuel use associated with outbound regional deliveries.

Scenario details	Description
Vehicle used for transport	Euro 6, >32-ton truck
Vehicle capacity	>32 tons
Fuel type and consumption	Diesel, 0.38 liters per km
Capacity utilization	100% as assumed in Ecoinvent v3.11
Bulk transportation	Mass of the transported product



# LCA KNOWLEDGE

## Module C1 - Deconstruction and Demolition

Module C1 addresses the environmental impacts associated with deconstruction or demolition of the product at end of life. ReCon MC5mm is applied as a structural micro concrete in voids, repair zones, pile caps, encasements, and sections where reinstatement of concrete continuity is required. Once cured, it becomes fully bonded with the surrounding concrete and no longer exists as a separate or identifiable material layer.

During end-of-life demolition, the entire concrete element is broken using standard demolition techniques such as hydraulic breakers or crushing equipment. The micro concrete undergoes the same mechanical breakup as the surrounding concrete and does not require any separate handling or treatment. No additional tools, time, labour, fuel, or energy inputs are needed specifically due to the presence of ReCon MC5mm.

For example, when a beam, slab, or pile cap containing micro concrete is demolished, the contractor does not distinguish between the original concrete and the repair material. The demolition process remains unchanged whether the micro concrete is present or not. As no distinct or measurable demolition activities can be attributed solely to ReCon MC5mm, the environmental burdens associated with Module C1 are considered zero.

## Module C2 - Transport to Waste Processing

Module C2 covers the transport of end-of-life material from the demolition site to waste management facilities. After demolition, ReCon MC5mm becomes part of the mixed mineral rubble generated from the breakup of concrete elements in which it is integrated. As a cement-based micro concrete fully bonded to the parent concrete, it is not separated during demolition and follows the same waste pathway as conventional concrete rubble.

Across the UAE and Oman, construction-and-demolition (C&D) recycling facilities operated by Dubai Municipality, Tadweer (Abu Dhabi), BEEAH (Sharjah), be'ah Oman, and other regional authorities typically achieve diversion rates between 90% and 97%, driven by regulatory requirements and the strong demand for recycled aggregate in infrastructure works. These values are consistent with performance observed in countries with advanced C&D recycling systems—such as the Netherlands, Denmark, Belgium, Japan, and Singapore—which frequently achieve recovery rates in the 90–99% range. These international rates are included for context only; the modelling relies solely on GCC-specific practices.

Reflecting the established recycling performance within the GCC, it is assumed that 95% of the mixed demolition rubble containing ReCon MC5mm is transported to a C&D recycling facility,

# LCA KNOWLEDGE

while the remaining 5% is sent to inert landfill due to contamination, sorting inefficiencies, or unsuitable loads. A one-way transport distance of 50 km is assumed for both recycling and landfill routes, representing typical distances between demolition sites and authorised facilities within the region. Transport is modelled using a >32-ton EURO 6 lorry commonly used for bulk mineral waste transport.

Module C2 therefore includes only the environmental impacts associated with transporting mixed mineral demolition rubble to recycling and landfill facilities within the GCC region.

Type	Capacity utilization	Type of vehicle	Average distance
Truck	92%	Euro 6, >32-ton truck	50 kms

## Module C3 - Waste Processing

Module C3 covers the processing of demolition rubble that enters recycling. Once ReCon MC5mm is demolished together with the concrete element, it forms part of the mixed mineral waste stream typically comprising concrete, masonry, mortar, and similar cementitious construction materials. As the product is supplied and used within the GCC region, the recycled fraction is assumed to be routed through regional construction and demolition (C&D) recycling facilities, with UAE practices used as the reference context for modelling.

At these facilities, processing typically begins with coarse sorting to remove oversized debris and non-mineral contaminants, followed by primary crushing of the concrete rubble. Magnetic separation is used to recover reinforcing steel, which is diverted to metal recycling streams. The remaining mineral fraction is then subjected to secondary crushing and multi-stage screening to produce graded recycled aggregates and fines. No specialized processing is required for ReCon MC5mm, as the hardened micro concrete behaves in the same manner as conventional structural concrete during crushing and screening.

Recycled aggregates produced by C&D recycling plants are commonly used for road base and sub-base layers, trench bedding, backfilling, embankments, footpaths, and landscaping applications, supporting circular economy objectives across the region. These applications are consistent with international practices observed in countries with mature C&D recycling systems such as the Netherlands, Denmark, Belgium, Japan, and Singapore. International references are included for context only, while modelling assumptions remain regionally representative.

Module C3 therefore includes the environmental burdens associated with the crushing, sorting,

# LCA KNOWLEDGE

and screening of the 95% of mixed mineral demolition waste containing ReCon MC5mm that is directed to recycling. Material not recovered during processing is transferred to Module C4 for final disposal.

## **Module C4 - Disposal**

Module C4 covers the disposal of the portion of demolition waste that does not enter the recycling route. For ReCon MC5mm, 5% of the mixed mineral rubble is assumed to be sent directly from the demolition site to an inert construction-and-demolition (C&D) landfill within the GCC region, primarily the UAE and Oman. This assumption reflects the region's established system where most concrete and masonry rubble is directed to C&D recycling plants, while only a small contaminated or non-recoverable portion is disposed of.

The disposed material consists entirely of inert mineral waste derived from crushed concrete containing the hardened micro concrete. These mineral materials do not biodegrade, do not generate landfill gas, and exhibit very low chemical reactivity. In inert landfill operations, potential leachate from such materials is minimal, and landfill activities are generally limited to placement, spreading, compaction, and dust control.

C&D landfills operating in the UAE and wider GCC function as engineered inert disposal facilities managed under municipal waste regulations, with operational practices comparable to inert landfills used internationally. Module C4 therefore includes only the environmental burdens associated with the disposal of this 5% non-recycled mineral fraction, while the remaining 95% is processed in Module C3 and contributes to recovery benefits reported in Module D.

## **Module D - Reuse, Recovery & Recycling Potential**

Module D reports the net environmental burdens and benefits associated with the recovery of materials at end-of-life. Because ReCon MC5mm becomes fully integrated within the concrete element during service, it does not form a separate material stream at end-of-life. Its Module D contributions therefore arise solely from the recycling of mixed mineral demolition rubble and the recovery of associated packaging materials.

At end-of-life, 95% of the mineral rubble containing ReCon MC5mm is assumed to be processed at UAE construction-and-demolition (C&D) recycling facilities, where it is crushed and screened to produce recycled aggregate. This recycled aggregate is modelled as substituting virgin crushed gravel on a 1:1 mass basis, reflecting common UAE applications such as road sub-base, trench bedding, general backfilling, and infrastructure preparation layers. These recovery assumptions are consistent with international benchmarks observed in regions such as the

# LCA KNOWLEDGE

Netherlands, Denmark, Belgium, Japan, and Singapore, where concrete recycling rates frequently exceed 90–95%.

Packaging materials also contribute to recovery benefits in Module D. Wooden pallets are modelled with a 95% diversion rate, supported by the Virginia Tech & USDA Forest Service Landfill Avoidance Study (2018). LDPE liners are assigned a 95% recycling rate achievable under controlled industrial recovery conditions. Multi-wall cement bags are likewise assumed to achieve a 95% recovery rate, reflecting practical collection and recycling when managed within industrial or manufacturing-controlled waste streams.

Module D therefore includes both the burdens associated with recycling and recovery processes and the avoided impacts from substituting virgin materials such as crushed gravel, LDPE granulate, kraft paper fibre, and wood products. The reported values represent the net environmental outcome beyond the defined system boundary.

Process	Unit (kg)
<b>Collection process specified by type</b>	
ReCon MC5mm in concrete collected as mixed construction waste	1
<b>Recovery system specified by type</b>	
Mineral demolition rubble sent for reuse / recycling as aggregate	0.95 (95%)
Mineral demolition rubble sent for energy recovery	Not applicable
<b>Disposal specified by type</b>	
Mineral demolition rubble sent to inert landfill	0.05 (5%)
<b>Transportation assumptions</b>	
Transport to recycling and landfill sites	50 km transport by Euro 6, >32 ton truck

# LCA KNOWLEDGE

## System Boundaries Illustration

	Product stage			Construction process stage		Use stage							End of life stage				Resource recovery stage
	Raw material supply	Transport	Manufacturing	Transport	Construction / installation	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction / Demolition	Transport	Waste Processing	Disposal	Reuse, Recovery & Recycling potential
Module	A1	A2	A3	A4	A5*	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Modules Declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	UAE	UAE	UAE	GLO	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
Share of specific data	GWP > 90%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - products	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - sites	0%			-	-	-	-	-	-	-	-	-	-	-	-	-	-

X - Included, ND - Modules not declared.

\*Module A5 is included to balance out biogenic emissions from packaging.



# LCA KNOWLEDGE

## Cut-Off Rules

All relevant material and energy flows contributing to the manufacture of ReCon MC5mm have been included in the LCA model. More than 99% of the total mass, energy use, and environmental relevance is captured. Negligible flows—those that do not influence the overall results—are excluded.

The Polluter Pays Principle and the Modularity Principle are applied to ensure that impacts are assigned to the processes where they occur and that each life cycle stage is reported independently. No known data gaps or exclusions are expected to influence the robustness of the results.

## Allocation

Allocation was applied only where shared inputs were used across multiple dry-mix product lines. Electricity consumption, water use, diesel for internal handling, and non-hazardous waste generation were allocated using a mass-based approach, reflecting each product's proportional share of total annual production at the Sharjah facility.

Raw materials, admixtures, additives, and all associated transport flows were modelled using product-specific primary data, as these inputs are dosed exclusively for ReCon MC5mm and do not require allocation. No economic allocation was needed, as the plant does not generate co-products during manufacturing.

## Electricity

Electricity consumption in the LCA model is based on the UAE grid mix as represented in Ecoinvent v3.11 (Allocation, cut-off by classification). The UAE electricity supply is predominantly generated from natural gas, supplemented by nuclear power, oil, solar energy, and minor imports from neighbouring GCC countries. The modelled grid composition is as follows:

Energy Source	Share (%)
Natural Gas - Combined Cycle Power Plant	51.31%
Natural Gas - Conventional Power Plant	38.11%
Nuclear - Pressure Water Reactor	7.06%
Hard Coal	2.09%

# LCA KNOWLEDGE

Oil	0.60%
Import from Saudi Arabia	0.44%
Import from Oman	0.20%
Solar Thermal (Parabolic Trough)	0.18%
Wind (<1 MW, Onshore)	0.00003%

The climate impact associated with this electricity mix is 5.81E-01 kg CO<sub>2</sub>e per kWh, and this factor is applied consistently to all electricity use across modules A1–A3 and relevant downstream stages. This approach ensures that electricity-related impacts accurately reflect UAE operational conditions and the energy landscape relevant to Conmix’s Sharjah facility.

## Calculation Rules

The LCA model for ReCon MC5mm is based on foreground data collected directly from Conmix’s Sharjah manufacturing facility, supported by background datasets sourced from Ecoinvent v3.11 (Allocation, cut-off by classification). These datasets provide emission factors for key inputs including cementitious binders, aggregates, silica fume, admixtures, packaging materials, fuel supply chains, electricity generation, and road transport services. UAE-representative conditions—including electricity profile, supplier logistics, and end-of-life management assumptions—were applied wherever relevant to ensure realistic modelling of local market conditions.

All transport activities associated with raw material procurement and finished product distribution are included, using measured supplier-to-plant and plant-to-customer distances for road freight routes within the UAE and Oman. Distances were determined using Google Maps to reflect realistic logistics corridors and routing. Exclusions are restricted to processes with negligible contribution (typically <1%), such as office administration, general utilities unrelated to production, and capital goods maintenance. No maritime shipping is included, as ReCon MC5mm distribution is modelled under road transport only.

## Byproducts Assignment

No by-products are generated during the manufacturing of ReCon MC5mm. The production process involves only the transformation and blending of raw materials into a dry cementitious powder, with no secondary materials or co-products formed at any stage. Since there are no outputs other than the final product and normal manufacturing residues (which are treated as waste), allocation for by-products is not required.

# Engineering tomorrow with **Conmix** as foundation



# ENVIRONMENTAL PERFORMANCE

In the following tables, the environmental performance of the declared unit “1 kilogram of ReCon MC5mm” is presented for the Conmix Ltd. Environmental impacts are calculated using EF-3.1, (ILCD).



# ENVIRONMENTAL PERFORMANCE

## Core Environmental impact indicators

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding thresholds values, safety margins or risks.

Impact Category	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Climate change (GWP) - fossil	Kg CO <sub>2</sub> e	3.81E-01	6.96E-03	1.17E-01	5.05E-01	1.48E-02	0.00E+00	0.00E+00	4.94E-03	1.71E-02	3.13E-04	-1.88E-01
Climate change (GWP) - biogenic	Kg CO <sub>2</sub> e	0.00E+00	0.00E+00	5.23E-02	5.23E-02	0.00E+00	-5.23E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Climate change (GWP) - LULUC	Kg CO <sub>2</sub> e	6.21E-04	3.35E-06	3.11E-05	6.56E-04	7.13E-06	0.00E+00	0.00E+00	2.38E-06	2.44E-05	1.78E-07	-5.88E-03
Climate change (GWP) - total	Kg CO <sub>2</sub> e	3.84E-01	6.96E-03	1.18E-01	5.08E-01	1.48E-02	0.00E+00	0.00E+00	4.95E-03	1.72E-02	3.13E-04	-1.90E-01
Ozone depletion	Kg CFC-11e	3.06E-09	9.00E-11	4.53E-09	7.68E-09	2.00E-10	0.00E+00	0.00E+00	7.00E-11	2.70E-10	8.71E-12	-2.31E-09
Acidification	mol H <sup>+</sup> e	1.92E-03	2.00E-05	9.10E-04	2.85E-03	4.00E-05	0.00E+00	0.00E+00	1.00E-05	1.30E-04	2.19E-06	-1.25E-03
Eutrophication, aquatic freshwater	kg PO <sub>4</sub> <sup>3-</sup> eq	2.28E-04	1.63E-06	2.75E-05	2.57E-04	3.47E-06	0.00E+00	0.00E+00	1.17E-06	2.54E-05	8.41E-08	-1.66E-04
Eutrophication, aquatic freshwater	Kg P eq	7.42E-05	5.30E-07	8.95E-06	8.37E-05	1.13E-06	0.00E+00	0.00E+00	3.80E-07	8.28E-06	2.74E-08	-5.41E-05
Eutrophication, aquatic marine	Kg N eq	5.37E-04	4.41E-06	4.69E-04	1.01E-03	9.40E-06	0.00E+00	0.00E+00	3.13E-06	4.66E-05	8.44E-07	-3.57E-04
Eutrophication, terrestrial	mol N eq	5.81E-03	5.00E-05	4.09E-03	9.95E-03	1.00E-04	0.00E+00	0.00E+00	3.00E-05	5.00E-04	9.19E-06	-3.80E-03
Photochemical ozone formation	Kg NMVOC eq	1.93E-03	2.62E-05	1.26E-03	3.22E-03	5.59E-05	0.00E+00	0.00E+00	1.86E-05	1.61E-04	3.32E-06	-1.34E-03
Abiotic depletion, minerals & metals	Kg Sb eq	1.32E-06	2.08E-08	3.19E-07	1.66E-06	4.43E-08	0.00E+00	0.00E+00	1.48E-08	3.89E-08	4.60E-10	-8.74E-07
Abiotic depletion of fossil resources	MJ	3.83E+00	9.49E-02	1.92E+00	5.85E+00	2.02E-01	0.00E+00	0.00E+00	6.74E-02	2.64E-01	7.66E-03	-2.72E+00
Water use	m <sup>3</sup> depr.	1.23E-01	5.61E-04	2.07E+00	2.20E+00	1.20E-03	0.00E+00	0.00E+00	3.99E-04	5.75E-02	3.39E-04	-9.75E-02

The results of the environmental impact indicators — Abiotic depletion, Water use, and all optional indicators except Particulate matter and Ionizing radiation, human health — shall be used with care, as the uncertainties on these results are high or there is limited experience with the indicator. Reading example: 1.57E-03 = 1.57 × 10<sup>-3</sup> = 0.00157.

# ENVIRONMENTAL PERFORMANCE

## Additional environmental impact indicators

Impact Category	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Particulate matter	Incidence	3.77E-08	7.10E-10	3.05E-09	4.14E-08	1.51E-09	0.00E+00	0.00E+00	5.05E-10	9.84E-09	5.04E-11	-2.95E-08
Ionizing radiation, human health	Kbq U-235 eq	8.95E-03	9.10E-05	3.93E-03	1.30E-02	1.94E-01	0.00E+00	0.00E+00	6.47E-05	4.16E-04	4.59E-07	-7.40E-03
Ecotoxicity (freshwater)	CTUe	1.55E+00	1.30E-02	6.00E-01	2.16E+00	2.77E-02	0.00E+00	0.00E+00	9.24E-03	8.62E-02	5.50E-04	-1.04E+00
Human toxicity, cancer effects	CTUh	1.23E-09	1.16E-12	2.68E-11	1.26E-09	2.48E-12	0.00E+00	0.00E+00	8.26E-13	3.76E-12	5.68E-14	-1.14E-09
Human toxicity, non-cancer effects	CTUh	2.95E-09	6.91E-11	8.75E-10	3.90E-09	1.47E-10	0.00E+00	0.00E+00	4.91E-11	1.48E-10	1.28E-12	-1.82E-09
Land use related impacts/soil quality	Dimensionless	1.12E+02	1.09E-01	2.06E-01	1.12E+02	2.32E-01	0.00E+00	0.00E+00	7.75E-02	2.87E-01	1.51E-02	-1.06E+02

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, or radioactive waste disposal in underground facilities. Potential ionizing radiation from soil, radon, and some construction materials is also not measured by this indicator.

## GWP-GHG Indicators

Impact Category	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP-GHG	Kg CO <sub>2</sub> e	3.84E-01	6.96E-03	6.56E-02	4.56E-01	1.48E-02	5.23E-02	0.00E+00	4.95E-03	1.72E-02	3.13E-04	-1.90E-01

This indicator includes all greenhouse gases, excluding biogenic carbon dioxide uptake and emissions, as well as biogenic carbon stored in the product, as defined by IPCC AR6 (2021). The indicator aligns closely with the Global Warming Potential (GWP) outlined in EN 15804:2012+A2:2019, incorporating updated characterization factors and environmental impact indicators.

## Resource Use Indicators

Impact Category	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Renewable PER used as energy	MJ	1.56E+01	1.46E-03	1.89E-02	1.56E+01	3.12E-03	0.00E+00	0.00E+00	1.04E-03	7.53E-03	7.24E-05	-1.47E+01
Renewable PER used as materials	MJ	1.34E-03	0.00E+00	1.08E-04	1.45E-03	0.00E+00	-1.45E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.18E-04

# ENVIRONMENTAL PERFORMANCE

Total use of renewable PER	MJ	1.56E+01	1.46E-03	1.90E-02	1.56E+01	3.12E-03	-1.45E-03	0.00E+00	1.04E-03	7.53E-03	7.24E-05	-1.47E+01
Non-renewable PER used as energy	MJ	3.83E+00	9.49E-02	1.92E+00	5.84E+00	2.02E-01	0.00E+00	0.00E+00	6.74E-02	2.64E-01	7.66E-03	-2.72E+00
Non-renewable PER used as materials	MJ	1.10E-06	0.00E+00	4.07E-08	1.14E-06	0.00E+00	-1.14E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.13E-06
Total use of non-renewable PER	MJ	3.83E+00	9.49E-02	1.92E+00	5.84E+00	2.02E-01	-1.14E-06	0.00E+00	6.74E-02	2.64E-01	7.66E-03	-2.72E+00
Use of secondary materials	Kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of non-renewable secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m <sup>3</sup>	0.00E+00	0.00E+00	1.24E-04	1.24E-04	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

## Waste Indicators

Impact Category	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Hazardous waste	Kg	0.00E+00										
Non-hazardous waste	Kg	0.00E+00	0.00E+00	1.39E-01	1.39E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	5.00E-02	0.00E+00
Radioactive waste	Kg	0.00E+00										

## Output Flow Indicators

Impact Category	Unit	A1	A2	A3	A1-A3	A4	A5	C1	C2	C3	C4	D
Components for reuse	Kg	0.00E+00	9.79E-01									
Materials for recycling	Kg	0.00E+00	9.50E-01	0.00E+00	9.79E-01							

# ENVIRONMENTAL PERFORMANCE

Materials for energy recovery	Kg	0.00E+00										
Exported energy - electricity	MJ	0.00E+00										
Exported energy - thermal	MJ	0.00E+00										

## Biogenic carbon content

Details	Unit	A1-A3
Biogenic carbon content in product	Kg C	0.00E+00
Biogenic carbon content in accompanying packaging	Kg C	1.43E-02

Note: 1 kg biogenic carbon is equivalent to 44/12 kg CO<sub>2</sub>. "Reading example: 1.57E-03 = 1.57\*10<sup>-3</sup> = 0.00157"

**Disclaimer:** "According to the **EN 15804:2012+A2:2019** standard, the LCIA results are relative expressions translating impacts into environmental themes such as climate change, ozone depletion, etc. (midpoint impact categories). Thus, the LCIA results do not predict impacts on category endpoints such as impact on the extinction of species or human health. In addition, the results do not provide information about exceeding thresholds, safety margins or risks".

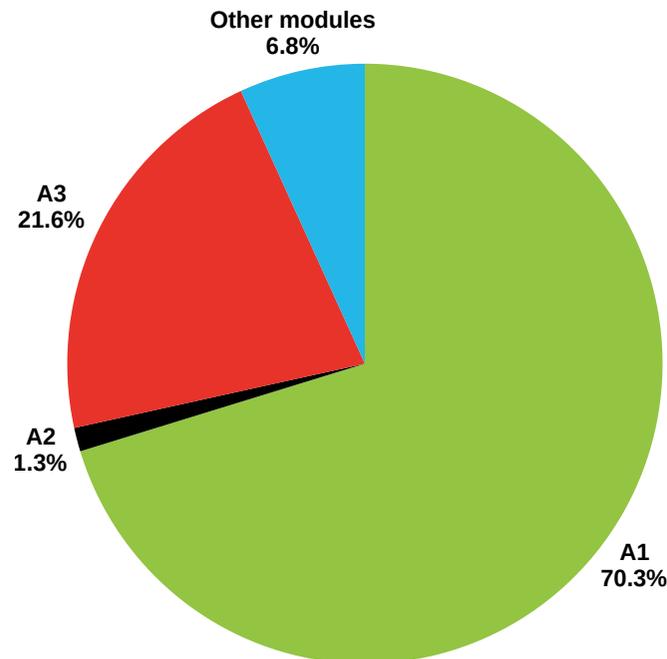


# ENVIRONMENTAL PERFORMANCE

## Interpretation

The results indicate that Modules A1–A3 are the dominant contributors to the total GWP for ReCon MC5mm, with A1 accounting for 70.28% of overall impacts. This is primarily driven by the production of graded limestone sand/aggregates (up to 5 mm), Ordinary Portland Cement, Ground Granulated Blast Furnace Slag, and silica fume used in the micro concrete formulation. Manufacturing activities in Module A3 contribute a further 21.60%, reflecting electricity consumption for dry blending, admixture mixing, sieving, internal material handling, air removal, and packaging operations at the Sharjah facility. Transport-related impacts in Modules A2 and A4 together represent 4.00% of total GWP, as raw materials are largely sourced within the UAE while the finished product is distributed within the UAE and Oman. End-of-life stages (C1–C4) contribute 4.12%, consistent with the inert behaviour of hardened cementitious micro concrete and high diversion of mineral demolition waste. Overall, A1 remains the primary hotspot, highlighting opportunities for optimising binder composition and reducing clinker intensity.

## Life Cycle Stage Contribution to GWP (kg CO<sub>2</sub>e per 1 kg ReCon MC5mm)



# ENVIRONMENTAL PERFORMANCE

## **Mandatory Statements**

Explanatory materials are available from the EPD Owner and/or LCA Author. The verifier and Program Operator make no claims and bear no responsibility regarding the legality of the study. Sole ownership, liability, and responsibility for the EPD lie with the EPD Owner. The LCA Author is not liable for manufacturer-provided information, life cycle data, or supporting evidence.

EPDs within the same product category, but issued by different EPD programs, may not be comparable. For valid comparison, both EPDs must be based on the same PCR (including version number), or on fully-aligned PCRs. Products must have identical function, technical performance, and use cases (e.g. the same declared or functional unit); share equivalent system boundaries, data descriptions, and data quality standards; use comparable collection methods and allocation rules; include matching content declarations; and be valid at the time of comparison.

## **Information related to EPD of multiple products**

This is not an EPD of multiple products.

## **Information related to Sector EPD**

This is not a sector EPD.

## **Differences vs previous versions**

This is the first version of the EPD.



# REVIEW AND VERIFICATION

Program Operator	International Climate Intelligence System 71-75 Shelton Street Covent Garden London, WC2H 9JQ United Kingdom
Registration Number	ICIS-202603-116
Publication Date	20-03-2026
Valid Until	19-03-2031
Geographical Scope	United Arab Emirates (UAE)
Product category rules (PCR): PCR 2026:18 Construction products (EN15804:2012+A2:2019/AC:2021) Version 1.2.6 dated 21-Jan-2026	
PCR review was conducted by: International Climate Intelligence System	
Independent verification of the declaration and data, according to ISO 14025:2006 and ISO 14040: EPD Process Certification (internal)                      EPD Verification (external) <input checked="" type="checkbox"/>	
Third party verifier: Luis Manuel, International Climate Intelligence System (ICIS)	



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# ACRONYMS

Acronym	Meaning
kg CO <sub>2</sub> e	Kilograms of carbon-dioxide equivalent
kg CFC-11e	Kilograms of Chlorofluorocarbon-11 equivalent
mol H <sup>+</sup> e	Moles of hydrogen ion equivalent
kg PO <sub>4</sub> <sup>3-</sup> eq	Kilograms of phosphate equivalent
kg P eq	Kilograms of phosphorus equivalent
kg N eq	Kilograms of nitrogen equivalent
mol N eq	Moles of nitrogen equivalent
kg NMVOC eq	Kilograms of non-methane volatile organic compound equivalent
kg Sb eq	Kilograms of antimony equivalent
MJ	Megajoules
m <sup>3</sup> depr.	Cubic meters of water deprived
incidence	Unit representing human health impact related to particulate matter exposure
Kbq U-235 eq	Kilo-becquerels of Uranium-235 equivalent
CTUe	Comparative Toxic Unit for ecosystems
CTUh	Comparative Toxic Unit for humans
dimensionless	Unitless characterization factor — used for land-use/soil quality impacts
kg C	Kilograms of biogenic carbon contained in product or packaging

# STANDARDS AND REFERENCES

## Standards & Methodological Frameworks

- EN 15804:2012 + A2:2019 / AC:2021 – Sustainability of construction works – Core rules for environmental product declarations of construction products.
- ISO 14025:2006 – Environmental labels and declarations – Type III environmental declarations – Principles and procedures.
- ISO 14040:2006 – Life cycle assessment – Principles and framework.
- ISO 14044:2006 – Life cycle assessment – Requirements and guidelines.

## PCR & Program Documents

- PCR 2026:18 Construction Products, Version 1.2.6 – International Climate Intelligence System (EN 15804+A2 aligned).
- EPD General Program Instructions (GPI) of International Climate Intelligence System, v2.0, 2023.

## Databases, Tools & Modelling Sources

- Ecoinvent v3.11, system model: Allocation, cut-off by classification.
- Air.e.LCA Software v3.20.1.0 by Solid Forest – Used for LCA modelling and impact calculations.
- IPCC AR6 (2021) Characterization Factors – Applied for GWP indicators (where relevant).
- EF 3.1 (Environmental Footprint 3.1 method) – Used for all midpoint impact indicators.

## Transport Calculation Tools

- Google Maps – Used to calculate road transport distances for raw materials, diesel and finished product delivery.

## End-of-Life & Recycling

- UAE Construction & Demolition Recycling Facilities – Dubai Municipality, Tadweer (Abu Dhabi), BEEAH (Sharjah).
- Oman Construction & Demolition Recycling Facilities – be'ah Oman.
- International Construction & Demolition Recycling Benchmarks – Netherlands, Denmark, Belgium, Japan, Singapore.
- Landfill Avoidance Study, Virginia Tech & USDA Forest Service, 2018 – Recovery rates for wooden pallets.
- RecycledPlastic.com – Plastics recycling industry data for LDPE recovery rates.



Building strength  
with **Connix** at  
every step