



ENVIRONMENTAL PRODUCT DECLARATION

IN ACCORDANCE WITH EN 15804+A2 & ISO 14025

ENGINEERED QUARTZ SLAB
INANI MARBLES & INDUSTRIES LIMITED



EPD HUB, HUB-7698

Published on 01.10.2026, last updated on 01.10.2026, valid until 30.09.2031

Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804, EPD Hub Core PCR Version 1.2.1, 14 April 2026 and JRC characterization factors EF 3.1.



GENERAL INFORMATION

MANUFACTURER

Manufacturer	INANI MARBLES & INDUSTRIES LIMITED
Address	ARAJI NO. 1312, UDAIPUR – BHILWARA HIGHWAY, NEAR MATAJI KI PANDOLI, CHITTORGARH (RAJ.) 312001 INDIA
Contact details	inanimarble@gmail.com
Website	www.inanimarbles.com

EPD STANDARDS, SCOPE AND VERIFICATION

Program operator	EPD Hub, hub@epdhub.com
Reference standard	EN 15804+A2 and ISO 14025
PCR	EPD Hub Core PCR Version 1.2.1, 14 April 2026
Sector	Construction Product
Category of EPD	Third party verified EPD
Parent EPD number	Not Applicable
Scope of the EPD	Cradle to gate with options, modules A4-A5, C1-C4 and D
EPD author	Dr Rohit Panchal (PhD, Sustainability Management) New Life Cycle and Carbon Consultant https://www.nlccc.in/
EPD verification	Independent verification of this EPD and data, according to ISO 14025: ☐ Internal verification ☒ External verification
EPD verifier	Elena Antuña-Bernardo as an authorized verifier for EPD Hub

This EPD is intended for business-to-business and/or business-to-consumer communication. The manufacturer has the sole ownership, liability, and responsibility for the EPD. EPDs within the same product category but from different programs may not be comparable. EPDs of construction products may not be comparable if they do not comply with EN 15804 and if they are not compared in a building context.

PRODUCT

Product name	Engineered Quartz Slab
Additional labels	Inani Marbles & Industries Limited (India, USA and other export markets), Miraak Surfaces (India), Bajo Tierra (Vietnam), and Atlas Marble & Granite (United Arab Emirates)
Product reference	-
Place(s) of raw material origin	India
Place of production	ARAJI NO. 1312, UDAIPUR – BHILWARA HIGHWAY, NEAR MATAJI KI PANDOLI, CHITTORGARH (RAJ.) 312001 INDIA
Place(s) of installation and use	International
Period for data	1 April 2025-31 March 2026
Averaging in EPD	Not applicable. EPD of a single product from a single manufacturing site; no averaging, grouping or scaling table has been applied.
Variation in GWP-fossil for A1-A3 (%)	Not applicable. A single product is declared. Colour variants are handled as one product in accordance with EPD Hub GPI section 2.7.
GTIN (Global Trade Item Number)	-
NOBB (Norwegian Building Product Database)	-
A1-A3 Specific data (%)	99.6

ENVIRONMENTAL DATA SUMMARY

Declared unit	1 tonne of Engineered Quartz Slab
Declared unit mass	1000 kg
Mass of packaging	15.26 kg
GWP-fossil, A1-A3 (kgCO ₂ e)	988.9
GWP-total, A1-A3 (kgCO ₂ e)	970.8
Secondary material, inputs (%)	0
Total energy use, A1-A3 (kWh)	3,868
Net freshwater use, A1-A3 (m ³)	12.42

PRODUCT AND MANUFACTURER

ABOUT THE MANUFACTURER

INANI MARBLES & INDUSTRIES LIMITED a Public Limited Company incorporated under the Companies Act, 1956 on 18th October 1994 and obtained Certificate of Commencement of business on 27th October 1994. Share of the Company is listed at Mumbai Stock Exchange Ltd under script Code No. 531129 Company is member of CAPEXIL, STONA, CDOS and other trade associations. The Company has been promoted by Inani family of Chittorgarh. Today Inani Marbles & Industries Limited are leading producer in North India in the field of Quartz, Granite, Marble and Sandstone blocks; slabs & Tiles.

Joint efforts of Capt. S.K. Inani, Managing Director and Mahesh Kumar Inani, Joint Managing Director whose vision and adoption of latest technology have driven the group where it stands today. The company has latest technology machineries in our plant to carry out project work. The company has executed projects internationally in Lebanon, UAE, Russia and done project-oriented supplies, ready to use in the projects. Some of the famous projects company has done are driveway to Zabeel Palace, Majlis, Dubai (Sheikhs palace); Burj Khalifa Dubai; Moscow Shopping Centre (USSR); Al Raha Beach Freehold Residential Tower, Abu Dhabi; Lebanon Bank H.Q., Beirut (Photo given in our Catalogue) Marble & Tile Flooring supplied at Jama Masjid & Vasant Vihar, Panchsheel Park Railway Station of Delhi Metro Railway Corporation Ltd. Recently company has supplied Gwalior Stone at Jawad Bukhamseen Villa at Dahiya, Kuwait, Aish Black Granite for Mr. Anwar Bukhamseen Chalet @ Khiran, Kuwait.

In the last 32 years, the company has built up a solid reputation in the field of construction Industries. Company supply its product to all over the world viz. Italy, United States of America, Russia, Republic of China, United Arab Emirates, Saudi Arabia, Morocco, Libya, Spain, France, Taiwan etc. Our present Annual volume is 600 20' Heavy Duty Containers.

Inani Marbles & Industries Limited regularly participate in International Trade Fair at 'Verona' in Italy, Coverings in USA, Xiamen in China, Dubai, Bangalore and Jaipur in India etc. to promote our products in international as well as national market. Company has achieved the top position in India where you meet all your requirements of various stones in different colors. Inani Marbles & Industries Limited have executed large project orders in a timely manner as per client's requirements with their product specifications & quality parameters.

In 1995 company has commenced its business by setting up 3 Marble Gang Saw units initially at F-17 & 58, RIICO Industrial Area, Chittorgarh. At present the company has 4 Marble Gang Saw Machines, 1 Granites Gang Saws (Italian), 1 Multiwire Machine 10 Multiple Blades Block Cutters, 5 Slabs Line Polishers, 5 Bridge Cutting Machine (Italian), Automatic Resin Plant (Italian), Tiling Plant, Bull Nose Machine, Molding Machine, Shot blast and Auto Flaming Machine, Water Jet, CNC Machine to do artistic work and curve cutting, anchor hole machine for façade.

PRODUCT DESCRIPTION

The subject of this study is Engineered Quartz Slab, a manufactured composite surface material combining crushed quartz aggregate with polyester resin binder and pigments, produced at Inani Marbles' Chittorgarh facility in 2 cm and 3 cm thicknesses. Engineered Quartz Slabs are widely used in both residential and commercial interiors, principally as kitchen countertops and islands, bathroom vanities, wall cladding, and flooring, valued for their non-porous, low-maintenance, and stain- and scratch-resistant properties relative to natural stone alternatives.

Further information can be found at: [Inani Marbles - Largest Manufacturer and Exporter of Quartz](#)

PRODUCT RAW MATERIAL MAIN COMPOSITION

Raw material category	Amount, mass %	Material origin
Metals	0	-
Minerals	91.4	India
Fossil materials	8.6	India
Bio-based materials	0	-

BIOGENIC CARBON CONTENT

Product's biogenic carbon content at the factory gate

Biogenic carbon content in product, kg C	0
Biogenic carbon content in packaging, kg C	6.433

FUNCTIONAL UNIT AND SERVICE LIFE

Declared unit	1 tonne of Engineered Quartz Slab
Mass per declared unit	1000 kg
Functional unit	Not applicable. A declared unit is used.
Reference service life	Not declared. The use stage (B1-B7) is outside the declared scope; a declared unit is used in accordance with EN 15804+A2, clause 6.3.3.

SUBSTANCES, REACH - VERY HIGH CONCERN

The product does not contain any REACH SVHC substances in amounts greater than 0,1 % (1000 ppm).

PRODUCT LIFE-CYCLE

SYSTEM BOUNDARY

This EPD covers the life-cycle modules listed in the following table.

Product stage			Assembly stage		Use stage							End of life stage				Beyond the system boundaries		
A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D		
x	x	x	x	x	MND	MND	MND	MND	MND	MND	MND	x	x	x	x	x		
Raw materials	Transport	Manufacturing	Transport	Assembly	Use	Maintenance	Repair	Replacement	Refurbishment	Operational energy use	Operational water use	Deconstruction/ demolition	Transport	Waste processing	Disposal	Reuse	Recovery	Recycling

x = module declared; MND = module not declared.

MANUFACTURING AND PACKAGING (A1-A3)

The environmental impacts considered for the product stage cover the extraction and processing of the raw materials, their transport to the manufacturing site, the energy consumed in manufacturing, the packaging applied to the finished product, and the treatment of the waste arising in production. Material losses occurring during manufacture are included, and arise as cutting and polishing slurry, offcuts and rejected slab.

Module A1 covers the supply of raw materials. Quartz grit and quartz powder together account for more than 90% of the product by mass and are quarried and processed in India. The powder is milled to grade by the

supplier. The mineral fractions are bound with unsaturated polyester resin, cured with hardener and an organic catalyst, and coloured with titanium dioxide, iron oxide, carbon black, chromium oxide and ultramarine pigments.

Module A2 covers the transport of raw materials and packaging from the suppliers to the Chittorgarh site. All inbound transport is by road, using a lorry of 16 to 32 tonne payload meeting EURO 6, which corresponds to Bharat Stage VI, mandatory in India since April 2020. Distances range from 100 km for the lamination film to 850 km for the hardener and catalyst, giving 396.6 tkm per tonne of slab.

Module A3 covers manufacture at the Chittorgarh site, using data collected over the twelve months from 1 April 2025 to 31 March 2026. Engineered Quartz Slab is manufactured by vibro-compaction and vacuum pressing of a mineral and resin mixture. The mineral fractions are dosed by weight and blended with unsaturated polyester resin, hardener, catalyst and the colour pigments specific to the product being made. The mixture is compacted under vacuum with simultaneous vibration and pressure, cured, cooled, then calibrated to thickness, gauged and polished, and each slab is inspected before packing. Production losses amount to 338.3 kg per tonne of product and are treated as inert waste to sanitary landfill. Water consumption is 10 kg per tonne, the plant operating a recirculating system for process water.

Finished slabs are protected with a laminated film applied to the polished face. Export consignments are secured on timber packing at 18 kg of timber per tonne of slab, while consignments for the domestic Indian market are dispatched without timber packing. As 80% of output was exported over the reference period, the weighted average declared is 14.4 kg of timber and 0.85 kg of film per tonne of slab.

Electricity is the only energy carrier consumed at the production site; no natural gas, fuel oil or other thermal energy source is used, and curing is carried out electrically. Consumption is metered separately for each unit process and totals 131.6 kWh per tonne of slab, of which 30% is generated by the photovoltaic installation at the site and 70% is drawn from the India

Northern grid. The renewable share is verified against twelve months of electricity bills.

Electricity is modelled using the location-based approach. Grid electricity is represented by the average consumption mix of the India Northern regional grid (ecoinvent v3.12, market for electricity, high voltage, IN-Northern grid), with a GWP-fossil of 1.28 kg CO₂ eq. per kWh; the electricity generated by the photovoltaic installation on the factory roof and consumed on site is modelled with electricity production, photovoltaic, multi-Si, IN-Rajasthan, at 0.057 kg CO₂ eq. per kWh.

TRANSPORT AND INSTALLATION (A4-A5)

Transportation impacts occurred from final products delivery to construction site (A4) cover fuel direct exhaust emissions, environmental impacts of fuel production, as well as related infrastructure emissions. Module A4 is modelled on the manufacturer's actual sales distribution for the reference period: 20% to the domestic Indian market and 80% export, comprising 65% to the United States, 10% to the Middle East and 5% to Vietnam. Domestic deliveries are assumed to travel 630 km by road. Export consignments travel 675 km by road from Chittorgarh to Mundra Port, then by container ship to the destination port, being 17,500 km to Los Angeles, 1,731 km to Dubai and 6,800 km to Vietnam, followed by an assumed 300 km of road delivery from the destination port to the customer. Total transport declared in this module is 12,794 tkm per tonne of slab.

Module A5 covers installation. The slab is delivered ready for fixing and is installed manually, so no energy consumption is declared at the installation site. Jointing is carried out with an epoxy resin adhesive, for which a consumption of 0.9 kg per tonne of slab is assumed, reflecting typical fabricator practice for seam and edge bonding. The transport packaging is discarded in full at installation, being 14.4 kg of timber and 0.85 kg of laminated film per tonne of slab, and both fractions are assumed to be landfilled with no material or energy recovery. The biogenic carbon taken up

by the timber packaging in module A3 is released in this module. No installation losses of the product itself are declared, the slab being cut to size by the fabricator from the delivered sheet.

PRODUCT USE (B1-B7) - NOT DECLARED

Modules B1 to B7 are not declared (MND). Engineered Quartz Slab is supplied as a slab to fabricators for a range of applications, including worktops, vanities, wall cladding and flooring, and its function, installation and maintenance at building level are determined by the fabricator and the end user rather than by the manufacturer. A declared unit of 1 tonne is therefore used in accordance with EN 15804+A2, clause 6.3.3, and the use stage lies outside the declared scope of this EPD. No reference service life is declared. For information only: the product is chemically inert and non-porous, requires no sealing, polishing or other treatment in service, and releases no substances during use.

PRODUCT END OF LIFE (C1-C4, D)

Module C1: The slab is removed manually, and no energy or additional material is used in the process.

Module C2: Transportation distance to waste treatment is estimated to be 100 km, by lorry of 16 to 32 tonne payload.

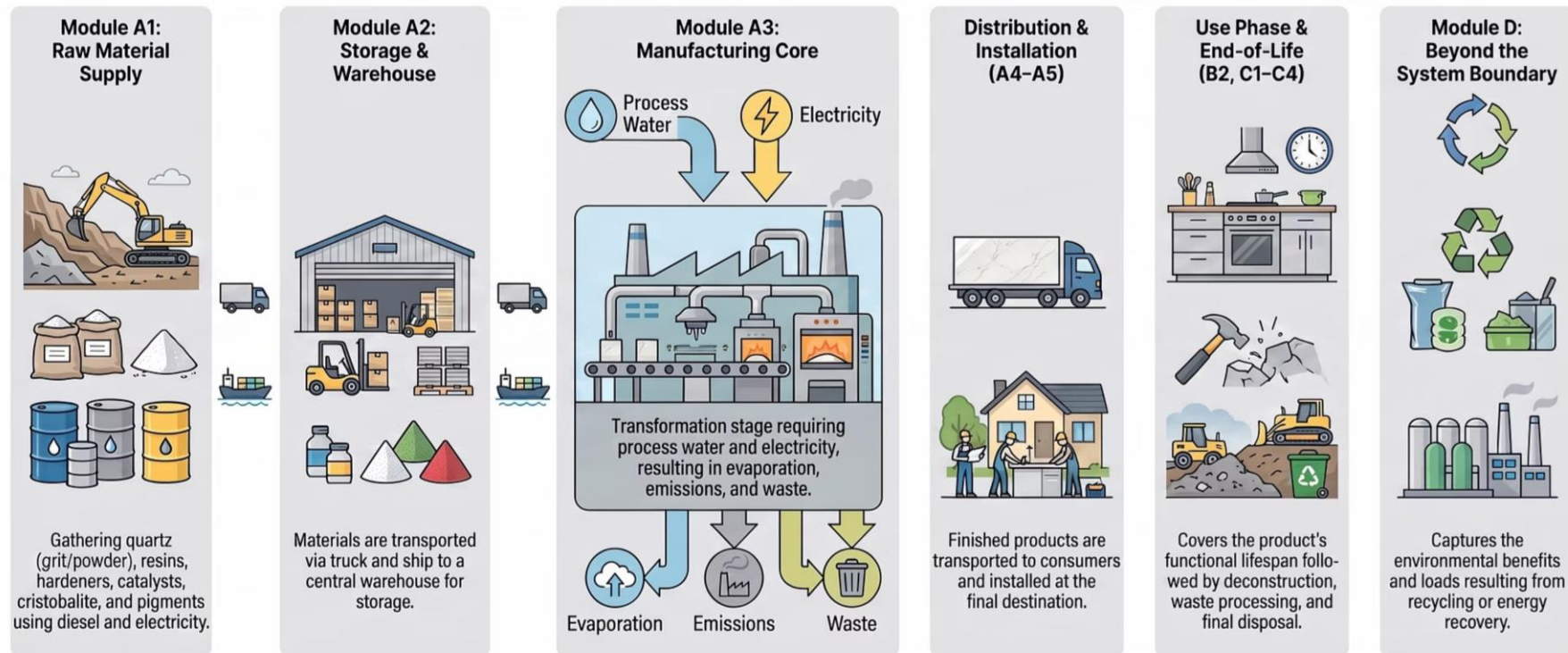
Module C3: No processing is carried out before disposal, and no flows are directed to recycling or reuse.

Module C4: No established recycling route exists for engineered stone at end of life, so the full mass of the declared unit is assumed to be landfilled as inert waste.

Module D: No benefits or loads beyond the system boundary arise. The product, and the packaging discarded at installation, are both landfilled with no material or energy recovery.

LIFE CYCLE FLOW DIAGRAM

CRADLE TO GATE WITH OPTIONS: MODULES A1-A3, A4-A5, C1-C4 AND D



LIFE-CYCLE ASSESSMENT

CUT-OFF CRITERIA

The study does not exclude any modules or processes which are stated mandatory in the reference standard and the applied PCR, and does not exclude any hazardous materials or substances. All raw materials, packaging materials, metered electricity, water, wastewater and production waste recorded for the reference period are included, down to the smallest colourant input of 0.009 kg per declared unit, together with all transport of raw materials to the site, of finished product to the customer and of waste to end-of-life treatment. No unit process contributing more than 1% of the total mass or energy flows has been neglected, and the total of excluded input and output flows does not exceed 5% of mass or of energy.

The following are ancillary to the product system: they are not physically incorporated into the product, do not vary with production volume, and together account for less than 1% of the mass and energy flows of the declared unit.

Excluded processes: production of capital equipment, machinery and infrastructure, and their maintenance, operation and end of life; construction activities at the site; research and development; employee business travel; marketing and the operation of administrative services; and energy and water use associated with company management and sales activities.

Direct emissions to air from the manufacturing process were reviewed against the cut-off criteria. Particulate matter generated during cutting and polishing is captured in the process water and is accounted for within the production waste reported in module A3.

VALIDATION OF DATA

Data collection and validation for the product stage were carried out on site. All foreground data for modules A1 to A3 are manufacturer-specific primary

data recorded at the Chittorgarh site for the reference period and were checked against the plant's meters and records at the point of collection; electricity is metered at unit process level rather than apportioned from a site total, and the renewable share was verified against twelve months of electricity bills. Transport distances and modes, the distribution of sales between markets and the ports of shipment were taken from the manufacturer's own records. Processes upstream of the raw material gate and downstream of the factory gate are modelled using Ecoinvent v3.12 under the Allocation, cut-off by classification system model. The resulting inventory was tested for mass closure and balances without residual. The analysis was performed in Ecochain Mobius, with the 'Cut-Off, EN 15804+A2' allocation method and characterization factors according to EN 15804:2012+A2:2019/AC:2021 and JRC EF 3.1. The share of specific data in modules A1 to A3 is 99.6%.

ALLOCATION, ESTIMATES AND ASSUMPTIONS

Allocation is required if some material, energy, and waste data cannot be measured separately for the product under investigation. All allocations are done as per the reference standards and the applied PCR. In this study, allocation has been done in the following ways:

Data type	Allocation
Raw materials	Allocation avoided by subdivision. Quartz grit assigned wholly to Engineered Quartz Slab, cristobalite wholly to cristobalite slab, and the quartz powder consumed in cristobalite slab deducted directly.
Packaging material	No allocation. Packaging is applied to Engineered Quartz Slab dispatch specifically.
Ancillary materials	Mass allocation. Hardener, catalyst and colour pigments allocated at the Engineered Quartz Slab share of slab output, 92.218%.
Manufacturing energy and waste	Mass allocation. Metered electricity, water, wastewater and production waste allocated at the Engineered Quartz Slab share of slab output, 92.218%.

The site operates three production lines, producing marble, granite, and Engineered Quartz Slab together with cristobalite slab. Marble and granite are made on dedicated lines and lie outside the system boundary, so allocation is required only between Engineered Quartz Slab and cristobalite slab, which share the same equipment, and is based on their relative output mass. Estimates and assumptions are applied to the transport distances of raw materials where a range was reported, to the sea and inland distances in module A4, to the jointing adhesive in module A5, and to the end-of-life route and transport distance in modules C2 and C4. Each is identified where it is applied.

PRODUCT & MANUFACTURING SITES GROUPING

Type of grouping	Not applicable. EPD of a single product from a single manufacturing site; no averaging, grouping or scaling table has been applied.
Grouping method	Not Applicable
Variation in GWP-fossil for A1-A3, %	Not applicable. A single product is declared. Colour variants are handled as one product in accordance with EPD Hub GPI section 2.7.

This EPD is product and factory specific.

LCA SOFTWARE AND BIBLIOGRAPHY

This EPD has been created using Ecochain Mobius. The LCA and the EPD have been prepared in accordance with the reference standards, ISO 14040 and ISO 14044, and EPD Hub Core PCR Version 1.2.1. Ecochain Mobius uses the Ecoinvent database version 3.12 as the source of environmental data, supplemented by manufacturer-specific Environmental Product Declarations for the colourants. Allocation used in the Ecoinvent v3.12 environmental data sources follows the methodology 'allocation, Cut-off, EN 15804+A2'. Characterisation factors are those of EN 15804+A2 based on JRC EF 3.1.

ISO 14025:2010 Environmental labels and declarations, Type III environmental declarations, principles and procedures.

ISO 14040:2006 Environmental management, life cycle assessment, principles and framework.

ISO 14044:2006 Environmental management, life cycle assessment, requirements and guidelines.

EN 15804:2012+A2:2019/AC:2021 Sustainability of construction works, Environmental product declarations, Core rules for the product category of construction products.

EN 16449 Wood and wood-based products, calculation of the biogenic carbon content of wood and conversion to carbon dioxide.

EPD Hub Core PCR Version 1.2.1, 14 April 2026. EPD Hub General Programme Instructions Version 1.3.1.

ECO Platform (2024). ECO Platform Standards – LCA Calculation Rules, Version 2.0, December 2024.

Ecoinvent database version 3.12, www.ecoinvent.org.

Vicostone Joint Stock Company (2017). PentalQuartz® (VICOSTONE®) Quartz Surfaces. Environmental Product Declaration SCS-EPD-04770. Programme operator: SCS Global Services. Valid 14 December 2017 to 13 December 2022.

Oxerra (2024). Iron Oxide Yellow. Environmental Product Declaration EPD-IES-0017013, version 2. Programme operator: EPD International AB, The International EPD® System. Valid to 4 December 2029.

Lanxess Deutschland GmbH, BU Inorganic Pigments (2025). Iron Oxide Red Pigment (Fe_2O_3). Environmental Product Declaration EPD-LAN-20250011-IBC1-EN. Programme holder: Institut Bauen und Umwelt e.V. (IBU). Valid to 29 April 2030.

Lanxess Deutschland GmbH, BU Inorganic Pigments (2025). Iron Oxide Black Pigment (Fe_3O_4). Environmental Product Declaration EPD-LAN-20250013-IBC1-EN. Programme holder: Institut Bauen und Umwelt e.V. (IBU). Valid to 29 April 2030.

ENVIRONMENTAL IMPACT DATA

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

CORE ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP – total ¹⁾	kg CO ₂ e	7.81E+02	7.84E+01	1.11E+02	9.71E+02	2.94E+02	2.86E+01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.98E+01	0.00E+00	1.10E+01	0.00E+00
GWP – fossil	kg CO ₂ e	7.78E+02	7.84E+01	1.33E+02	9.89E+02	2.94E+02	5.74E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.98E+01	0.00E+00	1.09E+01	0.00E+00
GWP – biogenic	kg CO ₂ e	2.73E+00	1.93E-02	-2.16E+01	-1.89E+01	2.31E-02	2.28E+01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.87E-03	0.00E+00	4.59E-02	0.00E+00
GWP – LULUC	kg CO ₂ e	5.27E-01	3.52E-02	2.49E-01	8.11E-01	1.53E-01	4.61E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.88E-03	0.00E+00	6.53E-03	0.00E+00
Ozone depletion pot.	kg CFC-11e	1.79E-05	1.14E-06	6.82E-07	1.97E-05	4.27E-06	1.88E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.88E-07	0.00E+00	2.86E-07	0.00E+00
Acidification potential	mol H ⁺ e	3.31E+00	1.88E-01	6.42E-01	4.14E+00	2.49E+00	2.35E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	4.73E-02	0.00E+00	1.17E-01	0.00E+00
EP-freshwater ²⁾	kg Pe	2.00E-02	9.71E-04	1.33E-02	3.43E-02	2.76E-03	1.69E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.45E-04	0.00E+00	6.02E-04	0.00E+00
EP-marine	kg Ne	5.60E-01	4.36E-02	1.25E-01	7.28E-01	9.46E-01	4.80E-03	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.10E-02	0.00E+00	2.94E-02	0.00E+00
EP-terrestrial	mol Ne	6.26E+00	4.82E-01	1.42E+00	8.16E+00	1.05E+01	5.13E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.22E-01	0.00E+00	3.21E-01	0.00E+00
POCP (“smog”) ³⁾	kg NMVOCe	3.21E+00	2.61E-01	4.05E-01	3.88E+00	3.09E+00	2.21E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.59E-02	0.00E+00	1.14E-01	0.00E+00
ADP-minerals & metals ⁴⁾	kg Sbe	4.88E-03	2.64E-04	2.29E-04	5.37E-03	7.90E-04	4.60E-05	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.66E-05	0.00E+00	2.07E-05	0.00E+00
ADP-fossil resources	MJ	1.26E+04	1.08E+03	1.54E+03	1.52E+04	3.84E+03	1.00E+02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.71E+02	0.00E+00	2.41E+02	0.00E+00
Water use ⁵⁾	m ³ e depr.	3.39E+02	6.11E+00	2.85E+01	3.74E+02	1.86E+01	1.81E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.54E+00	0.00E+00	1.07E+01	0.00E+00

1) GWP = Global Warming Potential; 2) EP = Eutrophication potential. Required characterisation method and data are in kg P-eq. Multiply by 3,07 to get PO₄e; 3) POCP = Photochemical ozone formation; 4) ADP = Abiotic depletion potential; 5) EN 15804+A2 disclaimer for Abiotic depletion and Water use and 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 experience with the indicator.

ADDITIONAL (OPTIONAL) ENVIRONMENTAL IMPACT INDICATORS – EN 15804+A2, EF 3.1

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Particulate matter	Incidence	4.35E-05	5.70E-06	3.60E-06	5.28E-05	1.59E-05	3.00E-07	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.44E-06	0.00E+00	1.78E-06	0.00E+00
Ionizing radiation ⁶⁾	kBq 11235e	9.18E+00	3.45E-01	2.16E+00	1.17E+01	1.06E+00	8.75E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	8.69E-02	0.00E+00	7.19E-02	0.00E+00
Ecotoxicity (freshwater)	CTUe	1.04E+04	2.47E+02	4.15E+02	1.11E+04	7.41E+02	1.15E+02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	6.23E+01	0.00E+00	1.84E+02	0.00E+00
Human toxicity, cancer	CTUh	5.55E-07	1.24E-08	4.93E-08	6.17E-07	5.38E-08	7.06E-09	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.12E-09	0.00E+00	4.14E-09	0.00E+00
Human tox. non-cancer	CTUh	6.07E-06	6.60E-07	1.01E-06	7.74E-06	1.89E-06	5.19E-08	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.67E-07	0.00E+00	1.92E-07	0.00E+00
SQP ⁷⁾	-	3.33E+03	6.52E+02	3.56E+03	7.54E+03	1.60E+03	2.49E+01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.64E+02	0.00E+00	5.77E+02	0.00E+00

6) 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; 7) SQP = Land use related impacts/soil quality.

USE OF NATURAL RESOURCES

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Renew. PER as energy ⁸⁾	MJ	4.81E+02	1.53E+01	4.43E+02	9.39E+02	4.73E+01	2.47E+02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.87E+00	0.00E+00	3.14E+00	0.00E+00
Renew. PER as material	MJ	0.00E+00	0.00E+00	2.43E+02	2.43E+02	0.00E+00	-2.43E+02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Total use of renew. PER	MJ	4.81E+02	1.53E+01	6.86E+02	1.18E+03	4.73E+01	4.17E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.87E+00	0.00E+00	3.14E+00	0.00E+00
Non-re. PER as energy	MJ	9.67E+03	1.08E+03	2.24E+03	1.30E+04	3.84E+03	1.37E+02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.71E+02	0.00E+00	2.40E+03	0.00E+00
Non-re. PER as material	MJ	2.88E+03	0.00E+00	-6.92E+02	2.19E+03	0.00E+00	-3.68E+01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	-2.16E+03	0.00E+00
Total use of non-re. PER	MJ	1.26E+04	1.08E+03	1.54E+03	1.52E+04	3.84E+03	1.00E+02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.71E+02	0.00E+00	2.41E+02	0.00E+00
Secondary materials	kg	9.47E-01	0.00E+00	0.00E+00	9.47E-01	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Renew. secondary fuels	MJ	2.30E+00	9.08E-02	1.37E-01	2.53E+00	2.91E-01	4.44E-02	ND	ND	ND	ND	ND	ND	ND	0.00E+00	2.29E-02	0.00E+00	1.98E-02	0.00E+00
Non-ren. secondary fuels	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Use of net fresh water	m ³	9.94E+00	2.04E-01	2.28E+00	1.24E+01	6.35E-01	1.23E-01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	5.16E-02	0.00E+00	4.22E+00	0.00E+00

8) PER = Primary energy resources.

END OF LIFE – WASTE

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Hazardous waste	kg	1.79E+02	7.62E+00	1.33E+01	2.00E+02	2.54E+01	1.59E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.92E+00	0.00E+00	1.26E+00	0.00E+00
Non-hazardous waste	kg	1.48E+03	1.51E+02	1.85E+03	3.48E+03	3.78E+02	6.56E+01	ND	ND	ND	ND	ND	ND	ND	0.00E+00	3.81E+01	0.00E+00	3.65E+03	0.00E+00
Radioactive waste	kg	1.16E-02	4.11E-04	2.43E-03	1.45E-02	1.24E-03	1.16E-04	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.04E-04	0.00E+00	8.45E-05	0.00E+00

END OF LIFE – OUTPUT FLOWS

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Components for re-use	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for recycling	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Materials for energy rec	kg	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Electricity	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
Exported energy – Heat	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

ADDITIONAL INDICATOR – GWP-GHG

Impact category	Unit	A1	A2	A3	A1-A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
GWP-GHG ⁹⁾	kg CO ₂ e	7.79E+02	7.84E+01	1.33E+02	9.90E+02	2.94E+02	6.55E+00	ND	ND	ND	ND	ND	ND	ND	0.00E+00	1.98E+01	0.00E+00	1.09E+01	0.00E+00

9) This indicator includes all greenhouse gases excluding biogenic carbon dioxide uptake and emissions and biogenic carbon stored in the product. In addition, the characterisation factors for the flows – CH₄ fossil, CH₄ biogenic and Dinitrogen monoxide –s were updated. This indicator is identical to the GWP-total of EN 15804:2012+A2:2019 except that the characterisation factor for biogenic CO₂ is set to zero

SCENARIO DOCUMENTATION

DATA SOURCES

Manufacturing energy scenario documentation

Manufacturing electricity is metered at unit process level and totals 131.6 kWh per declared unit, comprising sampling and mixing 5.07 kWh, curing 55.77 kWh, pressing 4.90 kWh and cutting to size and polishing 65.91 kWh. The supply is 70% grid electricity from the India Northern grid and 30% electricity generated by the photovoltaic installation at the site. Ball milling of quartz powder, carried out by the powder supplier on grid electricity, consumes a further 6.03 kWh per declared unit and is declared in module A1. No other energy carrier is consumed at the production site.

Transport scenario documentation - A4 (Transport resources)

Distribution is modelled on the manufacturer's actual sales distribution for the reference period: 20% domestic India and 80% export, comprising 65% United States, 10% Middle East and 5% Vietnam. Road haulage is by lorry of 16 to 32 tonne payload meeting EURO 6, and sea freight by container ship on heavy fuel oil. Total transport in module A4 is 12,794 tkm per declared unit.

Transport to the building site (A4) - Scenario documentation

Scenario parameter	Value
Capacity utilization (including empty return) %	Represented within the dataset. Transport is modelled on a tonne-kilometre basis using market datasets in which the average load factor and the empty return leg are already accounted for.
Bulk density of transported products	2,448 kg/m ³
Volume capacity utilization factor	The density of the product exceeds the mass to volume ratio of the vehicle, so transport is limited by mass rather than by volume.

Installation at the building site (A5) - Scenario documentation

Scenario parameter	Value
Energy: type and consumption (MJ or kWh)	None declared. The slab is delivered ready for fixing and is installed manually; no energy is consumed on site.
Water use (m ³)	None. No water is used during installation.
Ancillary materials: type and mass (kg)	Epoxy resin jointing adhesive, 0.9 kg
Waste materials: type and mass (kg)	Wood packaging 14.4 kg (only for Export); low density polyethylene lamination film 0.85 kg
Waste materials: output routes	Both fractions are to sanitary landfill. No material or energy recovery arises.
Direct emissions (kg)	21.70 kg CO ₂ , biogenic. This is the release of the biogenic carbon contained in the wood packaging, balancing the uptake declared in module A3.

Use stage scenario documentation - B1 to B7

Modules B1 to B7 are not declared (MND). The function, installation and maintenance of the slab at building level are determined by the fabricator and the end user, so no use-stage scenario and no reference service life are declared; see PRODUCT USE (B1-B7). The use stage may be assessed at building level from the declared unit.

End of life (C1-C4) - Scenario documentation

Scenario information	Value
Collection process: collected separately (kg)	0
Collection process: Mixed waste (kg)	1,000
Recovery: re-use (kg)	0
Recovery: recycling (kg)	0
Recovery: energy recovery (kg)	0
Disposal (kg)	1,000, to inert waste sanitary landfill
Scenario assumptions e.g. transportation (mode, km) & other	Manual deconstruction with no energy input (C1). Transport to a licensed inert landfill assumed at 100 km by lorry of 16 to 32 tonne payload, EURO 6 (C2). No processing before disposal (C3). No established recycling route exists for engineered stone at end of life, so the full mass of the declared unit is modelled to landfill (C4).

THIRD-PARTY VERIFICATION STATEMENT

EPD Hub declares that this EPD is verified in accordance with ISO 14025 by an independent, third-party verifier. The project report on the Life Cycle Assessment and the report(s) on features of environmental relevance is filed at EPD Hub. EPD Hub PCR and ECO Platform verification checklist are used.

EPD Hub is not able to identify any unjustified deviations from the PCR and EN 15804+A2 in the Environmental Product Declaration and its project report.

EPD Hub maintains its independence as a third-party body; it was not involved in the execution of the LCA or in the development of the declaration and has no conflicts of interest regarding this verification.

The company-specific data and upstream and downstream data have been examined as regards plausibility and consistency. The publisher is responsible for ensuring the factual integrity and legal compliance of this declaration.

The software used in creation of this LCA and EPD is verified by EPD Hub to conform to the procedural and methodological requirements outlined in ISO 14025:2010, ISO 14040/14044, EN 15804+A2, and EPD Hub Core Product Category Rules and General Program Instructions.

[Verified tools](#)

Tool verifier: Magaly Gonzalez Vazquez

Tool verification validity: 27 March 2025 - 26 March 2028

Elena Antuña-Bernardo as an authorized verifier for EPD Hub Limited
01.10.2026

