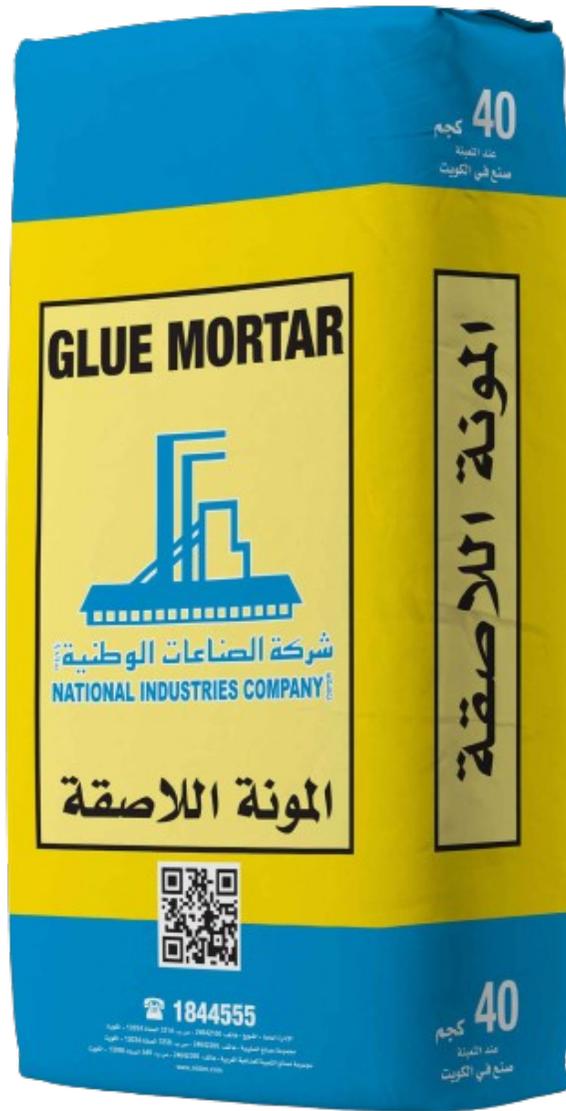


# Environmental Product Declaration

## Glue Mortar

In accordance with ISO 14025:2006 and EN 15804:2012+A2:2019/AC:2021, manufactured by National Industries Company.



Programme:	The International EPD® System
Programme Operator:	EPD International AB
S-P Code:	S-P-13879
Publication Date:	2024-07-01
Validity Date:	2029-06-30
Geographical Scope:	Kuwait

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.environdec.com](http://www.environdec.com).

# Programme Information

CEN standard EN 15804 serves as the core Product Category Rules (PCR)

## Product Category Rules (PCR):

PCR 2019:14 Construction products, version 1.3.3, Construction EN 15804:2012+A2:2019/AC:2021 Sustainability of Construction Works

UN CPC Code: 3751

"Non-refractory mortars and concretes"

PCR review was conducted by: The Technical Committee of the International EPD® System. Review chair: Claudia A. Peña, University of Concepción, Chile

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 characterisation factors); have equivalent content declarations; and be valid at the time of comparison.

## Third-party verification

Independent third-party verification of the declaration and data, according to ISO 14025:2006, via:

EPD verification by individual verifier

Third party verifier: Kripanshi Gupta, Intertek Assuris

Approved by: The International EPD® System

Procedure for follow-up of data during EPD validity involves third party verifier:

Yes  No

## LCA practitioners

Yildiray Yilmaz, MSc & Hüdai Kara, PhD.  
Metsims Sustainability Consulting

**National Industries Company** has the sole ownership, liability, and responsibility for this EPD.

## The International EPD® System

EPD International AB  
Box 210 60 SE-100 31  
Stockholm, Sweden  
[www.environdec.com](http://www.environdec.com)

CLC EPD MENA  
[epd.mena@environdec.com](mailto:epd.mena@environdec.com)

# How to read this EPD?

An Environmental Product Declaration (EPD) is an ISO Type III Environmental Declaration based on ISO 14025 standard. An EPD transparently reports the environmental performance of products or services from a lifecycle perspective. The preparation of an EPD includes different stages, from acquiring raw materials to the end of life of the final product/service. EPDs are based on international standards and consider the entire value chain. Additionally, EPD is a third-party verified document. This EPD includes several sections described below.

## 1. General and Program Information

The first part of an EPD has information about the name of the manufacturer and product/service and other general information such as the validity and expiration dates of the document, the name of the program operator, geographical scope, etc. The second page states the standards followed and gives information about the program operator, third-party verifier, etc. The followed Product Category Rule (PCR) is indicated on the second page.

## 2. Company and Product/Service Information

Information about the company and the investigated product is given in this section. It summarizes the characteristics of the product provided by the manufacturer. It also includes information about the product such as product composition and packaging.

## 3. LCA Information

LCA information is one of the most important parts of the EPD as it describes the declared unit, time representativeness of the study, database(s) and LCA software, along with system boundaries.

The table presented in this part has columns for each stage in the life cycle. The considered stages are marked 'X' whereas the ones that are not considered are labeled as 'NR'. Not all EPDs consider the full life cycle assessment for a product's entire life stages. The 'System Boundary' page is also the place where one can find detailed information about the stages and the assumptions made.

## 4. LCA Results

The results of the Life Cycle Assessment analysis are presented in table format. The first column in each table indicates the name of the impact category and their measurement units are presented in the second column. These tables show an amount at each life cycle stage to see the impact of different indicators on different stages. Each impact can be understood as what is released through the production of the declared unit of the material—in this case, 1 tonne of Glue Mortar. The benefits of reuse/recycling of the declared product is reflected in this section.

The first impact in the table is global warming potential (GWP), which shows how much CO<sub>2</sub> is released at each stage. Other impacts include eutrophication potential, acidification potential, ozone layer depletion, land use related impacts, etc. The second table provides results for resource use and the third table is about the waste produced during the production. The fourth and final table shows the results for the GWP-GHG indicator, which is almost equivalent to the GWP-Total indicator mentioned previously. The only difference is that this indicator excludes the biogenic carbon content by following a certain methodology.

# About National Industries Company

National Industries Company (NIC) is the leading and one of the most prestigious companies specialized in the manufacture and marketing of building materials and infrastructure products in the State of Kuwait. The company was established in 1960 and is a subsidiary of National Industries group (NIG) which has a portfolio of many industrial and financial companies in the Middle East, Europe and North America.

NIC owns 16 factories and two rock quarries. Its work force consist of 1800 employees in various fields of specialization. The Company achieved a tremendous success in keeping abreast with the urbanization and building movement in the local and regional markets by timely expanding its industrial base in pursuant to a product diversification strategy, being the only domestic company that produces such products as Sandlime, Limestone, Large Diameter Concrete Pipes, High Density Poly Ethylene pipes and Ceramics.



## Vision

To develop NIC into the largest industrial conglomeration at the local and GCC levels, with a high and advanced technology, a high overall quality, supported by a local technical experience and excellent skills, offering diversified products and multiple alternatives at competitive prices.

## Mission

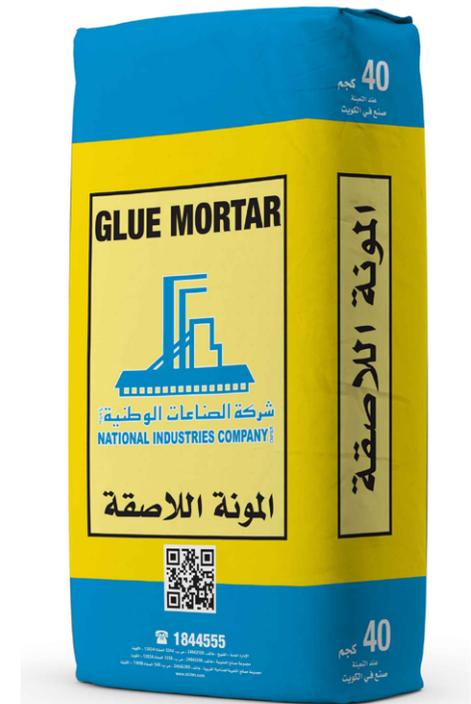
That the Company becomes a unique model reference in the quality and diversity of its building materials products at the local and regional levels; that it maintains its pioneering spirit and genuine determination to excel, to anticipate its customers ambitions across all its services, satisfy its shareholders and contribute to the welfare and development of its society.

# About Glue Mortar

The product investigated in this EPD is National Industries Company's glue mortar product produced at company's production location at West Industrial Region in Kuwait. Glue mortar are made of materials such as portland cement, sand, filler etc. The product and packaging compositions are shown in table below.

Product Composition	Weight (%)	Post-consumer material weight - %	Biogenic material kg C/declared unit
Silica and	55 - 60	0	0
Portland Cement	30 - 35	0	0
Dolomite filler	7 - 13	0	0
Others (chemical additives)	<2.0	0	0

Packaging Composition	Weight, kg	Post-consumer material weight - %	Biogenic material, kg C / declared unit
EUR-Pallet	0.475	0	0.185



## A1 - Raw Material

This stage includes raw materials extraction and pre-treatment processes before production. Main materials used in the product are portland cement, silica sand, filler etc. Environmental impacts of these materials are considered in this stage.

## A2 - Raw Material Transport

This stage is relevant for the delivery of raw materials to the production plant and within the plant. Highway transport is the dominant mean of transport at this stage along with sea transportation. Transport routes and distances are supplier-specific and provided by the manufacturer.

## A3 - Manufacturing

The following production steps are included: cement, sand, filler & chemical additives will be pre-stored in silos just on top of the mixing unit. The type of product is selected in the control system. All raw materials will be dispatched into the mixing unit starting from the sand, cement, and filler then followed by chemical additives. The mixing unit will mix the raw material for 120 seconds to get a homogenous mix. The mixing unit will then dispatch the mix into a steel hopper placed on top of the packing machine. The packing process is done manually by inserting the valved paper bag into the filling spout. After the filling process is completed the bag travels through a belt conveyor and is placed on top of a wooden pallet by a robot. After the stacking process on the wooden pallet is completed a diesel forklift takes the wooden pallet to the storage area.

## A4 - Transport

This stage is relevant for the delivery of final product to the intended markets and customers. Highway transportation is involved at this stage. The transport routes and distances are supplier-specific and provided by the manufacturer.

## A5 - Installation

This stage is relevant for the installation of the product. It is assumed that manual installation is sufficient. Thus, at this stage, only the end-of-life impacts of packaging input is considered.

## C1 - Deconstruction/Demolition

It is assumed that 0.07 MJ energy is needed for the deconstruction/demolition of 1 kg of final product. This is from the JRC technical report called "Model for Life Cycle Assessment (LCA) of buildings" prepared by Dos Santos Gervasio, H. and Dimova, S. in 2018 published by the publication's office of the European Union. According to this assumption, 70 MJ, (0.07 MJ \* 1000 kg) of electricity energy is needed for the deconstruction/ demolition of the product.

## C2 - Waste Transport

Due to the lack of information about the transportation of the discarded product to waste processing area, 100 km distance via Euro5 motor is assumed.

## C3 - Waste Processing

This module is considered as zero since there is no need for the after-life processes of the product.

## C4 - Disposal

Based on the current sector practices in the region, it is assumed that 100% of the glue mortar is landfilled at the end-of-life stage. Thus, this stage is modelled accordingly.

## D - Reuse, recovery or recycling potential

Since 100% of the glue mortar is assumed to be landfilled, there is no future benefit or potential attributed to this stage.

## Declared Unit

1 tonnes of glue mortar manufactured by National Industries Company.

## System Boundary

Cradle to gate with options (module A4).

## Cut-Off Rules

1% cut-off is applied. Data for elementary flows to and from the product system contributing to a minimum of 99% of the declared environmental impacts have been included.

## REACH Regulation

No substances included in the Candidate List of Substances of Very High Concern for authorization under the REACH regulations are present in this product either above the threshold for registration with the European Chemicals Agency or above 0.1% (wt/wt).

## Background Data

For all LCA modelling and calculation, Ecoinvent database (v3.9.1) and SimaPro (v9.5) LCA software were used. Characterization factors of EN 15804 reference package based on EF 3.1 are utilized. Impact of infrastructure and capital goods are excluded from the analysis.

## Period Under Review

The data used for LCA study concerns the year 2023.

## Source of Electricity

The electricity data modelled for the production processes is taken from Ecoinvent 3.9.1 dataset that represents medium voltage electricity production in Kuwait. The chosen dataset has GWP-GHG impact of 0.802 kg CO<sub>2</sub> eq. / kWh.

## Allocations

Energy consumption and raw material transportation were weighted according to 2023 production figures. In addition, hazardous and non-hazardous waste amounts were also allocated from the total waste generation in 2023.

## Assumptions

Upstream and downstream road transportation are assumed to be carried out with Euro5 motor vehicles with a size class of 16-32 metric tonnes where distances acquired through Google Maps. In addition, 100 km distance for the waste transport at C2 stage is assumed.

# LCA Information

	Product Stage			Construction Process Stage		Use Stage							End of Life Stage				Benefits and Loads
	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	Future reuse, recycling or energy recovery potentials
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	GLO	GLO	KW	KW	KW	-	-	-	-	-	-	-	KW	KW	KW	KW	KW
Specific Data Used	*14.0%				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - Products	0%				-	-	-	-	-	-	-	-	-	-	-	-	-
Variation - Sites	0%				-	-	-	-	-	-	-	-	-	-	-	-	-

(X = Module included, ND = Not declared, GLO = Global, KW = Kuwait)

\*Transportation and manufacturing-related activities are considered as specific data according to PCR 2019:14 v.1.3.3.

The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, exceeding threshold values, safety margins and/or risks. The results of this EPD should not be used without the consideration of Module C.

Core environmental impact indicators (Mandatory)	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
GWP - Fossil	kg CO <sub>2</sub> eq.	3.63E+02	1.92E+01	5.68E-03	1.56E+01	1.92E+01	0.00E+00	9.53E+00	0.00E+00
GWP - Biogenic	kg CO <sub>2</sub> eq.	-2.01E-02	5.49E-03	4.36E-01	2.25E-03	5.49E-03	0.00E+00	5.22E-03	0.00E+00
GWP - Luluc	kg CO <sub>2</sub> eq.	6.58E-02	9.90E-03	4.29E-06	9.19E-04	9.90E-03	0.00E+00	6.78E-03	0.00E+00
GWP - Total	kg CO <sub>2</sub> eq.	3.63E+02	1.92E+01	4.42E-01	1.56E+01	1.92E+01	0.00E+00	9.54E+00	0.00E+00
ODP	kg CFC-11 eq.	2.12E-06	2.87E-07	1.31E-10	3.21E-07	2.87E-07	0.00E+00	2.95E-07	0.00E+00
AP	mol H <sup>+</sup> eq.	1.15E+00	6.80E-02	4.06E-05	7.52E-02	6.80E-02	0.00E+00	6.58E-02	0.00E+00
EP - Freshwater	kg P eq.	3.73E-03	1.82E-04	1.01E-07	2.65E-05	1.82E-04	0.00E+00	2.11E-04	0.00E+00
EP - Marine	kg N eq.	2.93E-01	2.21E-02	2.85E-05	1.20E-02	2.21E-02	0.00E+00	2.23E-02	0.00E+00
EP - Terrestrial	mol N eq.	3.32E+00	2.37E-01	1.61E-04	1.29E-01	2.37E-01	0.00E+00	2.40E-01	0.00E+00
POCP	kg NMVOC	1.00E+00	9.15E-02	6.53E-05	5.42E-02	9.15E-02	0.00E+00	9.14E-02	0.00E+00
*ADPE	kg Sb eq.	1.20E-03	6.14E-05	1.18E-08	1.77E-05	6.14E-05	0.00E+00	1.58E-05	0.00E+00
*ADPF	MJ	2.32E+03	2.70E+02	1.22E-01	2.16E+02	2.70E+02	0.00E+00	2.63E+02	0.00E+00
*WDP	m <sup>3</sup> depriv.	5.16E+01	1.20E+00	5.12E-03	8.10E-01	1.20E+00	0.00E+00	1.25E+01	0.00E+00
<b>Additional environmental impact indicators (Mandatory)</b>									
**GWP-GHG	kg CO <sub>2</sub> eq.	3.61E+02	1.93E+01	3.62E-02	1.56E+01	1.93E+01	0.00E+00	9.58E+00	0.00E+00
<b>Additional environmental impact indicators (Optional)</b>									
PM	disease inc.	1.11E-05	1.52E-06	8.59E-10	5.74E-07	1.52E-06	0.00E+00	1.27E-06	0.00E+00
***IR	kBq U-235 eq.	1.04E+00	9.56E-02	6.68E-05	1.49E-02	9.56E-02	0.00E+00	7.26E-02	0.00E+00
ETP-FW	CTUe	8.96E+02	1.51E+02	7.68E-02	5.36E+01	1.51E+02	0.00E+00	1.78E+02	0.00E+00
*HTP - C	CTUh	8.18E-08	8.69E-09	3.30E-12	3.72E-09	8.69E-09	0.00E+00	2.47E-07	0.00E+00
*HTP - NC	CTUh	2.31E-06	1.94E-07	9.75E-11	4.66E-08	1.94E-07	0.00E+00	8.64E-06	0.00E+00
*SQP	Pt	1.03E+03	1.61E+02	2.76E-01	8.15E+00	1.61E+02	0.00E+00	9.50E+02	0.00E+00
Acronyms	GWP-total: Climate change, GWP-fossil: Climate change- fossil, GWP-biogenic: Climate change - biogenic, GWP-luluc: Climate change - land use and transformation, ODP: Ozone layer depletion, AP: Acidification terrestrial and freshwater, EP-freshwater: Eutrophication freshwater, EP-marine: Eutrophication marine, EP-terrestrial: Eutrophication terrestrial, POCP: Photochemical oxidation, ADPE: Abiotic depletion - elements, ADPF: Abiotic depletion - fossil resources, WDP: Water scarcity, PM: Respiratory inorganics - particulate matter, IR: Ionising radiation, ETP-FW: Ecotoxicity freshwater, HTP-c: Cancer human health effects, HTP-nc: Non-cancer human health effects, SQP: Land use related impacts, soil quality.								
Legend	A1: Raw Material Supply, A2: Transport, A3: Manufacturing, A4: Transport, A5: Installation, C1: Demolition, C2: Waste Transport, C3: Waste Processing, C4: Disposal, D: Future reuse, recycling or energy recovery potentials,								

Indicators describing resource use (Mandatory)	Unit	A1-A3	A4	A5	C1	C2	C3	C4	D
PERE	MJ	8.16E+01	3.45E+00	6.37E+00	1.72E+00	3.45E+00	0.00E+00	2.62E+00	0.00E+00
PERM	MJ	6.37E+00	0.00E+00	-6.37E+00	6.37E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	8.79E+01	3.45E+00	2.25E-03	3.62E-01	3.45E+00	0.00E+00	2.62E+00	0.00E+00
PENRE	MJ	2.22E+03	2.70E+02	1.19E-01	1.57E+02	2.70E+02	0.00E+00	2.63E+02	0.00E+00
PENRM	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
PENRT	MJ	2.22E+03	2.70E+02	1.19E-01	1.57E+02	2.70E+02	0.00E+00	2.63E+02	0.00E+00
SM	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
RSF	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
NRSF	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
FW	m <sup>3</sup>	4.60E-02	1.33E-01	1.33E-04	9.79E-03	0.00E+00	3.01E-01	0.00E+00	0.00E+00

Acronyms

PERE: Use of renewable primary energy excluding resources used as raw materials, PERM: Use of renewable primary energy resources used as raw materials, PERT: Total use of renewable primary energy, PENRE: Use of non-renewable primary energy excluding resources used as raw materials, PENRM: Use of non-renewable primary energy resources used as raw materials, PENRT: Total use of non-renewable primary energy, SM: Secondary material, RSF: Renewable secondary fuels, NRSF: Non-renewable secondary fuels, FW: Net use of fresh water.

Environmental information describing waste categories (Mandatory)	Unit								
HWD	kg	0.00E+00							
NHWD	kg	9.19E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	1.00E+03	0.00E+00
RWD	kg	0.00E+00							

Environmental information describing output flow (Mandatory)	Unit								
CRU	kg	0.00E+00							
MFR	kg	0.00E+00							
MER	kg	0.00E+00							
EE (Electric)	MJ	0.00E+00							
EE (Thermal)	MJ	0.00E+00							

Acronyms

HWD: Hazardous waste disposed, NHWD: Non-hazardous waste disposed, RWD: Radioactive waste disposed, CRU: Components for reuse, MFR: Material for recycling, MER: Materials for energy recovery, EE (Electrical): Exported energy electrical, EE (Thermal): Exported energy thermal.

\*Disclaimer 1

The results of this environmental impact indicator shall be used with care as the uncertainties on these results are high or as there is limited experienced with the indicator.

\*\*Disclaimer 2

GWP-GHG = Global Warming Potential total excl. biogenic carbon following IPCC AR5 methodology. The indicator includes all greenhouse gases included in GWP-total but excludes biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. The GWP-GHG indicator is identical to GWP-total except that the characterisation factor (CF) for biogenic CO<sub>2</sub> is set to zero.

\*\*\*Disclaimer 3

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.

ISO 9001:2015/ Quality Management Systems

ISO 50001:2018/ Energy Management Systems

GPI/ General Programme Instructions of the International EPD® System. Version 4.0.

ISO 14020:2000/ Environmental Labels and Declarations — General principles

EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works - Environmental Product Declarations — Core rules for the product category of construction products

ISO 14025/ DIN EN ISO 14025:2009-11: Environmental labels and declarations - Type III environmental declarations — Principles and procedures

ISO 14040/44/ DIN EN ISO 14040:2006-10, Environmental management - Life cycle assessment - Principles and framework (ISO14040:2006) and Requirements and guidelines (ISO 14044:2006)

PCR for Construction Products and Construction Services/ Prepared by IVL Swedish Environmental Research Institute, Swedish environmental Protection Agency, SP Trä, Swedish Wood Preservation Institute, Swedisol, SCDA, Svenskt Limträ AB, SSAB, The International EPD System, 2019:14 Version 1.3.3.

The International EPD® System/ The International EPD® System is a programme for type III environmental declarations, maintaining a system to verify and register EPD@s as well as keeping a library of EPD@s and PCRs in accordance with ISO 14025. [www.environdec.com](http://www.environdec.com)

Ecoinvent / Ecoinvent Centre, [www.ecoinvent.org](http://www.ecoinvent.org)

SimaPro/ SimaPro LCA Software, Pré Consultants, the Netherlands, [www.pre-sustainability.com](http://www.pre-sustainability.com)

[www.nicbm.com/en](http://www.nicbm.com/en)

# Contact Information

## Programme & Programme operator

The International EPD® System  
[www.environdec.com](http://www.environdec.com)



EPD International AB Box 210 60  
SE-100 31 Stockholm, Sweden

[www.environdec.com](http://www.environdec.com)  
[info@environdec.com](mailto:info@environdec.com)

## Owner of the declaration

National Industries Company  
Shuwaikh Industrial, Kuwait



E-mail: [sales@nicbm.com](mailto:sales@nicbm.com)

Telephone: +965 24642000

[www.nicbm.com/en](http://www.nicbm.com/en)

## LCA practitioner & EPD Design



Metsims Sustainability Consulting

4 Clear Water Place Oxford OX2 7NL, UK  
0 800 722 0185

[www.metsims.com](http://www.metsims.com)  
[info@metims.com](mailto:info@metims.com)



SEEDS Company

Fahad Al Salem Street Al Watiya Tower, Floor 8,  
Offie 4. Qibla, Kuwait City / Kuwait

Tel: +96556676499  
[www.seedSCO.co](http://www.seedSCO.co)  
[info@seedSCO.co](mailto:info@seedSCO.co)