Environmental Product Declaration

Caesarstone Porcelain Surfaces

EPD®
THE INTERNATIONAL EPD® SYSTEM

caesarstone®

EPD®

In accordance with
ISO 14025:2006 and
EN 15804:2012+A2:2019/AC:2021 for:

Caesarstone Porcelain surfaces

from Caesarstone Ltd.

Programme
The International EPD® System,
www.environdec.com

Programme operator
EPD International AB

EPD registration number
EPD-IES-0031647:001

Publication date
07-05-26

Valid until
07-05-31

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

EPD of multiple products, based on average results

Product

536	Antikella
583	Crestone
509	Onyxa
537	Glacetta
531	Travina
534	Everline
545	Fossillia
535	Goldesse
582	Dolcivio
110	Whitenna
413	White Ciment
501	Snowdrift
502	Sleet
503	Circa
504	Lumena
505	Archetta
506	Mirabel
531	Libretta
914	Carrara Ice
901	Ocianoston
902	Calacutta Bianco
903	Aisling White
507	Marbannova
508	Isobellia
581	Lucillia
907	Moon Ice
912	Terra Flakes
915	Almond Stone
904	Lunar Burst
410	New Ivory
411	Dark Grey
412	New Ivory
512	New Ivory
513	Dark Grey
905	Dark Grey
533	Dark Grey
540	Dark Grey
580	New Ivory
913	Dark Grey
603	Cream
584	New Ivory
908	Ash Grey
230	Cream
231	Dark Grey
542	Mosstone
543	Marenstone
544	Auralux
546	Thalassa
550	Silvax
551	Travina
130	Darma
302	Metallio Black
304	Magellanic
510	Impermia
511	Smokestone
220	Magnate
916	Black Eclipse
911	Midnight Spark
311	Graphite Metal
516	Locura
303	Metallio Brown
514	Emprada
910	Silver River
909	Ciderstone
906	Sunset Stone
232	Cider Leather
310	Majesty Metal
604	Oakridgewood

Product recently on the market – Results of this EPD shall be used with care as the LCI data is not yet based on 1 year of production which may result in increased uncertainty.

General EPD Information

Programme information

Programme
The International EPD® System

Website
www.environdec.com

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

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Accountabilities for PCR, LCA and independent, third-party verification

Product Category Rules (PCR)

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

PCR – Construction products 2019 2.0.1,

PCR review was conducted by: The Technical Committee of the International EPD System. See www.environdec.com for a list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review panel may be contacted via the Secretariat www.environdec.com/contact.

Life Cycle Assessment (LCA)

LCA accountability: Sher Consulting Services, Hadar Oryan

Third-party verification

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

Individual EPD verification without a pre-verified LCA/EPD tool

Third-party verifier: Niels Jungbluth, ESU-services GmbH, Switzerland
Approved by: International EPD System.

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

○ Yes ◉ No

The EPD owner has the sole ownership, liability, and responsibility for the EPD.

EPDs within the same product category but registered in different EPD programmes, or not compliant with EN 15804, 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. For further information about comparability, see EN 15804 and ISO 14025.

The Life Cycle Assessment study has been performed in accordance with the requirements of EN 15804:2012+A2:2019/AC:2021 and based on EN 15804 + A2 (adapted) V1.00 / EF 3.1 Reference package.

This study complies with ISO 14040 and ISO 14020, and ISO 14025. This study has Compliance with PCR – Construction products 2019 2.0.1 and other requirements in General Programme Instructions V5 in the International EPD® System and complementary requirements at www.environdec.com. The LCA uses uses Ecoinvent 3.11 database.

Environmental Product Declaration in accordance with ISO 14025 and EN 15804"

EPD of construction products may not be comparable if they do not comply with EN 15804

The EPD represents 8 body formulations.

Company information

Owner of the EPD: Caesarstone Ltd. M.P. MENASHE SDOT YAM, Sharon Area, 3780400 Israel, +972-4-6109955

Contact: Gili Harpaz, ESG leader, Caesarstone

Address and contact information of the LCA practitioner commissioned by the EPD owner, if applicable: Hadar Oryan, Hadar.oryan@mxns.com

Description of the organisation: Caesarstone Ltd is the pioneer of quartz countertops that have been at the forefront of this category since 1987. Caesarstone design, manufacture, and market engineered stone surfaces that secure safety and guarantee the durability to bring everlasting beauty indoors and outdoors for residential and commercial applications. As part of its commitment to sustainability, and mitigating product environmental impact, following past EPDs, caesarstone has decided to look into the environmental impact of porcelain countertops

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About *Caesarstone*

With a history spanning over 35 years, the Caesarstone story continues to evolve.

For the past three decades, we have crafted countertops for millions of homes worldwide, and we consider it a privilege to be part of the daily lives of families in over 50 countries. Since our establishment in 1987, much has changed. Kitchens have transformed, and there is a heightened awareness and concern for the natural environment, material resources, and climate change. We embrace these changes through our customer-centric approach.

In recent years, we have made significant strides in research and development, evolving our engineered stone to create the next generation of surfaces. This strategic shift has expanded our product portfolio to include a range of innovative materials and surfaces that support our long-term growth and sustainability strategy. We have implemented a series of initiatives, innovations, and commitments to address the demands of an ever-evolving world.

Furthermore, we have strategically pivoted to optimize operations and reduce overhead costs. As part of this strategy, we ceased operations at our Sdot Yam site in June and closed our Richmond Hill facility in December. This shift involved transitioning part of our in-house production to Original Equipment Manufacturers (Strategic Partners) primarily based in Asia, including China, India, and Vietnam. Our strategic restructuring has focused on expanding these partnerships to ensure they meet high ESG standards and adhere to our EPD requirements. Our process involves two key stages: vendor selection and ongoing support to enhance their EPD performance, ensuring uniformity and quality across our supply chain. We are taking the next steps to create new methods and standards to achieve our business and sustainability vision. We are focused on product innovation, environmental performance, ensuring end-to-end safety throughout the entire product lifecycle, and fostering a culture of governance that aims to meet the highest business standards. All of this is accomplished through our community of employees and partners who believe in the human capacity to create something new and extraordinary.

Main Accreditations

Caesarstone is ISO 14001 certified, a global standard for environmental protection; ISO 9001 certified, a quality management standard); NSF certification for public health and safety; and has been awarded the respected Greenguard.

ISO 14001: the international standard for establishing an environmental management system to guide working towards meeting environmental goals; monitoring compliance activities; investing in tools for enhancing a quality environment; employee and supplier training; health and safety procedures; and establishing efficient production processes.

Caesarstone is certified with the Environmental Management System in accordance with ISO 14001.
Link to website

Greenguard Gold: Caesarstone surfaces comply with the GREENGUARD GOLD standard (formerly known as GREENGUARD Children & Schools Certification), which evaluates the sensitive nature of school populations combined with the unique building characteristics found in schools and presents the most rigorous product emissions criteria to date.
Link to website

Greenguard: Caesarstone surfaces comply with GREENGUARD certification, which verifies that Caesarstone products meet the most stringent indoor air emission standards.
Link to website

HPD: The Health Product Declaration (HPD)® Open Standard* requires full disclosure of potential chemicals of concern in products by comparing product ingredients to a set of priority hazard lists based on the GreenScreen for Safer Chemicals and additional lists from other government agencies. In 2021, Caesarstone updated its HPD to align with the new HPD v2.3 standard. The HPD covers Caesarstone surfaces.
Link to website

Scientific Certification Systems (SCS): Certified for recycled content. Some of our models are made from pre-consumer recycled raw materials, such as mirror and glass or high-quality reclaimed post-production waste from the fabrication process.
Link to website

NSF51: The International Health and Safety Foundation sanitary standard ensures our working surfaces are safe for use in all food environments. Caesarstone's non-porous surfaces inhibit the growth of mildew and bacteria, thus creating a hygienic surface.
Link to website

Mindful Materials: Caesarstone products are found in the Mindful Materials library, a platform that enables the building industry to obtain information concerning statements and certifications regarding quality and environmental aspects of products.
Link to website

European Food Contact Materials regulations: The European Union has adopted wide-ranging regulation regarding materials that come into contact with food products (Food Contact Materials; FCMs). Caesarstone products abide by the two leading regulations: Regulation (EC) No 1935/2004 and Regulation (EC) No 2023/ 2006 on Good Manufacturing Practices.*

*This is an independent statement based on assessments by Intertek Consumer Goods GmbH, an internationally recognized testing body, in compliance with the regulation's criteria.
Link to website

Nordic Ecolabel: Caesarstone's models are listed in the Building Materials Database for the Nordic Ecolabel.
Link to website

LEED: Developed by the United States Green Building Council (USGBC), LEED Leadership in Energy and Environmental Design is an American accredited certification program for the design, construction, and operation of high-performance green buildings. We are a member of USGBC, and Caesarstone's products can contribute to LEED v3 and LEED v4 projects.

Select Caesarstone models can contribute to the LEED Material & Resources credit, and can be included in the calculation for total recycled content used in a project. Our models also contributes to the Building Product Disclosure and Optimization – Material Ingredients credit, as we have published a Health Product Declaration (HPD) that covers all variations of Caesarstone surfaces.

More information on how Caesarstone contributes to LEED credits can be found here.
Link to Leed website

Declare: Our ingredients are clearly listed on Declare Labels that are verified and approved by an external third-party, for full transparency you can trust about what's exactly inside the majority of our products, which are 100% fit for use in Living Building Challenge (LBC) projects, LEED buildings, and International Living Future Institute (ILFI) initiatives.
Link to website

Red List Declaration: Caesarstone publishes a Red List declaration, self-certifying that none of the materials from the Red List, as detailed on the International Living Future Institute website, is intentionally added to a specific list of Caesarstone models.
Link to website

Product Information

Product Information

Product Name
porcelain counter tops, 8 different Body formulations, which categorize into 68 models.

Product Description
A porcelain countertop, with the service life of 75 years.

UN CPC Code
The CPC Code 375 is described as Articles of concrete, cement and plaster.

Geographical Scope
The production of the Caesarstone porcelain countertop takes place in “Lioli Cermaica” facility, in Gujarat, India. the source for most raw materials was India. Distribution to customers is worldwide: Canada, USA, Australia, Israel, South East Asia and rest of the world (mainly Europe).

Target Audience
B2B

Product Identification

A countertop made of porcelain, used for kitchens, washrooms, and other surface needs.
For a more in depth view please visit: https://www.caesarstone.co.il/collection-2026

Body	Design no.	Design Name
CS BASE	410	New Ivory
	411	Dark Grey
	412	New Ivory
	512	New Ivory
	513	Dark Grey
	905	Dark Grey
	533	Dark Grey
	540	Dark Grey
	580	New Ivory
	913	Dark Grey
	603	Cream
	584	New Ivory
	908	Ash Grey
	230	Cream
	231	Dark Grey
S&P	542	Mosstone
	543	Marenstone
	544	Auralux
	546	Thalassa
	550	Silvax
	551	Travina
BLACK	130	Darma
	302	Metallio Black
	304	Magellanic
	510	Impermia
	511	Smokestone
	220	Magnate
	916	Black Eclipse
	911	Midnight Spark
	311	Graphite Me-Tal
	516	Locura
BROWN	303	Metallio Brown
	514	Emprada
	910	Silver River
	909	Ciderstone
	906	Sunset Stone
	232	Cider Leather
	310	Majesty Metal
	604	Oakridgewood

Body	Design no.	Design Name
WH-92	536	Antikella
	583	Crestone
	509	Onyxa
	537	Glacetta
	531	Travina
	534	Everline
	545	Fossillia
	535	Goldesse
	582	Dolcivio
	110	Whitenna
	413	White Ciment
	501	Snowdrift
	502	Sleet
	503	Circa
	504	Lumena
	505	Archetta
	506	Mirabel
	531	Libretta
	914	Carrara Ice
WH-86	901	Ocianoston
	902	Calacutta Bianco
	903	Aisling White
	507	Marbannova
	508	Isobellia
	581	Lucillia
	907	Moon Ice
IVORY 18	912	Terra Flakes
	915	Almond Stone
	904	Lunar Burst

Table 1 – Body Formulation Categorization and Correlating Models

582 Dolcivio

Life Cycle Assessment Information

Declared Unit

The study Declared Unit is **one kg of finished porcelain slab**. Below are the materials composing the different products. The declared unit also includes the product packaging, which includes a nylon wrapping, and a wooden pallet with metal parts.

Representation of Models

Eight distinct body formulations (base compositions) were analyzed.

All bodies are primarily composed of feldspar and kaolin, which together make up the majority of the mass and provide the structural and vitrification properties of the porcelain. The differences between the bodies are mainly due to small variations in mineral additives (such as feldspar variants, silica, alumina) and the use of pigments to achieve different colors (such as black, brown, cognac, ivory, and white shades). Minor additives such as dispersants and plasticizers are used in small amounts to optimize processing performance. Overall, the bodies differ mainly in color formulation and minor compositional adjustments, while the core porcelain matrix remains consistent across the product family.

Each of the eight Body formulation serves as the core material system from which several product variants are derived (see product identification table).

The models within each of the eight families, differ only in their surface finish, involving very small adjustments in pigment type or dosage.

These finishing differences represent a negligible share of the overall material mass and process inputs. The declared unit is 1 kg, as the finnished product weight varies between models.

The PCR of construction products 2.0.1 allows us to present multiple products in one EPD, as the representation will contain the weighted average results of the product group. The weighting is based on the sold percentage of researched products in this study.

The full end product countertop comes in different sizes and weights.

For the full list of options see table below. The column on the righthand side depicts average conversion factor of kg to 1m2 which can be used to calculate full product results

Dimensions (mm)	Thickness (mm)	Weight Range (kg)	Average Conversion Factor (kg/m²)
1600 X 3200	20	235-238	46.2
1600 X 3200	12	142-144	27.9
1600 X 3200	6	78-80	15.4
1200 X 2400	12	84-85	29.3
1200 X 2400	9	60-62	21.2
1200 X 2400	6	40-42	14.2

Table 2 - product dimensions

1 As follows PCR – Construction products 2019 1.2.4

2 As written in product declaration

Grouping of the products

The variations GWP result in the models vary by more than 10%, however, their grouping can be justified, as all models belong to the same commercial collection of porcelain countertops. All models use the same raw materials (with variations in percents as seen later on in content table), undergo the same production process and use the same equipment. The production of these products occurs in one facility located in Gujarat, India.
Reference service life: 75 years.

Time representativeness: Data was collected for January to June 2025.

Primary manufacturing data were collected over a six-month period due to the recent implementation of new production recipes, which have only been in use for this duration. As no full-year data were available for the current production configuration, the six-month dataset represents the only relevant and representative option. This approach is consistent with the Construction Products PCR v2.0.1, Section 4.6.2, which allows justified deviations from one-year data collection when a product is newly introduced or recently placed on the market.

Database(s) and LCA software used: Simapro 10.2, Ecoinvent 3.11

For foreground data the study source is Caesarstone company. This data includes production of product, distribution, transport, customer use, and end of life technology true to production for the year of January to June 2025. For background data the sources include Ecoinvent 3.11 and system model of cut off is chosen. Specifically, for A5 – customer maintenance, a reference of quantities for auxiliary materials was extracted from an EPD of similar product. The calculation software used is SimaPro 10.2

The impact assessment method used in this study is EN 15804+A2, EF 3.1 normalization and weighting values, published in July 2022.

Description of system boundaries

Cradle to gate with options, module B2, C2- C4, module D and optional modules. The following stages are included in this study: Production and transport of raw materials, processing of raw materials into final product, distribution to costumers, Installation at customer home and customer maintenance, transport and end of life treatment in landfill. The scenarios included are currently in use and are representative for one of the most probable alternatives.

Content Information

Product components		Avg in Product	Biogenic Material, weight % of product	Biogenic material, kg C/ product
Minerals		94.1%	0%	0
Alumina and Pigments		2.9%	0%	0
Polymers and Binders		1.2%	0%	0
Chemical additives		1.3%	0%	0
Packaging Material	Weight,kg	Weight % vs the product	Biogenic Material, kg/c	-
Nylon	0.0053	0.004%	0	-
Wood &Metal Pallet	0.04	0.034%	0.0012	-

Table 3 – Content Information

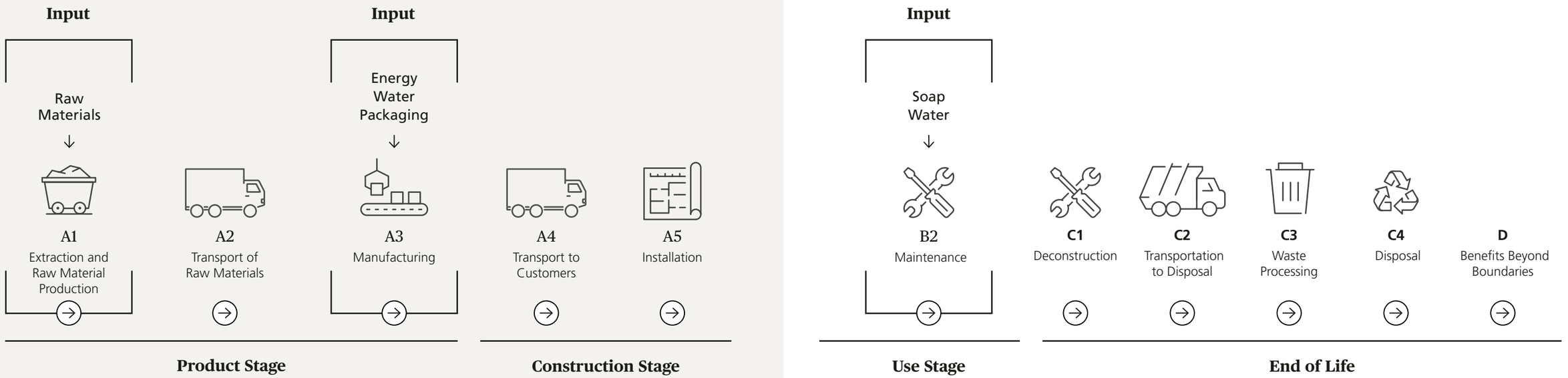
Modules declared, geographical scope, share of specific data (in GWP-GHG results) and data variation (in GWP-GHG results):

	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	De-construction 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	X	ND	ND	ND	ND	ND	ND	X	x	X	X
Geography	Int	Int	India	Int	Int	-	Int							Int		Int	Int
Specific data used	6%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – products	-11/+5%					-	-	-	-	-	-	-	-	-	-	-	-
Variation – sites	0%					-	-	-	-	-	-	-	-	-	-	-	-

Table 4 - System boundaries

* Conversion factor used from biogenic carbon to KG Co2: 3.67

System Diagram



Description of system boundaries:

Cradle to gate with options, module B2, C2- C4, module D and optional modules. The following sta-ges are included in this study: Production and transport of raw materials, processing of raw materials into final product, distribution to costumers, Installation at customer home and customer main-tenance, transport and end of life treatment in landfill. The scenarios included are currently in use and are representative for one of the most probable alternatives.

A1 Depicts the raw material production, located almost entirely within India. Additionally, for each of the sites amount of plastic and wood pallets used in packaging of raw materials, was added, and depicted as waste flows later on in A3.

A2 Describes the transportation of these materials to the site. As the source for most raw materials was India, similar to the factory, the main transport means is lorry. The amount of raw material needed to produce a final 1 kilogram of each model varies– with raw material amounting from 1.09 kg- 1.25 kg.

A3 Includes the production of the countertops in the factory. The manufacturing of the porcelain countertops follows a continuous, integrated ceramic production sequence. Raw materials are first mixed and milled in the Slip House using ball mills to produce a homogenized slip. This slip is then fed to the spray drier, where it is transformed into granulated pow-der suitable for pressing. The powder is stored in silos and metered through powder feeders into the hydraulic press, where it is compacted into "green slabs". Green slabs are unfired, freshly pressed slabs. The green slabs continue to pressing and green cutting, where they are trimmed and cut into final size, followed by controlled drying to remove residual moisture. The dried slabs pass through the glaze line, where surface coatings and digital decoration are applied, supported by an on-site glaze preparation process. After glazing, the slabs enter the kiln. This a high-temperature kiln for sintering and vitrification.

Post-firing operations include surface polishing and quality sorting, lamination and packaging. The finished products are then prepared for storage and distribution

Waste flows occur in two stages: the green cutting stage, where the fresh clay is later reused in other porcelain products. And post kiln "fired material" loss, which due to lack of specific waste treatment data, we modeled in a conservative manner, as treated by landfill. The ratio of green waste vs fired waste for each bodies material loss is 82% vs 18% accordingly.

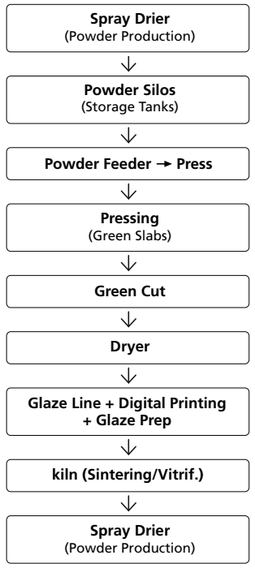
Water is used throughout the process, noticeably in the slip preparation. Water is a key ingredient in producing the slip, the liquid mixture of clays, feldspar, kaolin, silica, and additives that is milled in ball mills. Waste water partially evaporates (30%) and partially (70%) reused within the facility for cleaning, gardening and more

In light of water being used throughout the process air particles created during processing/polishing/ sawing is minimal, measurement of air particles in site is lower than regulatory amount demanding regular measurement. There for there is no measurement of material particles in the manufacturing site directly. All particles can be seen as included in the "material loss" that is calculated.

Air emissions are included in background data sets, therefore no chimney emissions were included additionally.

In terms of product packaging nylon amounts were given by Caesarstone. Wood pallet was stated to be used but specific amounts unknown, therefor amounts were assumed to be same as literature findings.

The following table includes A3 inputs and Out puts in each site:



A3 Manufacturing Inputs

Material	Amount	Unit
Electricity	0.327	kwh
Diesel (forklifts)	0.0458	MJ
Propane gas	4.64	MJ
Water consumption	0.67	kg

Table 5 – A3 Material Inputs

A3 Product Packaging

Packaging material	Amount	Unit
Nylon	0.0053	kg
Wood Pallet with metal parts	0.04	kg

Table 6 - A3 Packaging

A3 Manufacturing - Outputs

Material	Treatment	Amount	Unit
Green Clay	Reuse - Onsite	82%* 0.09-0.25	kg
Fired Clay	Landfill - Off site	18%*0.09-0.25	kg
Wood (used in raw material packaging)	recycled	0.00016	kg
Nylon (used in raw material packaging)	recycled	0.00244	kg
Waste water	Sewage treatment	0.469	M3
Emissions to Air			
Water	evaporation	0.201	kg

Table 7 - A3 Out puts

In terms of electricity the data sets, the closest location, and newest possible data sets on Ecoinvent were used: "Electricity, medium voltage {IN-Western grid}| market for electricity, medium voltage | Cut-off, U".

Damage category	Amount	Unit
GWP 100	1.44	Kg CO2-eq/KWH

Table 8 - Electricity GWP -GHG impact

System Diagram

A4 - Customer transport

Category	Unit	AUS	CANADA	IND	ISRAEL	ROW	SEA	UK	USA
land distance within destination country - Lorry	km	100	2000	300	50	50	35	100	400
Land distance India factory to port - Lorry	km	120	120	120	120	120	120	120	120
Last mile - By Light commercial vehile	km	30	30	30	30	30	30	30	30
sea distance - Freight ship	km	11640.43733	18295.908	0	21831.376	20110.868	5187.452	20025.676	21073.29067

Table 9 - Transport Distance by Transport Type and Location

A4 models distribution is true to Jan-June 2025 data. Shipping via sea was to: Canada, USA, Australia, Israel, South East Asia and rest of the world (mainly Europe). Additionally, in terms of road transport: a lorry with a distance of 120 km from The factory to Lioli port, and another specific average weighted amount of km from destination port to most likely customer in km by road via lorry was modeled. Fi-nally, a "last mile"30 km was used via light commercial vehicle.

A5 Includes installation of the countertops in customer homes/fabricator facility. For a full countertop, using a circular saw for half an hour of use would consume approximately 0.9 KWH. Therefor as an average slab Is 155 kg, the average use of a circular saw for our functional unit (1 kg) would be 0.005 kwh. For the adhesive – a silicon adhesive is modeled to include 0.009 kg silicon product for one functional unit (1 kg) based on literature findings . Additionally A5 models the the transport and disposal of the packaging in which the product arrived, in this case - nylon and Wood and metal pal-let to waste treatment. As this data is not collected by Caesarstone, the basis is literature.

Nylon is modeled following the 2022 OECD report – 19% incineration, 9% recycling, 50% sanitary landfill and 22% in uncontrolled treatment such as open pit dumps.
Wood and metal part pallets are most likely sent to recycling. A 100 km average to waste treatment facility was modeled

A5 - Installation Inputs	
Silicone Adhesive	0.009 kg
Electricity	0.005806 KWH

A5 - Installation -Waste treatment	
Nylon - Incineration	0.001 kg
Nylon- Recycling	0.0004
Nylon - Landfill	0.0026
Nylon – open pit	0.0011
Wood and metal pallet - Recycling	0.04

Table 10 - A5 Installation Outputs

B2 Represents the customer maintenance phase. A slab life cycle includes 75 years of use, assuming the product would be used as a countertop in home kitchens, and washrooms, and as the life cycle of the slab is independent of the life of the building. The phase was modeled to include a weekly washing of the surface with water and soap, over 75 years of customer use. The quantities for 1m2 of the product are: 0.134 ml of soap for 1 weekly cleaning, and 0.1 liter water used for one weekly cleaning as seen in a number of similar product EPDS.

As an average assumption : our product has 5.12 m2, with 30.27 kg for 1 m2, and our functional unit is 1 kg, we modeled 12.9 kg of water and 17.3 mg of soap used for the entire RSL

B2 - Maintenance	
Maintenance cycle	75 years, weekly washing (52 weeks per year)
Ancillery materials - soap	3.75 kg (for entire RSL)
Net fresh water consumption	0.015 m3 (entire RSL)
Waste Materials from maintenance	0 waste water produced as used amounts are very small, and natural evaporation of water in air drying of counter
Energy input	0

Table 11 - EPD-IES-0027462:001, Bricmate Porcelain Stoneware 12MM

Regarding the customer use itself known as B1, no specific inputs or out puts are needed for use of the countertop, as it used as a surface. No inputs or out puts occur in B1 and therefore it is not part of the study scope.

Regarding stages B3, B4, B5 – the countertops' physical priorities such as hardness, resistance to scratching and stains make repair, replacement or rehabilitation of the countertop unnecessary. Due to this B3,4,5 are not included in studied modules.

Regarding energy and water use in the operational use (B6, B7) there are no energy inputs as energy is not required for product use, therefore B6 is excluded from consideration for this study. Water use (B7) is considered during the maintenance stage, and therefor also not regarded within this study.

C1 is excluded from this study as deconstruction of the product could vary too widely and not enough data is known regrading this stage.

C2 models the transportation to landfill facility, with an average 100 km distance

C3 Waste treatment for the end of life of the product is sanitary landfill. Due to this no prior treatment steps are included and therefor C3 is considered to be 0.

C4 model the treatment of the waste and disposal in sanitary landfill. Although this data is not directly known by Caesarstone, it is the most likely end of life for this type of product globally today. As such The slab is modeled as sent to a sanitary landfill, waste processing before/during this type of disposal is not known to occur, and is therefore marked as "0" in this study.

C4 - End of life	
Collection process	1 kg collected with mixed construction waste
Recovery System	0 kg (reuse/recycling/recovery)
Disposal by type	1 kg inert landfill, inert waste
transportation	100 km distance by lorry

Table 12 -c2- C4 inputs and Outputs

D Module D represents benefits from waste treatments occurring in researched scenario and beyond study boundaries. As the countertops are currently fully treated by landfill, there is no recycling/ reusing benefit at end of life that can currently be reported. No benefits and loads exist outside the system boundary, and therefore model D value is 0 throughout the result charts. Full process descriptions exist in Annex.

A-D Includes capital goods, such as infrastructure, modeled in background data sets used in Ecoin-vent.

Data Quality and Assumptions

A data quality assessment was found to be satisfactory as outlined in the table below.
The Data rating is from a scale of 1-5, one being highest data quality and five being the lowest.

Time Coverage	Geographical Coverage	Technological Coverage	Precision / Completeness	Representativeness	Overall Quality Score
3.54	3.25	2.09	2.00	2.09	2.63

Table 13 – Data Quality Assessment Summary

GWP -Total	A1	A2	A3	Primary %
1.304	0.303	0.083	0.918	6%

Table 14 - GWP - % of Primary Data

Data for each of the model stages was received directly from Caesarstone, and represents current production and distribution processes in Caesarstone site. Data given represents Caesarstone, January to June 2025. Primary manufacturing data were collected over a six-month period due to the recent implementation of new production recipes, which have only been in use for this duration. As no full-year data were available for the current production configuration, the six-month dataset represents the only relevant and representative option. This approach is consistent with the Construction Products PCR v2.0.1, Section 4.6.2, which allows justified deviations from one-year data collection when a product is newly introduced or recently placed on the market.

Regarding A1 For a small number of substances, there is use of generic LCA data sets The chosen data sets represent closest found data sets and should accurately depict these processes and materials. A Feldspar data set was used both in the case of feldspar (soda and potash) ingredients, and to represent quartz material as this was the closest data set possible.

Regarding product packaging in A3, direct data on wood and metal pallet was lacking from the facility and estimate weight and size of pallet used for 1 kg of porcelain countertop were extrapulated from a porcelain countertop EPD, whose measurements were relevant based on facility professionals. Regarding A5 The installation phase was discussed with Caesarstone, and models only the packaging waste. More information on this can be found within the "system boundaries" paragraphs.

An assumption regarding A5 - installation phase was assumed using literary reference. Silicon adhesive, and energy were calculated in this phase. An extended description can be found in "System Boundaries"

In B2, the Maintenance stage includes washing of the countertops. As this is under customer personal maintanance use, and there was no specific information on this treatment from Caesarstone, the data modeled is based on an EPD from a Cosentino surface, published in 2019. Cosentino's study modeled one weekly cleaning, with a certain amount of soap and water. The model pertains to 75 years of use and thus was calculated in accordance. The full process descriptions are found within the annexes.

For measure of transport to customers, a weighted average based on sales data was calculated. Besides the shipping, the model Additionally, a distance of 120 km from The factory to Lioli port, and another amount of km from destination port to most likely customer in km by road via lorry was modeled.

For measure of transportation distance at the end of life, the distance from the customer home to the Landfill facility a distance of 100 Kilometer was used.

* Dekton, EPD N÷. S-P-00916 – version 2 Publication date: 01/10/2016

Allocation

In accordance with ISO 14044:2006, Section 4.3.4, allocation was applied following the recom-mended hierarchical approach. First, wherever possible, allocation was avoided by subdividing processes or expanding the system boundaries. If allocation could not be avoided, efforts were made to apply a physical relationship to reflect the underlying physical causality between inputs and outputs. When a physical relationship was not applicable, an allocation based on other rele-vant relationships, such as economic value, was considered. The allocation approach used in this study follows this prescribed order, ensuring methodological consistency with ISO 14044.

The study uses mass allocation method. Meaning the calculation of inputs and out puts is based on percentage of product out of total production, in weight. The allocation method used in this study for all data sets is the "cut off- by classification" method. Regarding end of life, this method does not include burdens of the recycling, but rather only transportation to recycling facilities, as it considers the burdens and credit of recycling to the "second" product produced from recycled material. The declared unit for this study is one kilogram as guided by the PCR. No co-product is created during the creation of the Caesarstone slab.

Flows Excluded from the Analysis

Sanitary water use (e.g., toilets and kitchen water in the facility) is excluded from the system boundary, as it is not directly related to the production processes and is expected to contribute negligibly to overall environmental impacts.

Auxiliary materials used for routine cleaning and maintenance of production equipment (e.g., lubricants, solvents, or cleaning agents) are excluded from the system boundary. These materials are used in small quantities and are not directly consumed in the product's life cycle. Their contribution to the overall environmental impact is expected to be negligible and falls below the cut-off criteria defined in ISO 14044.

The use of soap during the window cleaning step prior to film installation is included in the downstream modeling. However, the treatment of resulting wastewater and residual soap was excluded due to the very small quantities involved and the assumption that most of the soap evaporates or is wiped off during application. The environmental impact of this omission is considered negligible and within the cut-off criteria.

Calculation Methodology

The results in this study are presented as weighted average results. The weighted average is calculated based on sale volumes. Below please see the sale percent varying between the models in the table below. The reason production volume was not used for the weighting average is the fact that not all products produced are later sold in the same year, as some products are sold a number of months after the production. In order to best represent the entire lifecycle, and January-June 2025 weighted amounts the sales data was used.

Results of the environmental performance indicators

Indicator	Unit	A1-A3	A4	A5	B2	C2	C3	C4	D
GWP-biogenic	kg CO_2 eq.	-5.56E-02	5.17E-05	5.20E-02	2.04E-05	6.42E-06	0.00E+00	1.04E-02	0.00E+00
GWP-fossil	kg CO_2 eq.	1.40E+00	3.06E-01	3.99E-02	1.08E-02	2.02E-02	0.00E+00	3.56E-06	0.00E+00
GWP- luluc	kg CO_2 eq.	8.12E-04	1.62E-04	3.84E-05	6.37E-05	9.06E-06	0.00E+00	6.26E-03	0.00E+00
GWP-total	kg CO_2 eq.	1.34E+00	3.07E-01	9.20E-02	1.09E-02	2.02E-02	0.00E+00	1.67E-02	0.00E+00
GWP - GHG	kg CO_2 eq.	1.40E+00	3.07E-01	4.03E-02	1.08E-02	2.02E-02	0.00E+00	6.26E-03	0.00E+00
ODP	kg CFC 11 eq.	1.37E-08	4.29E-09	7.20E-07	1.62E-09	2.57E-10	0.00E+00	1.74E-10	0.00E+00
AP	mol H^+ eq.	6.12E-03	6.22E-03	1.54E-04	5.80E-05	6.90E-05	0.00E+00	4.38E-05	0.00E+00
EP-freshwater	kg P eq.	6.11E-05	2.37E-06	1.21E-06	5.31E-07	2.51E-07	0.00E+00	6.12E-08	0.00E+00
EP-marine	kg N eq.	1.25E-03	1.58E-03	2.88E-05	1.10E-05	2.15E-05	0.00E+00	1.67E-05	0.00E+00
EP-terrestrial	mol N eq.	1.35E-02	1.75E-02	3.18E-04	1.20E-04	2.38E-04	0.00E+00	1.84E-04	0.00E+00
POCP	kg NMVOC eq.	4.41E-03	4.95E-03	1.23E-04	3.65E-05	9.35E-05	0.00E+00	6.63E-05	0.00E+00
ADP-minerals & metals*	kg Sb eq.	2.84E-06	8.64E-07	2.10E-07	5.05E-08	6.63E-08	0.00E+00	9.16E-09	0.00E+00
ADP-fossil*	MJ	1.74E+01	3.91E+00	5.79E-01	1.42E-01	2.80E-01	0.00E+00	1.53E-01	0.00E+00
WDP*	m^3	2.63E-01	1.33E-02	4.44E-02	5.35E-01	1.30E-03	0.00E+00	6.68E-03	0.00E+00
Acronyms	GWP-fossil = Global Warming Potential fossil fuels; GWP-biogenic = Global Warming Potential biogenic; GWP-luluc = Global Warming Potential land use and land use change; ODP = Depletion potential of the stratospheric ozone layer; AP = Acidification potential, Accumulated Exceedance; EP-freshwater = Eutrophication potential, fraction of nutrients reaching freshwater end compartment; EP-marine = Eutrophication potential, fraction of nutrients reaching marine end compartment; EP-terrestrial = Eutrophication potential, Accumulated Exceedance; POCP = Formation potential of tropospheric ozone; ADP-minerals&metals = Abiotic depletion potential for non-fossil resources; ADP-fossil = Abiotic depletion for fossil resources potential; WDP = Water (user) deprivation potential, deprivation-weighted water consumption								

Table 15 - mandatory indicators

Resource use indicators

Indicator	Sub-indicator	Unit	Total	A1-A3	A4	A5	B2	C2	C3	C4	D
Use of Renewable Primary Energy	excluding renewable primary energy sources, used as raw materials	MJ	9.89E-01	8.83E-01	2.55E-02	5.82E-02	1.74E-02	3.73E-03	0.00E+00	1.38E-03	0.00E+00
	renewable primary energy sources used as raw materials	MJ	5.40E-01	5.40E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total	MJ	1.53E+00	1.42E+00	2.55E-02	5.82E-02	1.74E-02	3.73E-03	0.00E+00	1.38E-03	0.00E+00
Use of Non Renewable Primary Energy	excluding Non-renweable primary energy sources, used as raw materials	MJ	2.02E+01	1.64E+01	2.99E+00	5.76E-01	-1.29E-01	2.80E-01	0.00E+00	1.53E-01	0.00E+00
	Non-renewable primary energy sources used as raw materials	MJ	1.43E+00	1.15E+00	0.00E+00	3.21E-03	2.71E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00
	Total	MJ	2.17E+01	1.75E+01	2.99E+00	5.79E-01	1.42E-01	2.80E-01	0.00E+00	1.53E-01	0.00E+00
Use of Secondary Material		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
Use of Renweable 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
Use of Non Renewables as 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
Net Use of Freshwater		m^3	8.64E-01	2.63E-01	1.33E-02	4.44E-02	5.35E-01	1.30E-03	0.00E+00	6.68E-03	0.00E+00

Table 16 - resource use indicators

Output flow indicators

Indicator	Unit	Total	A1-A3	A4	A5	B2	C2	C3	C4	D
Hazardous waste disposed of	Kg	1.19E-04	7.41E-05	3.69E-05	4.81E-06	6.78E-07	1.89E-06	0.00E+00	9.77E-07	0.00E+00
Non hazardous waste disposed of	Kg	1.29E+00	2.10E-01	5.60E-02	5.21E-03	9.96E-04	1.30E-02	0.00E+00	1.00E+00	0.00E+00
Radio Active Waste disposed of	Kg	9.86E-06	8.00E-06	7.72E-07	6.90E-07	3.29E-07	5.52E-08	0.00E+00	2.24E-08	0.00E+00

Table 17 - Output flow indicators

Indicator	Unit	Total	A1-A3	A4	A5	B2	C2	C3	C4	D
Components of 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
Materials for recycling	Kg	5.88E-02	2.61E-03	0.00E+00	4.05E-02	0.00E+00	0.00E+00	1.58E-02	0.00E+00	0.00E+00
Exported energy Electricity - MJ	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
Exported energy thermal - MJ	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
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

Indicator	Unit	Total	A1-A3	A4	A5	B2	C2	C3	C4	D
biogenic carbon content	Kg	1.19E-05	0.00E+00	0.00E+00	0.00E+00	1.19E-05	0.00E+00	0.00E+00	0.00E+00	0.00E+00
biogenic carbobn content in accompanying packaging	Kg	4.00E-02	4.00E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00

Table 18 - Additional Indicators

Additional voluntary impact category indicators

Particulate matter	disease inc.	5.55E-08	1.56E-08	1.51E-09	7.11E-10	1.56E-09	0.00E+00	1.01E-09	0.00E+00
Ionising radiation	kBq U-235 eq	1.39E-02	1.18E-03	1.01E-03	4.78E-04	8.77E-05	0.00E+00	3.56E-05	0.00E+00
Ecotoxicity, freshwater	CTUe	3.42E+00	4.56E-01	1.71E+00	3.79E-02	5.15E-02	0.00E+00	1.11E-02	0.00E+00
Human toxicity, cancer	CTUh	3.75E-10	1.25E-10	4.91E-11	9.16E-12	3.38E-12	0.00E+00	1.13E-12	0.00E+00
Human toxicity, non-cancer	CTUh	8.38E-09	1.51E-09	2.84E-10	3.66E-10	1.73E-10	0.00E+00	2.54E-11	0.00E+00
Land use	Pt	1.26E+01	8.96E-01	1.56E-01	3.27E-02	8.96E-01	0.00E+00	3.01E-01	0.00E+00

Table 19 - Results of the environmental performance indicators

References

Standards and PCR

The International EPD System. (2023).

General Programme Instructions of the International EPD® System, Version 5.0.

EPD International AB.

https://www.environdec.com/library/general-programme-instructions

EN 15804:2012+A2:2019.

CEN – European Committee for Standardization. (2019). Sustainability of construction works – Environmental Product Declarations – Core rules for the product category of construction products. Brussels, Belgium.

Available at: https://standards.cencenelec.eu

ISO 14040:2006.

International Organization for Standardization. (2006). Environmental management – Life cycle assessment – Principles and framework. Geneva, Switzerland.

https://www.iso.org/standard/37456.html

ISO 14025:2010.

International Organization for Standardization. (2010). Environmental labels and declarations – Type III environmental declarations – Princi-ples and procedures. Geneva, Switzerland.

https://www.iso.org/standard/38131.html

PCR 2019:14 Construction products.

EPD International AB. (2024). Product Category Rules: Construction Products (PCR 2019:14), Version 2.0.1.

Available at: https://www.environdec.com/library/pcr-2019-14-construction-products

Reports and Publications

Organisation for Economic Co-operation and Development. (2022).

Global Plastics Outlook: Economic Drivers, Environmental Impacts and Policy Options. OECD Publishing.

https://doi.org/10.1787/de747aef-en

Environmental Product Declarations used as benchmarks

Cosentino Industrial S.A.U.. (2024).

Environmental Product Declaration: DEKTON (EPD No. S-P-00916, Version 3).

EPD International AB.

https://www.environdec.com/library/epd00916

Laminam S.p.A.. (2021).

Environmental Product Declaration: Ceramic Tiles (Registration No. EPDITALY0155).

EPDItaly.

https://www.epditaly.it

TheSize Surfaces. (2022).

Environmental Product Declaration: Neolith® Stone Surfaces (EPD Registration No. S-P-04941).

EPD International AB.

https://www.environdec.com/library/epd04941

Web sources (energy consumption references)

ShunTool. (n.d.).

Understanding the power consumption of a 10 amp saw.

Retrieved December 5, 2024, from

https://shuntool.com/article/how-many-watts-does-a-10-amp-saw-use

Home Efficiency Guide. (n.d.).

How much electricity does a circular saw use?

Retrieved December 5, 2024, from

https://homeefficiencyguide.com/how-much-electricity-does-a-circular-saw-use

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