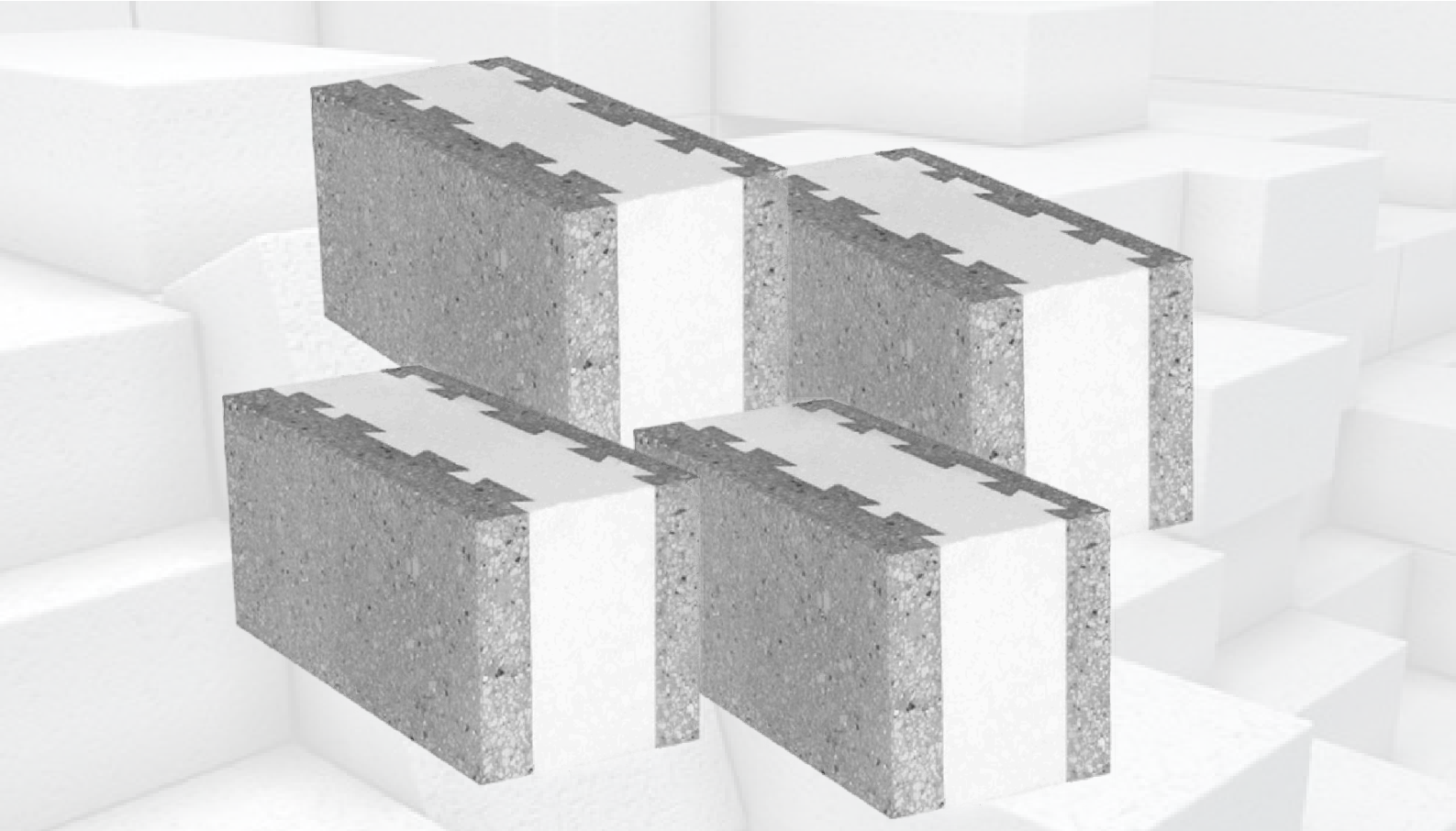


# ENVIRONMENTAL PRODUCT DECLARATION

In accordance with ISO 14025 and  
EN 15804:2012+A2:2021 :



ENVIRONMENTAL FOOTPRINT INSTITUTE



## THERMAL INSULATION BLOCKS (TO BS STANDARD DMSI PART 5)

Manufactured by : NAYEL CEMENT PRODUCT FACTORY

**Programme:**  
**Programme operator:**  
**EPD Reference number:**  
**Issue date:**  
**Valid until:**  
**Geographical Scope**

**The EFI Program**  
**The Environmental Footprint Institute**  
**241207EPD CR:P-3100**  
**12.01.2025**  
**11.01.2030**  
Manufactured in **AL AIN (UAE)**  
and distributed in **United Arab Emirates**

An EPD should provide current information and may be updated if conditions change.  
The stated validity is therefore subject to the continued verification and registration at  
[www.environmentalfootprintinstitute.org](http://www.environmentalfootprintinstitute.org)

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## 1.0 PROGRAM INFORMATION

- **Program** The EFI Program
  - **Product Group Classification** UN CPC 3511
  - **Product Category Rules (PCR)** P-3100: Construction products in general (EN-15804)
  - **Registration Number** REF:241207EPD CR:P-3100
  - **Issue Date** 12.01.2025
  - **Validity Date** 11.01.2030
- An EPD should provide current information and may be updated if conditions change. The stated validity is therefore subject to the continued registration and publication at [www.environmentalfootprintinstitute.org](http://www.environmentalfootprintinstitute.org)
- **Geographical Scope** Manufactured in Al Ain (UAE) and distributed in UAE.

## 2 INTRODUCTION

This report contains the environmental performance of the manufacturing process of **THERMAL INSULATION BLOCKS TYPE as per BS standard 6073** Manufactured by **NAYEL CEMENT PRODUCT FACTORY**. located in New ICAD Zone, PO Box 18381 Al Ain United Arab Emirates. This Environmental Product Declaration (EPD) has been developed using the Life Cycle Assessment (LCA) methodology. The environmental impact values calculated are expressed to One-Ton of Thermal Insulation Block.

The assessed life cycle includes all phases in the manufacturing process of thermal insulation blocks in a “cradle to gate with options” scope. This LCA covers transportation of raw materials, production, distribution of final product to the customer and end of life stages.

This EPD has been conducted according to the program operator regulations and it has been verified in accordance with The Environmental Footprint Institute. The EPD regulation is a system for the international use of Type III Environmental Declarations, according to ISO 14025:2006. Not only the system, but also its applications, is described in the Programmer’s Product Category Rules (PCR). This report has been made following the specifications given in the European standard EN 15804:2012+A2:2019/AC:2021.

# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**



## 3.0 COMPANY INFORMATION

A one-stop solution for all our customers' concrete product requirements. Established in 2004, Nayel Cement Products (NCP) has expanded its in-house capabilities to now house fully equipped Precast, Hollow-core, GRC/GRP, Masonry Block, Kerbstone, Roof-tile & Interlocking Paver Factories. NCP Al Ain is located on a state-of-the-art 2 Sq.km compound, in the New ICAD Zone. Our high-quality production and work ethos has led us to become ISO 9001:2015, ISO 14001:2015, which highlights our commitment to quality and sustainability. NCP is a significant support division for the Nayel Group of Companies and is one of the leading Cement Products Manufacturers in the UAE.

NCP is also established in Djibouti, Africa, which is responsible for our international operations. NCPF Djibouti has expanded its capabilities to have its own Cement Manufacturing, Precast, and Block Factory. We aim to approach Construction Industry challenges with innovativeness and flexibility to serve all our clients' needs. NCP prides itself on achieving fast-track projects in a timely manner. Our work ethos envisages manufacturing premium quality concrete products at affordable prices that are of the highest quality. Our products are only as good as the people who work behind the scenes, and this has guided us towards a constant pursuit of excellence which has motivated us to hire the region's best available skilled professionals.

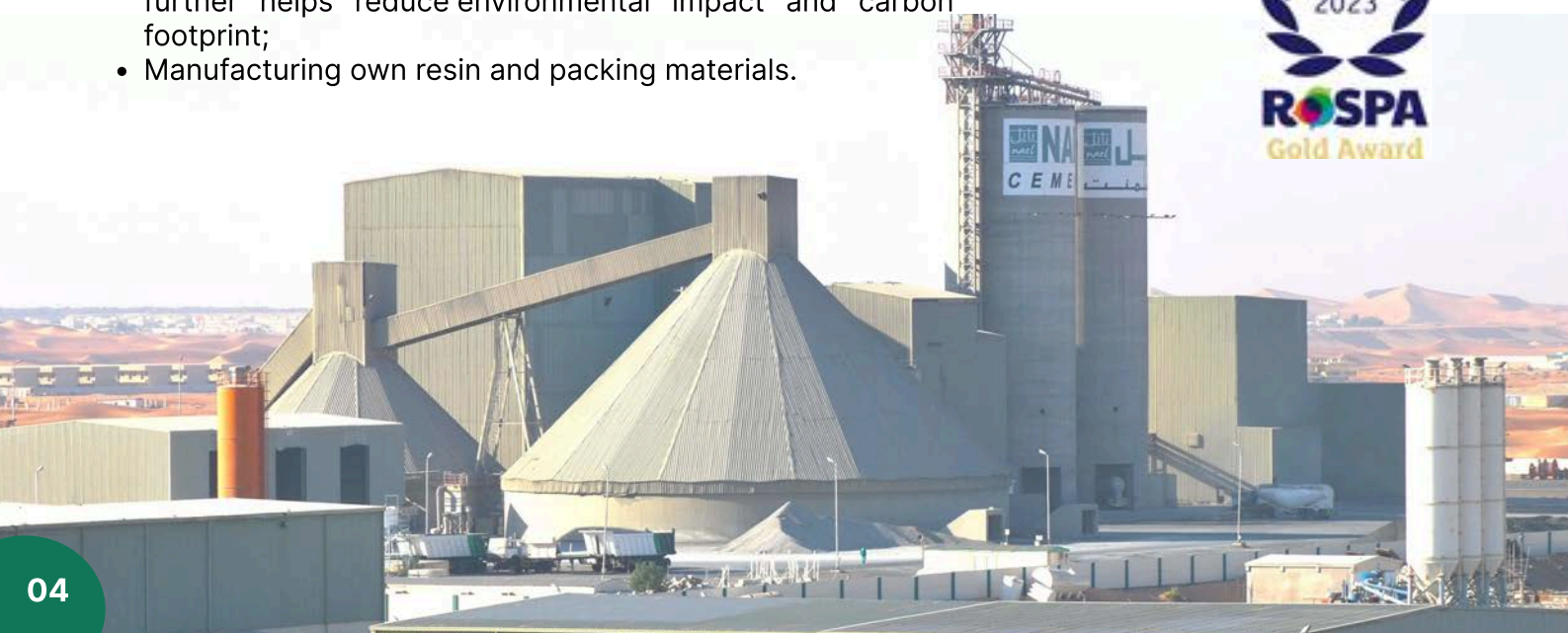
### Certifications



### Sustainable Practices

NAYEL CEMENT PRODUCT FACTORY is committed to green and sustainable practices by using backward and forward integration into its manufacturing processes:

- Sourcing of raw materials from the closest source to reduce the impact on transportation;
- Using recycled materials and minimizing waste which further helps reduce environmental impact and carbon footprint;
- Manufacturing own resin and packing materials.



# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**

## 4.0 PRODUCT INFORMATION

### 4.1 Analyzed Product

The product under analysis is a Masonry (Thermal Insulation block) manufactured in accordance with BS 6073 standards. This type of masonry block is characterized by its solid structure, designed to provide enhanced load-bearing capacity and durability. Made from high-quality raw materials, the blocks are dense and compact, which improves their thermal and acoustic insulation properties. The production process includes precise molding and curing to ensure uniformity, strength, and compliance with relevant performance specifications. This masonry block is widely used in construction applications where structural integrity and long-term stability are essential, meeting the requirements of sustainable building practices and contributing positively to environmental performance indicators.



### 4.2 Technical Specification

Low U Value indicates the efficiency of Thermal Insulation block in preventing heat transfer between the two sides.

- Dimensions: 200MM (W) X 400MM (L) X 200/254/300 (H)
- U VALUE= 0.41W/m<sup>2</sup>K
- Expanded polystyrene density - 16-18 kg/m<sup>3</sup> (Th 0.058 & Th 1.00) or 22-24 kg/mm<sup>3</sup> (Th 0.41)
- Thermal Expansion Coefficient - 0.07 mm/m centigrade
- Water Vapor transmission resistance u - 150
- Dimension Stability @ 80 deg centigrade - 0.5%
- Fire Resistance F90 - DIN 4102
- High Compressive Strength - 75 N/mm<sup>2</sup>
- Excellent thermal storage, cool in winter and warm in summer.



### 4.3 Product Applications

To use the Thermal Insulation block in construction, start by preparing a level foundation and applying a mortar bed where each block will be placed. Carefully position each block, aligning it to ensure the structure remains level and plumb. Stagger the joints between blocks to enhance stability, and maintain a consistent spacing of approximately 10 mm between each block for proper bonding. Allow the mortar to cure adequately, which will ensure a strong, durable wall. This method yields a robust structure with excellent load-bearing capabilities, suited for various building applications.

Note: The above values are ranges of the all products. Refer below Technical data sheet for each product technical specifications.

## 5.0 LCA INFORMATION

This EPD is intended for diverse applications, including industry databases, publications, and communication within the business-to-business (B2B) landscape. Specifically designed for the environmental assessment of buildings, EPDs allow stakeholders to access crucial information regarding a product's environmental performance. This tailored design facilitates B2B communication, enabling companies to make environmentally conscious decisions when selecting materials and components for construction projects. The primary target audience for EPDs is both business-to-business (B2B) interactions, where companies can exchange and evaluate environmental information, and business-to-consumer (B2C) scenarios, where end-users can make informed, sustainable choices based on the disclosed environmental impact of products.

### 5.1 Declared Unit

The Declared Unit of the Life Cycle Assessments is One-ton of THERMAL INSULATION BLOCKS plus the proportional part of packaging. All direct and indirect environmental impacts, as well as the use of resources, are reported referred to this unit. This EPD presents the environmental impacts associated to the LCA of the analyzed products

### 5.2 Time Representativeness

Manufacturing facility specific data from **NAYEL CEMENT PRODUCT FACTORY** are based on 1 year average for process data (Reference year January to December 2023). The following rules for time scope of data were applied - < 10 years for background data and < 2 years for manufacturer's data.

### 5.3 LCA Software and Database

Version 3.17.4.0 of software Air.e LCA™ with Ecoinvent™ 3.10.0 database has been used for LCA modeling and impacts calculations. EN15804 system model is used in this LCA.

### 5.4 System Boundaries

This EPD covers all product stages from “cradle to gate with options”, i.e this LCA covers Production stage A1-A3, Transportation A4, Application of Thermal Insulation Blocks A5, End of life stages C1-C4 and Resource recovery stage D according to EN 15804 + A2/AC:2021.

The system boundaries of this environmental study encompass not only the company-controlled processes but also include upstream and downstream activities such as fuel extraction, material production, and electricity generation, which are not directly managed by the company.

All related direct and indirect environmental impacts related to these elements have been calculated and were included in the LCAs in this EPD. The stage B1,B2,B3,B4,B5,B6 and B7 is not included in this EPD.

**Upstream Processes** (A1: Raw Material Supply): Production of the product starts with mainly raw material production and transportation from different parts of the world and some locally sourced. 'Raw material supply' includes raw material extraction before production.

# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**

**Core Processes (A2: Transportation, A3: Manufacturing, A4: Transport, A5: Application):**

Transport is considered for the delivery of raw materials to the plant and the movement of materials within the facility. Electricity is consumed during the production of thermal insulation masonry blocks. These blocks are distributed to customers at various locations. The production process starts with the receipt and handling of raw materials, followed by mixing, molding, curing, quality inspection, marking, packaging, and storage in the warehouse before final distribution. To create a scenario for the A4 phase, all blocks distributed from January to December 2023 have been analyzed to represent typical transportation patterns, including international transport where relevant. The transport vehicles used include 3.5-7.5-ton trucks and larger >32-ton trucks, following Euro 5 emissions standards. In the A5 phase, The installation of the blocks onsite has been excluded in this EPD. However this stage will model the end-of-life of the packaging, which are assumed to be incinerated in municipal waste treatment plant.

Scenario Details	Description
Vehicle used for transport	3.5-7.5t & >32t trucks, Euro 5.
Vehicle capacity	3.5 -7.5 tons and 25 tons
Fuel type and consumption	Diesel, 0.38 liters per km
Capacity utilization (including empty drums)	50% as assumed in Ecoinvent
Bulk transportation	Mass of the transported product.

**Module C1 (Demolition):** In Module C1, the demolition of blocks involves the use of heavy machinery, such as excavators, to remove and break down the blocks. The environmental impact includes fuel consumption by machinery, emissions from demolition activities, and waste handling. A significant portion of the blocks may be recycled or reused as aggregate, reducing the need for new materials. The demolition process thus contributes to the overall environmental impact, though the potential for recycling helps mitigate some of these effects.

**Module C2 (Transport to Waste Treatment Facility):** Module C2 assumes that the 100% of the demolished masonry blocks are transported to a nearby waste treatment facility using a Euro 5 truck. The average distance to the facility is set at 50 kilometers.

**Module C3 (Waste Processing):** During the waste processing stage, waste segregation is implemented to separate the 80% concrete and 20% polystyrene from the total waste generated. The energy input required for the segregation process is included in this module, ensuring efficient management and recycling of materials while minimizing environmental impact.

**Module C4 (Disposal):**At the waste treatment plant, waste that can be reused, recycled or recovered for energy is separated and diverted for further use. It can be assumed that 100% of the concrete blocks are transported to a waste treatment plant in Abu Dhabi, where the blocks are crushed and separated. About 80% of concrete is recycled. The remaining 20% of concrete are assumed to be sent to the landfill in Abu Dhabi, UAE. The polystyrene insulation is landfilled, Abu Dhabi, UAE .

**Module D Reuse, Recycling & Recovery Potential** - Due to the recycling potential of concrete, they can be crushed and used as secondary raw material, which avoids the use of virgin raw materials. The 80 % of concrete going to waste processing is converted into secondary raw materials after recycling. The recycled material content in the concrete itself is assumed to be 0 %

# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**

## 5.5 MANUFACTURING FLOW AND SYSTEM BOUNDARIES DIAGRAM



The scope of this EPD is "cradle to gate with options".

Possible scopes of the LCA defined in the European standard EN 15804:2012+A2:2019/AC:2021 are :

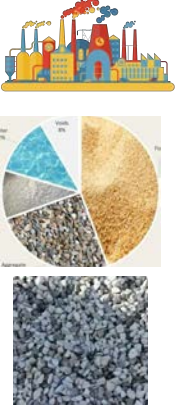


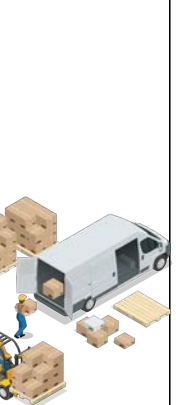


Module	Production Stage			Construction Stage		Use Stage							End of Life Stage				Resource Recovery Stage
	Raw Materials	Transport	Manufacturing	Transport	Construction Installation	Use Stage	Maintenance	Repair	Replacement	Refurbishment	Operational Energy Use	Operational Water Use	Deconstruction & Demolition	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
Module Declared	X	X	X	X	X	ND	ND	ND	ND	ND	ND	ND	X	X	X	X	X
Geography	UAE	UAE	UAE	UAE	UAE	-	-	-	-	-	-	-	UAE	UAE	UAE	UAE	UAE
Specific Data	GWP>90%				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation Products	-				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation Sites	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-



# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**

Scope of this Life Cycle Assessment 'Cradle to Gate with Options'					
A1 Raw Materials Production	A2 Transport raw materials	A3 Manufacture	A4 Distribution	C1-C4 End of use Stage	D Recovering & Recycling
					
Raw Materials and Chemicals	Transport from supplier by land or sea	Block Manufacturing	Transport to customers by trucks & Ships	Demolition, transport, disposal.	Reuse, recovery and recycling potential

## 5.6 Content Declaration

Product Components	%	Post-consumer material, weight-%	Biogenic material, weight-% and ton C/ton
Cement	5-10	0	0
Additives	0.1-0.7	0	0
Fine Aggregates	20-25	0	0
Course Aggregates	35-40	0	0
Sand	5-10	0	0
Water	8-15	0	0
Polystyrene Sheet	15-20	0	0

Packaging Materials			
Packaging Materials	Weight(ton) per DU	Weight % (Versus the Product)	Weight biogenic carbon, ton C/ton
Nylon Straps	1.40E-04	1.40E-02	0*

\*Biogenic carbon content is not presents since the packaging weights less than a 5% over the product's weight.

## 5.7 Substance listed in the "Candidate List of SVHC"

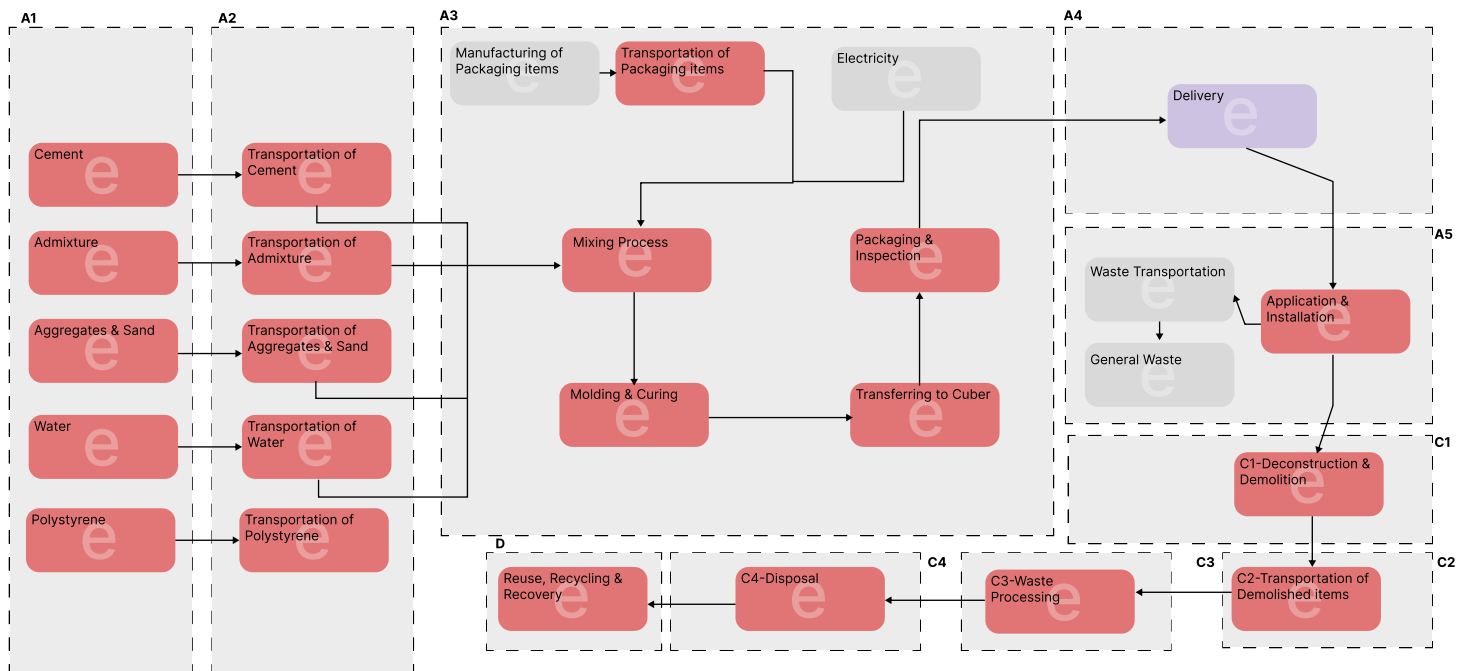
During the life cycle of the product no hazardous substance listed in the "Candidate List of Substances of Very High Concern (SVHC) for authorization" has been used in a percentage higher than 0.1% of the weight of the product.

# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**

## 5.8 Life Cycle Assessment Modeling



## 5.9 More information

**Cut-off rules:** more than 99% of the materials and energy consumption have been included. The Polluter Pays Principle and the Modularity Principle have been followed.

**Allocations:** The allocation of common inputs and outputs is based on the general allocation rule what represents the proportion of production of every specific product in overall production expressed in tons. Generic process data for production of input materials were used.

**Electricity:** A specific dataset with the Life Cycle Inventory (LCI) corresponding to the electricity mix in United Arab Emirates, has been used for this LCA.

- **Source** : 2020: IEA World Energy Statistics and Balances, United Arab Emirates, Total primary energy supply, 2020
- **Global warming potential (excluding biogenic Carbon)** : 0.6279 kg of CO<sub>2</sub> eq /kWh (based on Climate Change (fossil) indicator)

**Calculation Rules:** Datasets from Ecoinvent 3.10.0 with emission factors for raw materials and generic chemicals have been characterized to adjust them to the characteristics of manufacturing of suppliers or counties where suppliers are located. Specific datasets with the emissions factors corresponding to the fuel combustion of production plant and machinery have been developed for these LCAs. Indirect emissions due to diesel production and transportation are also included in the environmental impact. Minor components are not directly related to the product, with less than 1% impact, such as office supplies, has been excluded from the assessment.

# THERMAL INSULATION BLOCKS

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All transports of components have been included in the LCA considering real distances travelled by materials used for production. It is estimated in a global scale according to Ecoinvent™ criteria. As exact port locations are not known in detail, transport distances have been calculated from a one of the ports in the country of origin to the factory. Operation in port has also been excluded. Road distances calculated using Google Maps. Maritime distances calculated using Marine Traffic Voyage Planner. By Products Assignment There are no By Products in this Environmental Product Declaration. Hence, no allocation had to be applied.

## 6.0 ENVIRONMENTAL PERFORMANCE

### 6.1 Potential Environment Impacts

In the following tables, the environmental performance of the declared unit “One-ton of Thermal Insulation block ” is presented for the NAYEL CEMENT PRODUCT FACTORY product totalized and for every sub-phase of the life cycles. During the assessment it was not evident to distinguish the differences in the consumption of electricity, water, diesel, raw material and chemicals during the manufacturing process of the Thermal Insulation block. Hence, the calculation is based on total production vs total consumption against production of the product. This EPD values are applicable to specifically Masonry Thermal Insulation Blocks.

#### Masonry Thermal Insulation Blocks

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.

EN 15804+ A2 disclaimers for Abiotic depletion and Water use indicators and all optional indicators except Particulate matter and Ionizing radiation, human health. The results of these environmental impact indicators shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

### Core Environmental Impact Indicators

Impact Category	Unit	A1	A2	A3	A4	A5	B1-B7	C1	C2	C3	C4	Total	D
Climate change (GWP) –fossil	kg CO2e	8.95E+02	1.64E+01	5.31E+00	2.54E+01	9.24E-03	0.00E+00	3.61E+00	9.58E+00	3.53E+00	2.46E-02	9.59E+02	-1.51E+01
Climate change (GWP) –biogenic	kg CO2e	3.61E+00	2.51E-03	1.64E-03	3.89E-03	7.81E-02	0.00E+00	2.87E-04	1.50E-03	2.91E-04	1.24E-05	3.70E+00	-1.13E-02
Climate change (GWP) –LULUC	kg CO2e	2.50E-01	6.57E-03	3.45E-04	1.01E-02	3.90E-06	0.00E+00	3.13E-04	3.90E-03	3.06E-04	1.30E-06	2.71E-01	-1.32E-02
Climate change (GWP) – total	kg CO2e	8.99E+02	1.65E+01	5.31E+00	2.54E+01	8.74E-02	0.00E+00	3.61E+00	9.59E+00	3.53E+00	2.47E-02	9.63E+02	-1.51E+01
Ozone depletion	kg CFC-11e	9.56E-06	2.30E-07	9.79E-08	3.55E-07	7.39E-11	0.00E+00	5.52E-08	1.42E-07	5.37E-08	5.79E-11	1.05E-05	-1.49E-07
Acidification	mol H+e	3.58E+00	6.20E-02	1.33E-02	8.48E-02	2.98E-05	0.00E+00	3.25E-02	2.20E-02	3.16E-02	1.62E-05	3.83E+00	-8.38E-02
Eutrophication, aquatic freshwater	kg Pe	8.68E-02	1.28E-03	2.74E-04	1.99E-03	2.37E-06	0.00E+00	1.05E-04	7.57E-04	1.02E-04	2.44E-07	9.13E-02	-4.00E-03
Eutrophication, aquatic marine	kg Ne	6.43E-01	1.96E-02	3.67E-03	2.76E-02	2.56E-04	0.00E+00	1.51E-02	5.17E-03	1.48E-02	1.44E-04	7.30E-01	-1.77E-02
Eutrophication, terrestrial	mol Ne	6.84E+00	2.12E-01	2.78E-02	2.99E-01	8.83E-05	0.00E+00	1.65E-01	5.50E-02	1.61E-01	6.57E-05	7.76E+00	-2.09E-01
Photochemical ozone formation	kg NMVOCe	4.72E+00	8.10E-02	1.44E-02	1.18E-01	5.95E-05	0.00E+00	4.93E-02	3.07E-02	4.79E-02	2.85E-05	5.06E+00	-6.49E-02
Abiotic depletion, minerals & metals	kg Sbe	6.37E-04	5.20E-05	2.86E-05	8.14E-05	1.39E-08	0.00E+00	1.26E-06	3.12E-05	1.22E-06	4.92E-09	8.33E-04	-8.60E-05
Abiotic depletion of fossil resources	MJ	1.93E+04	2.43E+02	8.78E+01	3.76E+02	7.53E-02	0.00E+00	4.98E+01	1.42E+02	4.84E+01	5.27E-02	2.02E+04	-2.05E+02
Water use	m³ W.ed	5.61E+02	1.25E+00	1.74E+00	1.95E+00	1.95E-03	0.00E+00	1.38E-01	7.59E-01	1.02E-01	-3.18E-02	5.67E+02	-1.59E+01

## 6.0 ENVIRONMENTAL PERFORMANCE

### Additional Environmental Impact Indicators

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	Total	D
Particulate matter	Incidence	3.74E-05	1.64E-06	4.07E-10	0.00E+00	9.14E-07	5.70E-07	4.06E-06	3.50E-10	4.45E-05	4.06E-06
ionizing radiation, human	kBq U234e	2.14E+01	2.93E-01	5.95E-05	0.00E+00	2.11E-02	1.12E-01	2.06E-02	5.18E-05	2.19E+01	2.05E-02
Eco-toxicity (freshwater)	CTUe	1.09E+03	9.39E+01	3.67E-01	0.00E+00	6.61E+00	3.57E+01	6.50E+00	7.69E-02	1.24E+03	6.42E+00
Human toxicity, cancer effects	CTUe	8.63E-07	1.32E-07	5.26E-12	0.00E+00	1.41E-08	5.04E-08	1.37E-08	1.32E-11	1.07E-06	1.37E-08
Human toxicity, non-cancer	CTUe	2.59E-06	2.23E-07	2.23E-10	0.00E+00	5.84E-09	8.48E-08	5.87E-09	2.00E-10	2.91E-06	5.67E-09
Land use related impacts/soil	Dimensionless	1.22E+03	2.13E+02	9.74E-02	0.00E+00	3.30E+00	8.15E+01	3.33E+00	1.16E-01	1.52E+03	3.21E+00

EN 15804+A2 disclaimer for Ionizing radiation, human health. 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 nor due to radioactive waste disposal in underground facilities. Potential ionizing radiation from the soil, from radon and from some construction materials is also not measured by this indicator.

### Environmental Impact -GWP-GHG

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	Total	D
GEP-GHG	kg CO2e	9.30E+02	2.57E+01	9.19E-02	0.00E+00	3.66E+00	9.66E+00	3.58E+00	2.51E-02	9.72E+02	3.56E+00

This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product as defined by IPCC AR 5 (IPCC 2013) This indicator is almost equal to the GWP indicator originally defined in EN 15804:2012+A1:2013.

### Use of Natural Resources

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	Total	D
Renewable PE used as energy	MJ	3.61E+02	4.68E+00	-9.93E-01	0.00E+00	2.89E-01	1.79E+00	2.81E-01	7.64E-04	3.67E+02	2.80E-01
Renewable PE used as materials	MJ	0.00E+00	0.00E+00	9.96E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	9.96E-01	0.00E+00
Total use of renewable PE	MJ	3.61E+02	4.68E+00	2.56E-03	0.00E+00	2.89E-01	1.79E+00	2.81E-01	7.64E-04	3.68E+02	2.80E-01
Non-renew. PE used as energy	MJ	1.08E+04	3.57E+02	-5.81E-01	0.00E+00	4.72E+01	1.35E+02	3.81E+01	-7.70E+00	1.13E+04	4.58E+01
Non-renew. PE used as materials	MJ	7.81E+03	0.00E+00	6.53E-01	0.00E+00	0.00E+00	0.00E+00	7.75E+00	7.75E+00	7.83E+03	0.00E+00
Total use of non-renewable PE	MJ	1.86E+04	3.57E+02	7.16E-02	0.00E+00	4.72E+01	1.35E+02	4.59E+01	5.00E-02	1.92E+04	4.58E+01
Use of secondary materials	Kg	2.68E+01	1.60E-01	2.99E-05	0.00E+00	1.96E-02	6.12E-02	1.90E-02	1.80E-05	2.71E+01	1.90E-02
Use of renewable secondary fuels	MJ	3.08E-02	2.04E-03	6.38E-07	0.00E+00	5.12E-05	7.82E-04	5.01E-05	3.37E-07	3.38E-02	4.97E-05
Use of non-renew. 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
Use of net fresh water	m3	1.33E+01	4.76E-02	4.68E-05	0.00E+00	3.37E-03	1.85E-02	2.53E-03	-7.39E-04	1.33E+01	3.27E-03

# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**

## 6.0 ENVIRONMENTAL PERFORMANCE

### End of Life - waste

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	Total	D
Hazardous waste	Kg	2.19E+01	6.25E-01	1.03E-04	0.00E+00	5.27E-02	2.38E-01	5.13E-02	8.88E-05	2.29E+01	5.12E-02
Non-hazardous waste	Kg	3.75E+02	1.17E+01	3.63E-03	0.00E+00	7.20E-01	4.46E+00	1.69E+00	9.94E-01	3.94E+02	6.99E-01
Radioactive waste	Kg	5.38E-03	7.18E-05	4.80E-08	0.00E+00	5.18E-06	2.74E-05	5.04E-06	1.27E-08	5.49E-03	5.03E-06

Note: No radioactive waste is produced during NAYEL CEMENT PRODUCT FACTORY operation

### End of Life - Outflows

Impact Category	UNIT	A1-A3	A4	A5	B1-B7	C1	C2	C3	C4	Total	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
Materials for recycling	Kg	9.60E-02	2.63E-03	1.33E-06	0.00E+00	1.27E-04	1.00E-03	1.25E-04	8.47E-07	9.99E-02	1.24E-04
Materials for energy recovery	Kg	1.61E-03	2.30E-05	4.88E-09	0.00E+00	6.46E-07	8.82E-06	6.31E-07	1.62E-03	3.27E-03	6.28E-07
Exported energy - electricity	MJ	2.79E+00	2.59E-02	1.71E-05	0.00E+00	2.14E-03	9.92E-03	2.08E-03	4.94E-06	2.83E+00	2.07E-03
Exported energy - thermal	MJ	2.61E+01	5.24E-02	8.04E-06	0.00E+00	1.12E-03	2.01E-02	1.10E-03	5.71E-06	2.62E+01	1.09E-03

## 6.0 ENVIRONMENTAL PERFORMANCE

### Biogenic Carbon Content

Details	Unit	A1-A3
Biogenic carbon content in product	Kg C	0
Biogenic carbon content in accompanying packaging	Kg C	0

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 the exceeding of thresholds, safety margins or risks".*

### 6.2 Interpretation of LCA Study Results

In general terms, as it is shown in the table of core environmental impact indicators, A1-A3 modules have the higher impact, representing above 80% of the whole impact. A4 module has a less impact. C2 and C4 module has little impact too, representing at most 5% and 5% respectively of the whole impact. Finally, Module D represents savings between 10% of the total impact.

## 7.0 Mandatory Statements

Explanatory material can be obtained from EPD owner and/or LCA author. Contact information can be found below. The verifier and The Program Operator do not make any claim or present any responsibility about the legality of the product.

The EPD owner has the sole ownership, liability, and responsibility for the EPD. The LCA Author shall not be liable with respect to manufacturer information, life cycle assessment data and evidences.

EPDs within the same product category but registered in different EPD programmes may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number) or be based on fully-aligned PCRs or versions of PCRs; cover products with identical functions, technical performances and use (e.g. identical declared/functional units); have equivalent system boundaries and descriptions of data; apply equivalent data quality requirements, methods of data collection, and allocation methods; apply identical cut-off rules and impact assessment methods (including the same version of characterization factors); have equivalent content declarations; and be valid at the time of comparison.

# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

Manufactured by **NAYEL CEMENT PRODUCT FACTORY**



## 8.0 CONTACT INFORMATION

### EPD Owner

#### NAYEL CEMENT PRODUCT FACTORY

New ICAD Zone, PO Box 18381  
Al Ain, UAE  
Tel : +971 3 7838501, +971 3 7838031  
[www.ncpuae.com](http://www.ncpuae.com)



### LCA Author

#### Name : Mehmood Khan

**CQES International LLC**  
Shams Business Center  
Tel : +971 5 85849085  
[sales@cquesint.com](mailto:sales@cquesint.com)  
[www.cquesint.com](http://www.cquesint.com)



### Verifier Details

#### Name : Iván Jiménez

Location : Spain  
Accredited By :  
Environmental Footprint Institute



ENVIRONMENTAL FOOTPRINT INSTITUTE

## 9.0 ADDITIONAL INFORMATION

### 9.1 Action against Erosion, Environmental Restoration, and Landscaping of the work.

Application of measures to prevent erosion, restore the environment, and landscape the job includes restoring all elements immediately connected to it. The restoration of other related items indirectly is also suggested, including work roads, auxiliary facilities, and loan and landfill lands.

In the areas of air protection, NAYEL CEMENT PRODUCT FACTORY makes an effort to stop pollution and lessen its damaging effects on the environment management of both waste and water. The foundation of quality and environmental policy is a long-term growth plan built on recognized and global trends that have been expertly evaluated in relation to the development of potential clients' needs.

Instruction for proper use of the product, e.g. To minimize the energy or water consumption or to improve the durability of the product;- Increasing product quality and value without raising production's energy intensity or environmental burdens through ongoing technical advancements and equipment replacement.

### 9.2 Information on Recycling

All the regulations related to the disposal are followed. Circular Economy Strategy is deployed to ensure the open and close loop recycling is done

# THERMAL INSULATION BLOCKS

(TO BS STANDARD DMSI PART 5)

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## 9.0 ADDITIONAL INFORMATION

### 9.3 Information related to Sector EPD

This is not a sector EPD.

### 9.4 Differences versus previous versions

This is the first version of the EPD.

## 10.0 References

LCA Report: Life Cycle Inventory of THERMAL INSULATION BLOCKS by **NAYEL CEMENT PRODUCT FACTORY**.

Software: Air.e LCA Version 3.17.4.0 [www.solidforest.com](http://www.solidforest.com)

Main database: Ecoinvent 3.10.+0 [www.ecoinvent.org](http://www.ecoinvent.org)

Geographical scope of the EPD: United Arab Emirates.

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

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

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

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

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

General Programme Instructions of the Environmental Footprint Institute  
 Product Category Rules: P-3100: Construction products in general (EN-15804)