NON-SHRINK GROUTS

ENVIRONMENTAL PRODUCT DECLARATION

NANOGROUT PT-938

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

EPD Program	Title	Details
International Climate Intelligence System 71-75 Shelton Street Covent Garden, London, WC2H 9JQ United Kingdom office@climateintell.com	Registration Number	ICIS-202603-120
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EPD VERIFIED – International Climate Intelligence System

Conmix Ltd.
Sharjah, P.O. Box 5936,
United Arab Emirates
www.conmix.com

INTERNATIONAL CLIMATE INTELLIGENCE SYSTEM EPD

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

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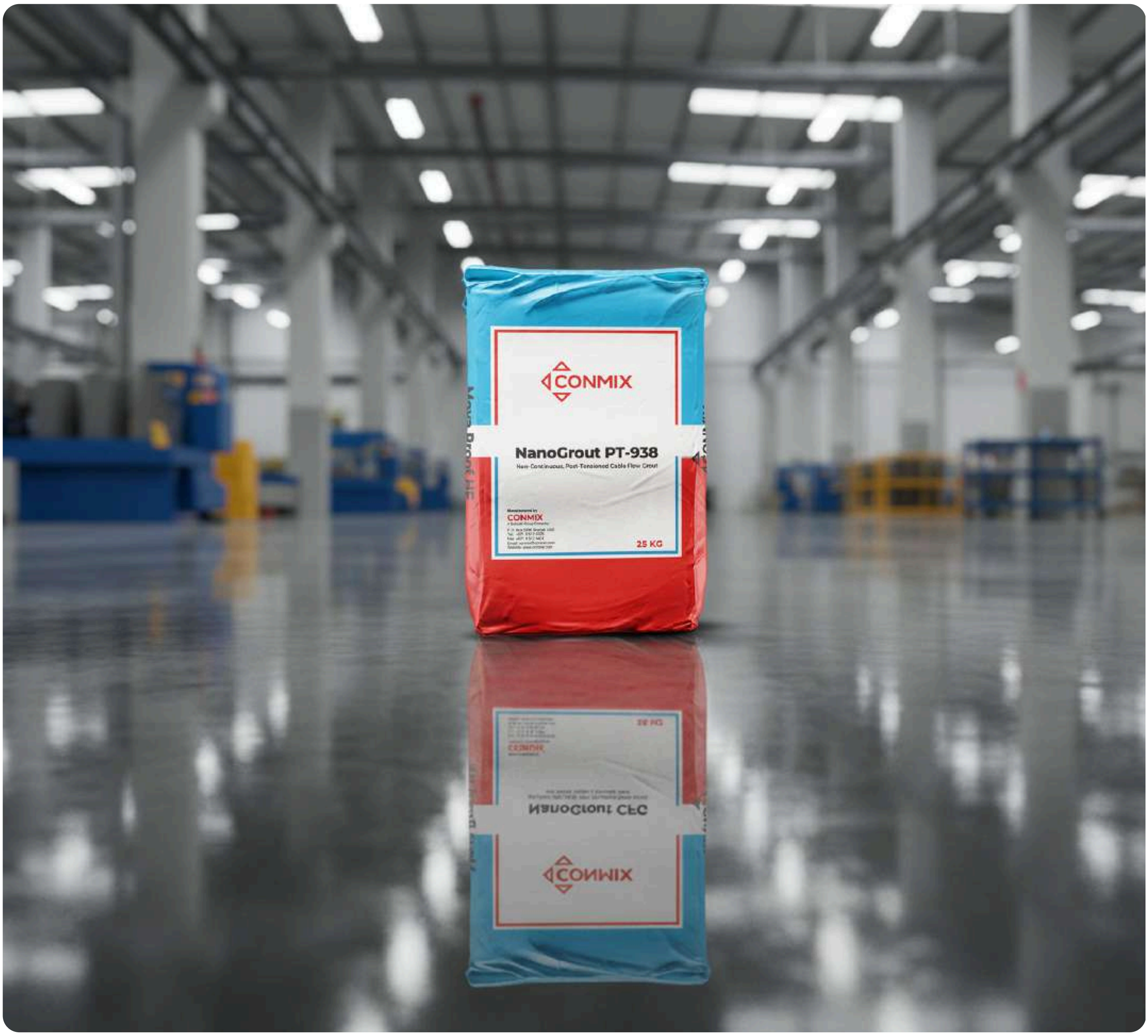
OVERVIEW

This Environmental Product Declaration (EPD) presents verified, transparent environmental performance data for NanoGrout PT-938, 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 NanoGrout PT-938.

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

NanoGrout PT-938

Product Type

Non-Gaseous, Post - Tensioned Cable Flow 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

International Climate Intelligence System
71-75 Shelton Street, Covent Garden
London, WC2H 9JQ
United Kingdom
office@climateintell.com
www.climateintell.com

Product Group Classification

UN CPC 3744 (Cement mortars & grouts)

Environmental Performance Summary (A1-A3)

Indicator	Result	Unit
Climate change (GWP) - total	8.57E-01	Kg CO_2e
Climate change (GWP) - fossil	8.75E-01	Kg CO_2e
Ozone Depletion (ODP)	8.63E-09	Kg CFC-11e
Abiotic depletion of fossil resources	7.17E+00	MJ

Hotspot Summary

Process	Share of Total GWP (%)
Raw Material Supply (A1)	81.26
Raw Material Transportation (A2)	0.27
Manufacturing (A3)	13.01
Remaining Modules (A4, C1-C4)	5.46

PRODUCT INFORMATION

Where This Adds Value

Scheme / Area	Relevance to NanoGrout PT-938
LEED v4.1 (USGBC) – MR Credit: EPDs (aligned with emerging LEED v5 requirements)	The Type III EPD for NanoGrout PT-938 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. NanoGrout PT-938 is used in base plates, anchor bolts, and duct grouting on Pearl projects.
GSAS (Qatar)	Supports materials submittals requiring environmental documentation for QSAS/GSAS Material & Waste credits. NanoGrout PT-938's quantified impacts enable transparent comparison during material 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 NanoGrout PT-938 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. NanoGrout PT-938'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.

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, 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

NanoGrout PT-938 is a ready-to-use, high-strength, non-shrink cementitious grout formulated for non-gaseous, post-tensioned cable flow grouting applications in post-tensioned tendon ducts, anchorage zones, and specialized structural grouting works. The product is supplied as a single-component grey powder, requiring only the addition of potable water at site to achieve high flowability and stable placement at a low water-to-powder ratio. Its composition incorporates Ordinary Portland cement, supplementary cementitious materials, and performance-enhancing admixtures that provide excellent fluidity retention, no bleeding, and superior stability during pumping.

The grout is engineered for demanding civil and structural applications where consistent flow, full duct encapsulation, and long-term durability are critical. It delivers high compressive strength development, controlled volume stability, high density, and negligible chloride content, making it suitable for post-tensioned cable systems, anchorage grouting, void filling, and critical structural grouting works. NanoGrout PT-938 is available in 25 and 50 kg bags, offering flexibility across project scales and site conditions.

Sectors & Corresponding Uses

Sector	Application / Use Case
Post-Tensioning Works	Grouting of post-tensioned cable ducts to ensure corrosion protection and complete encapsulation
Prestressed Concrete Structures	Grouting of tendon ducts and anchorage zones in bridges, slabs, and structural members
Infrastructure Construction Works	Filling of embedded sleeves, ducts, and confined voids requiring high-flow cementitious grout continuity
Civil Engineering Repairs	Injection into non-moving voids, honeycombs, and intricate gaps to restore continuity and protection
Aggressive Exposure Environments	Long-term durable duct grouting in aggressive exposure environments requiring stable density and performance

Technical Specifications

Parameter	Details / Specification
Form	Single component grey powder

PRODUCT DESCRIPTION

Fresh Wet Density	2.00 ± 0.05 kg/L (ASTM C138)
Fluidity (Seconds)	(ASTM C939) W/P (0.32 - 0.34); Immediately after mixing: 11 - 30 30 minutes after mixing with 30 sec remix: 11 - 30
Fluidity (Seconds)	ASTM C939 (Modified) Immediately after mixing: 9 - 20 30 minutes after mixing with 30 sec remix: 9 - 20
Final Set, hrs	Initial > 3, Final < 12
Volume Change	0.0% to +0.2% at 24h and 28 days
Plastic Expansion	0% to 2 % for up to 3 hrs
Compressive Strength	1 Day - 20 N/mm^2 (0.32); 15 N/mm^2 (0.34) 7 Days - 50 N/mm^2 (0.32); 48 N/mm^2 (0.34) 28 Days - 65 N/mm^2 (0.32); 8 N/mm^2 (0.34)
Flexural Strength	28 Days - 10 N/mm^2 (0.32); 8 N/mm^2 (0.34)
Bleeding	0% at 3 hrs
Chloride Permeability coulombs at 28 days	Max. 2500 coulombs
Sedimentation	<5%
Acid soluble chloride content	Max. 0.08% by wt of cementitious materials
NanoGrout PT-938 is free from aluminium powder and other components which produce hydrogen gas, carbon dioxide or oxygen gas.	

MANUFACTURING DETAILS

The production of NanoGrout PT-938 at Conmix begins with the receipt and inspection of key raw materials, including Ordinary Portland Cement, supplementary cementitious materials such as GGBFS and microsilica, and specialised flow-retention and anti-bleed admixtures. Each incoming material undergoes quality verification to ensure compliance with internal specifications and consistency across batches. Approved materials are transferred to dedicated storage silos, bins, or sealed containers depending on their sensitivity to moisture and handling requirements.

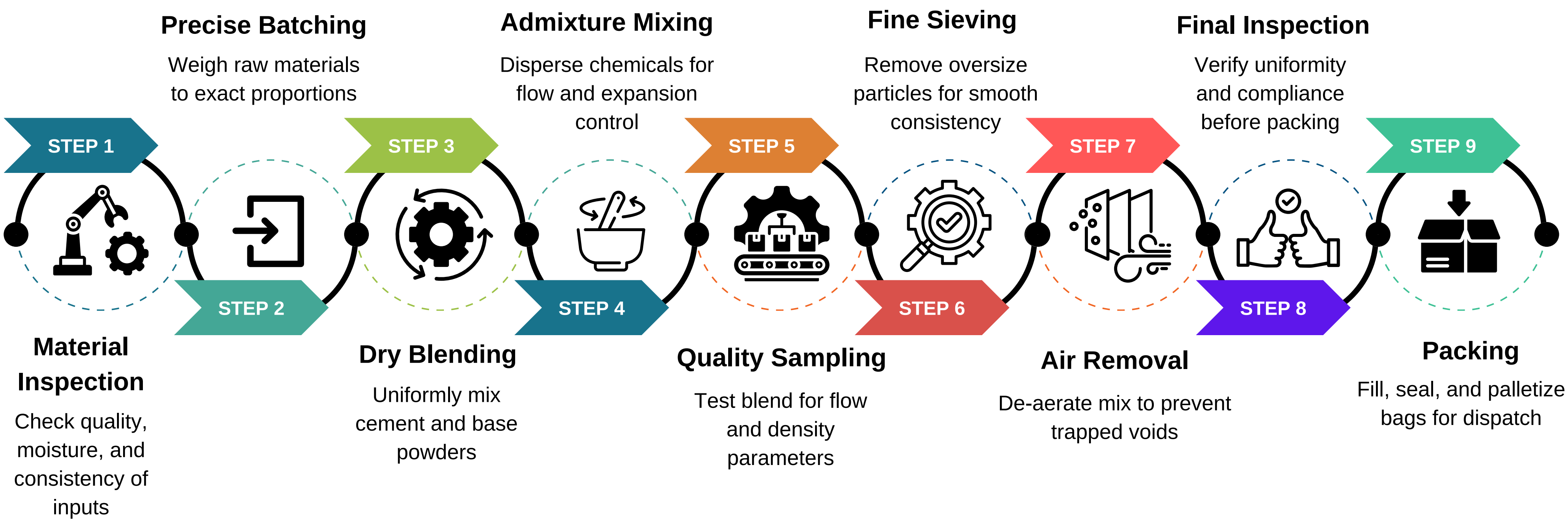
During batching, raw materials are metered in precise proportions using automated dosage systems to ensure controlled formulation. These weighed components enter the dry-mix blending unit, where high-efficiency industrial mixers homogenize the cementitious binder blend with the performance additives. The process is designed to achieve uniform distribution of fine powders and admixtures, which is essential to the product's high flowability, controlled expansion behaviour, and stable performance at low water-to-powder ratios for post-tensioned duct grouting. No chemical reactions occur during manufacturing; the process is strictly physical blending.

Following homogenization, the mix undergoes secondary refinement steps such as fine sieving and air removal, which help eliminate agglomerates and ensure smooth pumpability during site application. Samples from each batch are tested for key properties such as flow, density, and moisture content to validate conformity with the technical datasheet (e.g., fluidity and wet density per ASTM C939 and ASTM C138). Conforming batches are transferred to the automated packing line, where NanoGrout PT-938 is filled into moisture-resistant 25 kg and 50 kg bags, batch-coded, and palletized. The packaged product is then wrapped, labelled, and prepared for distribution from the Sharjah 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.

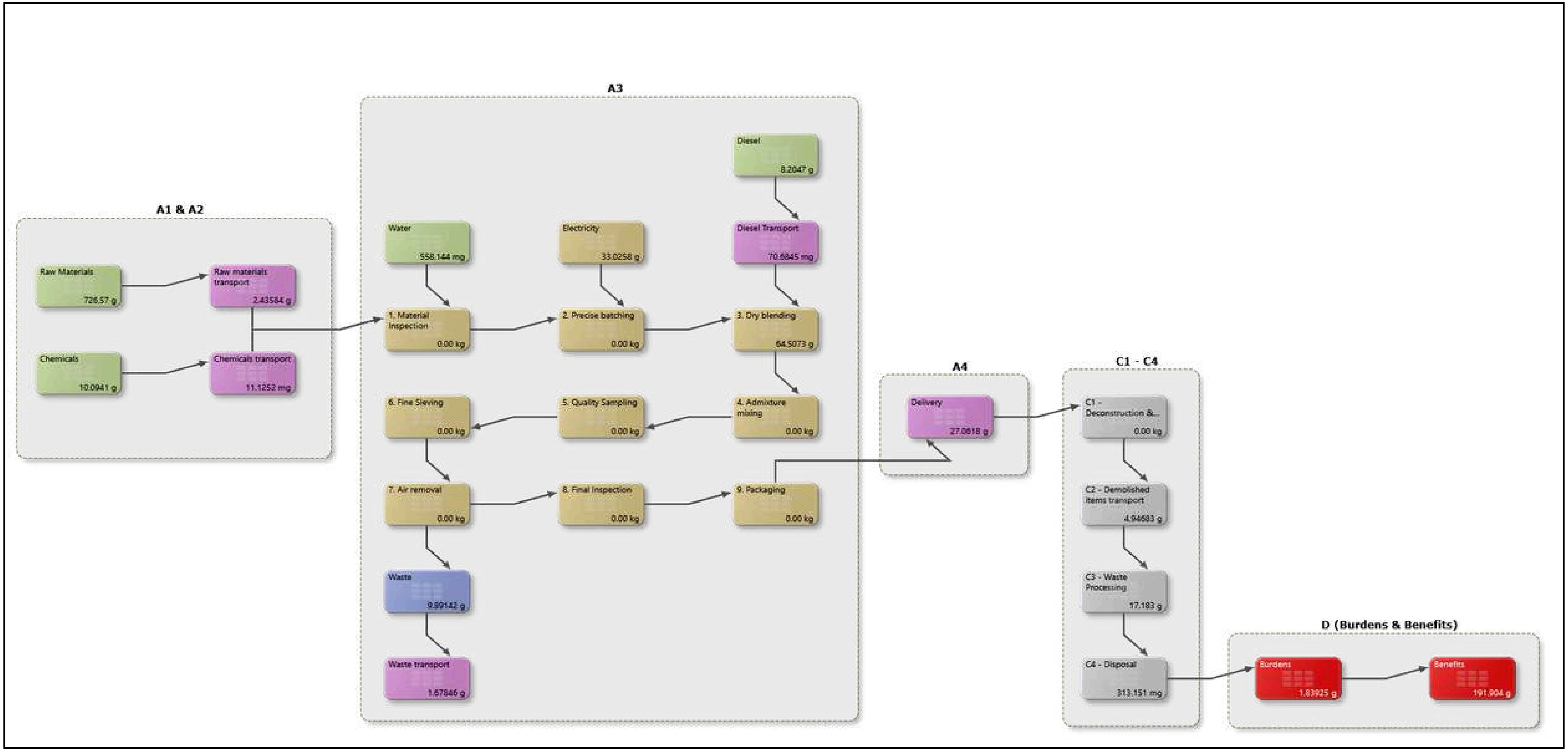
MANUFACTURING DETAILS

Schematic overview of NanoGrout PT-938 manufacturing process



MANUFACTURING DETAILS

Screenshot of NanoGrout PT-938 LCA model from LCA software



CONTENT DECLARATION

The content declaration provides a transparent breakdown of all raw materials used to produce 1 kg of NanoGrout PT-938, expressed per 1 kg of product. The formulation consists of Ordinary Portland Cement (OPC) as the primary component, complemented by GGBFS, microsilica, and small quantities of polycarboxylate-based admixture and performance-enhancing additives. 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)
OPC	0.75	0	0	0	0
GGBFS	0.20	0	0	0	0
Microsilica	0.03	0	0	0	0
Additives & Fillers	0.02	0	0	0	0
Total	**1**	**0**	**0**	**0**	**0**

Substances of Very High Concern (SVHC)

According to the requirements of the ECHA Candidate List, NanoGrout PT-938 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—Ordinary Portland Cement (OPC) as the primary component, complemented by GGBFS, microsilica, and small quantities of polycarboxylate-based admixture and performance-enhancing additives—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 NanoGrout PT-938 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
Total	**3.04E-02**	**100**	**1.43E-02**	**-**

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 NanoGrout PT-938 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 NanoGrout PT-938 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 NanoGrout PT-938 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 NanoGrout PT-938 accurately reflects the actual production technology used at Conmix Ltd.'s Sharjah facility. The product is produced through a dry-mix blending process, incorporating OPC, GGBFS, graded fillers, 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 NanoGrout PT-938 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 covers the upstream processes involved in sourcing and preparing all raw materials used to produce NanoGrout PT-938. The main constituents—Ordinary Portland Cement (OPC), GGBFS, microsilica, and performance admixtures—are procured from established suppliers within the United Arab Emirates, ensuring consistent quality and compatibility with regional construction requirements. Additional components such as polycarboxylate-based admixtures and flow-retention additives are also sourced locally, supporting stable formulation and reliable 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 Ordinary Portland Cement (OPC), GGBFS, microsilica, and performance admixtures—are sourced exclusively from suppliers within the UAE, reflecting the fully localised supply chain for PT-938.

LCA KNOWLEDGE

All inbound movements are modelled as heavy-duty road transport using >32-ton Euro 6–equivalent trucks, representing typical logistics used for bulk powders, bagged materials, and palletized 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 actual supplier-to-plant road distances used in the LCA model reflect realistic UAE logistics conditions and are applied consistently across all raw materials included in the product system.

Module A3 - Manufacturing

Manufacturing impacts cover all processes required to convert raw materials into the finished NanoGrout PT-938 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 fine binders, 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 cementitious 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, multi-wall 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 NanoGrout PT-938 from the Conmix manufacturing facility in Sharjah to customer locations. Since NanoGrout PT-938 is supplied within the GCC region, primarily the United Arab Emirates and Oman, outbound transport occurs via road freight. 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 bulk construction 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 average delivery routes within the UAE and cross-border deliveries 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 transport.

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. NanoGrout PT-938 is applied in voids, ducts, joints, or anchor zones where it cures and becomes fully bonded within the surrounding concrete. Once cured, it no longer exists as a separate layer or component that can be removed on its own.

During end-of-life demolition, the entire concrete element is broken using standard demolition equipment (e.g., hydraulic breakers or crushers). The grout simply follows the same mechanical breakup as the concrete around it. No additional time, tools, fuel, or handling effort is required specifically for the grout.

For example, if a beam or slab containing grout is demolished, the contractor does not identify, target, or treat the grout differently; the teardown process remains unchanged whether the grout is present or not. This means the presence of NanoGrout PT-938 does not influence the demolition method or increase the resources consumed during deconstruction.

Because no distinct or measurable demolition activities are attributable to NanoGrout PT-938 alone, the environmental burdens in 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, NanoGrout PT-938 becomes part of the mixed mineral rubble generated from breaking concrete elements. Since the product is supplied and used exclusively within the GCC region, primarily the UAE and Oman, the demolition waste remains within national waste management systems characterised by established recycling practices for concrete and masonry 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 established recycling performance within the GCC, 95% of the mixed demolition rubble containing NanoGrout PT-938 is assumed to be transported to a C&D recycling facility, while the remaining 5% is sent directly to an inert landfill due to contamination, sorting limitations, or unsuitable loads. A one-way distance of 50 km is assumed for both routes, representing typical transport distances between demolition sites and authorised facilities within the GCC region. Transport is modelled using a >32-ton EURO 6 lorry commonly used for bulk mineral waste transport in the region.

Module C2 therefore includes only the emissions associated with transporting the mixed demolition rubble to the respective recycling and landfill sites within the GCC.

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 NanoGrout PT-938 is demolished together with the concrete element, it forms part of the mixed mineral waste stream typically comprising concrete, masonry, mortar, and similar construction materials. Since the product is used only within the GCC region, primarily the UAE and Oman, the recycled fraction is routed through local C&D recycling facilities such as those operated by Dubai Municipality, Tadweer, BEEAH, be'ah Oman, and private-sector operators across the region.

At these facilities, processing normally begins with coarse sorting to remove oversized fragments and contaminants, followed by primary crushing of the rubble. Magnetic separation extracts reinforcing steel, which is diverted for metal recycling. The mineral fraction is then subjected to secondary crushing and multi-stage screening to produce graded recycled aggregates and fines. These mechanical processes do not require any special treatment for NanoGrout PT-938, as the hardened cementitious grout behaves similarly to surrounding concrete during crushing.

Recycled aggregates produced in UAE and Oman plants are widely used for road base, sub-base, utility trench bedding, backfilling, embankments, footpath layers, and landscaping fill, supporting regional circular economy objectives. These uses align with applications seen internationally in regions with advanced C&D recycling practices such as the Netherlands, Denmark, Belgium, Japan, and Singapore. International examples are provided for context only; modelling assumptions remain fully GCC-centric.

Module C3 therefore includes the environmental burdens associated with crushing, sorting, and screening the 95% of mixed mineral demolition waste containing NanoGrout PT-938 that is directed to recycling. Material that cannot be recovered proceeds to Module C4 for disposal.

Module C4 - Disposal

Module C4 covers the disposal of the portion of demolition waste that does not enter the recycling route. For NanoGrout PT-938, 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 broken concrete containing the hardened cementitious grout. These materials do not generate landfill gas, do not biodegrade, and exhibit extremely low chemical reactivity. In inert landfill operations, any leachate from such mineral fractions is typically negligible, and landfill management focuses mainly on placement, spreading, compaction, and dust suppression.

C&D landfills in the UAE and Oman operate as engineered inert disposal sites managed under municipal waste regulations, with similar operational practices to inert landfills used internationally. Module C4 therefore includes only the operational burdens associated with the disposal of this 5% non-recycled mineral fraction, while the remaining 95% is handled in Module C3 and contributes to recovery benefits 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 NanoGrout PT-938 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 NanoGrout PT-938 is assumed to be processed at UAE and Oman 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 GCC 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 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)
Collection process specified by type	
NanoGrout PT-938 in concrete collected as mixed construction waste	1
Recovery system specified by type	
Mineral demolition rubble sent for reuse / recycling as aggregate	0.95 (95%)
Mineral demolition rubble sent for energy recovery	Not applicable
Disposal specified by type	
Mineral demolition rubble sent to inert landfill	0.05 (5%)
Transportation assumptions	
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 NanoGrout PT-938 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 NanoGrout PT-938 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_2e 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 NanoGrout PT-938 uses foreground data collected directly from Conmix's Sharjah manufacturing facility, combined with background datasets sourced from Ecoinvent v3.11 (Allocation, cut-off by classification). These datasets provide emission factors for all major inputs, including cement, additives, packaging materials, fuel production, electricity generation, and transportation. UAE-specific conditions—such as regional electricity mix, local supplier distances, and national end-of-life practices—were incorporated wherever applicable to improve representativeness.

All transport activities related to raw material supply and finished product delivery are included, based on actual supplier-to-plant and plant-to-customer road distances within the UAE. Distances were measured using Google Maps to reflect realistic logistics routes. Exclusions are limited to items with negligible relevance (typically <1%), such as administrative activities, office utilities, and maintenance of capital equipment. No maritime transport is involved, as the product is supplied exclusively within the UAE.

Byproducts Assignment

No by-products are generated during the manufacturing of NanoGrout PT-938. The production process involves only the transformation and blending of raw materials into a dry grout mixture, 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.

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ENVIRONMENTAL PERFORMANCE

In the following tables, the environmental performance of the declared unit “1 kilogram of NanoGrout PT-938” 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_2e	7.34E-01	2.45E-02	1.17E-01	8.75E-01	2.70E-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_2e	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_2e	6.47E-04	1.18E-06	3.11E-05	6.80E-04	1.30E-05	0.00E+00	0.00E+00	2.38E-06	2.44E-05	1.78E-07	-5.54E-04
Climate change (GWP) - total	Kg CO_2e	7.37E-01	2.45E-03	1.18E-01	8.57E-01	2.71E-02	0.00E+00	0.00E+00	4.95E-03	1.72E-02	3.13E-04	-1.90E-01
Ozone depletion	Kg CFC-11e	4.07E-09	3.00E-11	4.53E-09	8.63E-09	3.60E-10	0.00E+00	0.00E+00	7.00E-11	2.70E-10	8.71E-12	1.72E-06
Acidification	mol H+e	2.85E-03	5.80E-06	9.10E-04	3.77E-03	6.00E-05	0.00E+00	0.00E+00	1.00E-05	1.30E-04	2.19E-06	-1.25E-03
Eutrophication, aquatic freshwater	kg PO_4^{3-} eq	3.06E-04	5.72E-07	2.75E-05	3.34E-04	6.33E-06	0.00E+00	0.00E+00	1.17E-03	2.54E-05	8.41E-08	-1.66E-04
Eutrophication, aquatic freshwater	Kg P eq	9.96E-05	1.86E-07	8.95E-06	1.09E-04	2.06E-06	0.00E+00	0.00E+00	3.80E-04	8.28E-06	2.74E-08	-5.40E-05
Eutrophication, aquatic marine	Kg N eq	8.17E-04	1.55E-06	4.69E-04	1.29E-03	1.71E-05	0.00E+00	0.00E+00	3.13E-06	4.66E-05	8.44E-07	-3.57E-04
Eutrophication, terrestrial	mol N eq	8.92E-03	2.00E-05	4.09E-03	1.30E-02	1.80E-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	2.77E-03	9.22E-06	1.26E-03	4.04E-03	1.02E-04	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	2.19E-06	7.31E-09	3.19E-07	2.51E-06	8.08E-08	0.00E+00	0.00E+00	1.48E-08	3.89E-08	4.60E-10	-8.73E-07
Abiotic depletion of fossil resources	MJ	5.22E+00	3.34E-02	1.92E+00	7.17E+00	3.69E-01	0.00E+00	0.00E+00	6.74E-02	2.64E-01	7.66E-03	-2.66E+00
Water use	m^3 depr.	1.18E-01	1.97E-04	2.07E+00	2.19E+00	2.18E-03	0.00E+00	0.00E+00	3.99E-04	5.75E-02	3.39E-04	-9.65E-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^{-3} = 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	4.56E-08	2.50E-10	3.05E-09	4.89E-08	2.76E-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	1.04E-02	3.20E-05	3.93E-03	1.44E-02	3.54E-04	0.00E+00	0.00E+00	6.47E-05	4.16E-04	4.59E-07	-7.40E-03
Ecotoxicity (freshwater)	CTUe	2.22E+00	4.57E-03	6.00E-01	2.83E+00	5.06E-02	0.00E+00	0.00E+00	9.24E-03	8.62E-02	5.50E-04	-1.04E+00
Human toxicity, cancer effects	CTUh	1.28E-09	4.09E-13	2.68E-11	1.31E-09	4.52E-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	7.24E-09	2.43E-11	8.75E-10	8.14E-09	2.69E-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	1.13E+02	3.83E-02	2.06E-01	1.13E+02	4.24E-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_2e	7.37E-01	2.45E-03	6.56E-02	8.05E-01	2.71E-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	1.57E+01	5.14E-04	1.89E-02	1.57E+01	5.69E-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	1.09E-03	0.00E+00	1.08E-04	1.20E-03	0.00E+00	-1.20E-03	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-6.18E-04

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Total use of renewable PER	MJ	1.57E+01	5.14E-04	1.90E-02	1.57E+01	5.69E-03	-1.20E-03	0.00E+00	1.04E-03	7.53E-03	7.24E-05	-1.47E+01
Non-renewable PER used as energy	MJ	5.22E+00	3.34E-02	1.92E+00	7.17E+00	3.69E-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	1.14E-06	0.00E+00	4.07E-08	1.18E-06	0.00E+00	-1.18E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	-1.13E-06
Total use of non-renewable PER	MJ	5.22E+00	3.34E-02	1.92E+00	7.17E+00	3.69E-01	-1.18E-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^3	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	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
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	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

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	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	9.79E-01
Materials for recycling	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	9.50E-01	0.00E+00	9.79E-01

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Materials for energy recovery	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
Exported energy - electricity	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
Exported energy - thermal	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

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 CO2. "Reading example: 1.57E-03 = $1.57*10^{-3}$ = 0.00157"

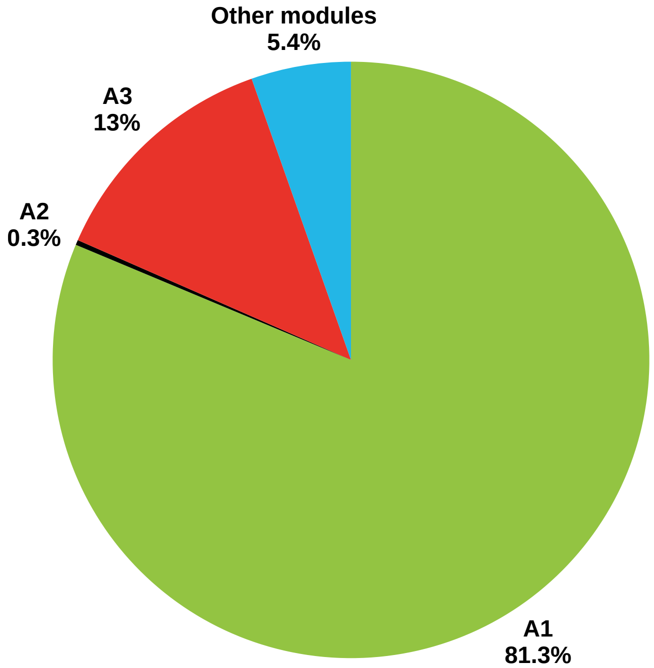
Disclaimer: “According to the **EN 15804:2012+A2:2019** standard, the LCIA results are relative expressions translating impacts into environmental themes such as climate change, ozone depletion, etc. (midpoint impact categories). Thus, the LCIA results do not predict impacts on category endpoints such 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 show that Modules A1–A3 dominate total GWP, contributing about 94% of the impact for NanoGrout PT-938. This is mainly driven by raw material production, particularly Ordinary Portland Cement in A1 (81.26%), together with manufacturing energy and packaging inputs in A3 (13.01%). Module A2 is negligible (0.27%). Module A4 contributes 2.99%, reflecting delivery within the GCC. End-of-life stages (C2–C4) together account for about 2.47%, consistent with the inert cementitious nature of the product and high recycling rates for demolition rubble. Overall, the main hotspot is A1, indicating that improvement efforts should target clinker substitution, binder optimisation, and lower-carbon sourcing. Manufacturing efficiency (A3) is the second-largest contributor and may benefit from energy optimisation and renewable electricity. Other modules contribute minimally.

Life cycle Stage Contribution to GWP (kg CO_2e per 1 kg NanoGrout PT-938)



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-202603-120
Publication Date	25-03-2026
Valid Until	24-03-2031
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) ☑	
Third party verifier: Luis Manuel, International Climate Intelligence System (ICIS)	

CONTACT DETAILS

EPD Owner

Alfred Bulaya
QC Engineer - Construction Chemicals

Conmix Ltd.
Sharjah, P.O.Box 5936,
United Arab Emirates

Email - conmix@conmix.com
Website - www.conmix.com

EPD Author

Alan Beski Christopher
Sustainability Manager

GCAS Quality Certifications
P.O Box 65561
Dubai, United Arab Emirates

Email - info.dubai@gcasquality.com
Website - www.gcasquality.com

EPD Verifier

Luis Manuel
San Adrián, Spain

Accredited by
International Climate Intelligence System
71-75 Shelton St, London WC2H 9JQ, United Kingdom

Program Operator

Email - office@climateintell.com
Website - www.climateintell.com

ACRONYMS

Acronym	Meaning
kg CO_2e	Kilograms of carbon-dioxide equivalent
kg CFC-11e	Kilograms of Chlorofluorocarbon-11 equivalent
mol H+e	Moles of hydrogen ion equivalent
kg PO_4^{3-} 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^3 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 Conmix at
every step