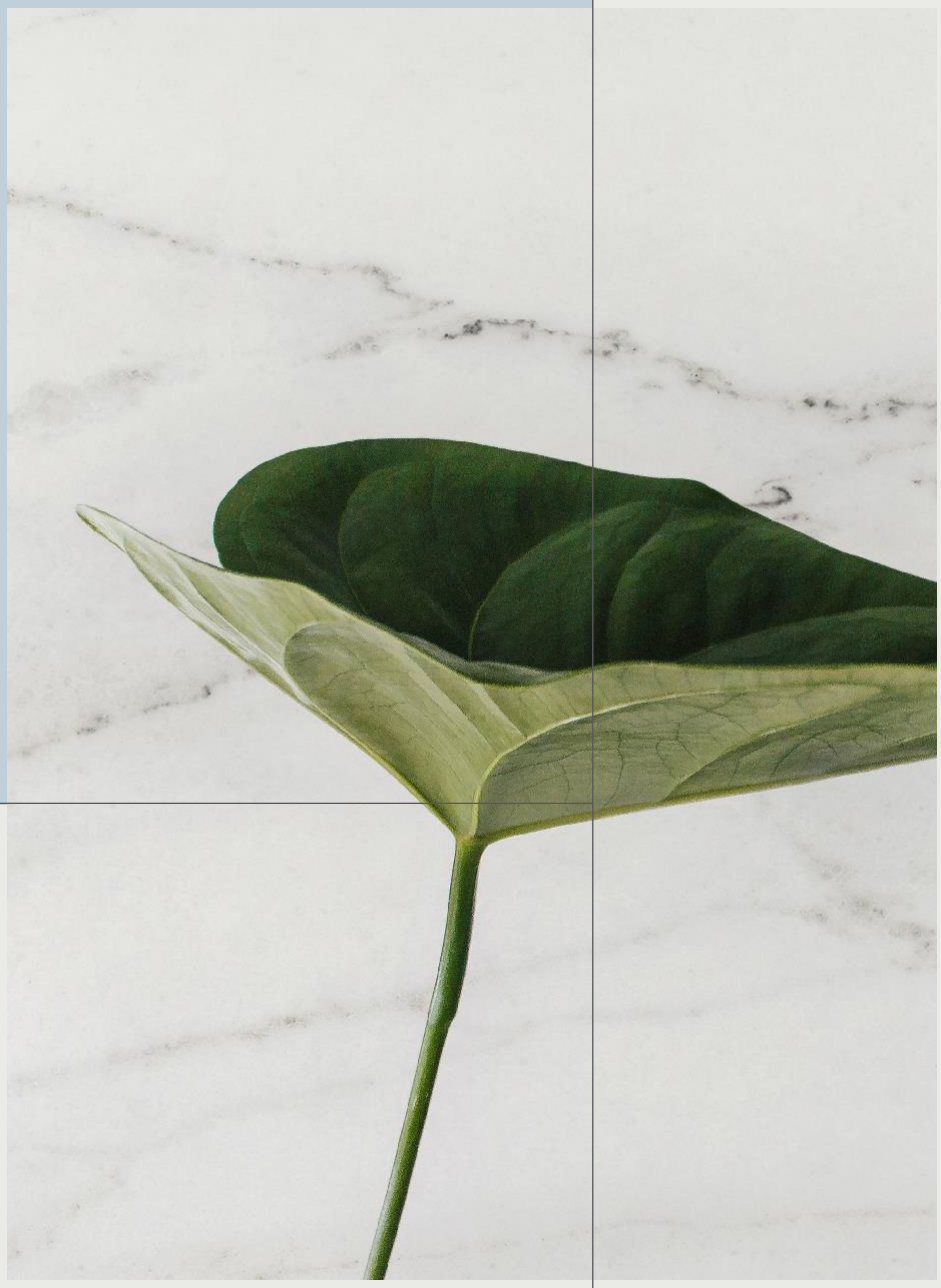
COSENTINO®

Environmental Product Declaration



EPD®

In accordance with standards
ISO14025:2006 and
UNE-EN 15804:2012+A2:2019

The International EPD® System,
www.environdec.com
Programme operator:
EPD® International
ABGeographical
scope of the EPD:
International

Based on the PCR 2019:14
Construction Products
version 1.11

ECO PLATFORM EPD VERIFIED

EPD N°. S-P-00916 – version 3
Publication date: 01/10/2016
Date of the update: 29/04/2024
Valid until: 08/12/2026

DEKTON®

TECHNICAL
CONTENT

Information about the certification programme

This Environmental Product Declaration is the property of Cosentino Industrial, S.A.U.

Location of the factory:
Carretera A-334, km 59, 04850 Cantoria (Almería) - Spain

Table 1: Information about the Certification Programme

UNE-EN 15804:2012+A2:2019 Standard sets out the basic Product Category Rules (PCR) for construction products.

Product Category Rules (PCR) PCR 2019:14:

Construction products. Version 1.11, c-PCR-002 Ceramic tiles (EN 17160). Version 2019-12-20.

The review of the PCR was carried out by:

The Technical Committee of the International EPD® System.
Please visit www.environdec.com/tc for a list of members.

Review Chair: Claudia A. Peña.
The review panel can be contacted through info@environdec.com

Third party independent verification of declarationand data according to UNE-EN ISO 14025:2010:

□ EPD verification scheme ■ EPD verification

Third party verification:
Marcel Gómez Ferrer (Marcel Gómez Consultoria Ambiental [Environmental Consultancy])
info@marrcelgomez.com
Accredited by: The International EPD System

The procedure for data monitoring during the validity of the EPDrequires an independent verifier: ■ Yes □ No

"EPD® of construction products may not be comparable if they do not comply with UNE-EN 15804:2012+A2:2019".

"Environmental Product Declarations for the same product categoryfrom different programmes may not be comparable"

Differences with respect to previous versions

The following improvements have been made in order to make the description of the process more representative:

→ The year of useful life of the product I modified from 50 to 60 years to comply with the Norwegian BREEAM NOR standard. Previous date 08/12/2021.

→ The content and results of this report have beenupdated according to the new version of UNE-EN15804:2012+A2:2019.

→ In the case of Cosentino®, the electricity supplier company guarantees that 100 % of the electricityconsumption comes from renewable sources.
Considering the proportional contribution of renewableenergy sources to the electricity production mix of Endesa (Spanish electric utility company supplying 100% of Spanish electricity, 2018), the electricity consumed in the Dekton® factory is 64 % wind, 25 % hydraulic and 11 % solar. Cosentino®'s commitment to renewable energy means that all the environmental impacts associated with Dekton®'s electricity consumption are considerablyreduced compared to the electricity consumption of the common Spanish electricity mix.
For this reason, the emissions associated with electricityare low, specifically 0.00676 CO_{2e}/kWh.

→ The distance between raw material suppliers and Cosentino® has been updated for the current study year.

→ All materials, processes, air emissions, water and soilemitted during the life cycle of the product have beenconsidered in this EPD.

→ An average distance of 50 km is considered for the transportation of waste to landfill sites, a more
conservative distance than the 25 km considered in theprevious Dekton® LCA.

→ It has been considered that 100 % of the waste generated at the end of the product's life cycle is disposed of in an inert landfill, when it is known that many customers (especially in Nordic countries) are recovering the waste and reusing it in various processes such as infrastructuremanufacturing. However, as robust and representative data on the actual figures of this practice in relation tototal waste generation are not yet available, we have considered the most conservative option.

→ All materials, processes, air emissions, water and soil emitted during the life cycle of the product have beenconsidered in this EPD and allocations have been madeby mass.

→ The consumption of recovered material has been included within the "raw waste" system as primary and not secondary material, according to UNE-EN 15804:2012+A2:2019 (section A2, 3.30). Consequently,the consumption of raw waste has been added as rawmaterial used in the process based on the relative percentages of the main raw materials.

→ With regard to the cut-off criteria, in the case of the raw materials used for the manufacturing of Dekton®, 'flakes' and 'glaze' types have been excluded as it has notbeen possible to identify the corresponding processes applicable to these raw materials. In any case, the sum of these two raw materials only represents 0.272% of the total impact of module A1, which complies with UNE-EN ISO 14044:2006, as well as with UNE-EN 15804:2012+A2:2019 on the cut-off criteria (less than 5 %of the module and less than 1 % of the total impact).

→ An analysis of the evolution of the different impact categories over time provides a better understanding ofthe environmental performance of the product and, aboveall, of the effectiveness of the actions and projects carriedout in term of environmental matters, as is the case for Cosentino®.

The reduction results obtained in the comparison ofthe impact categories for Dekton® are as follows:

Table 2: Impact comparison

CATEGORÍA DE IMPACTO	UNIDAD	TOTAL 2024	TOTAL 2015	REDUCCIÓN
Climate Change - Total	Kg CO_2 eq	8,67E+02	2,17E+03	60,1%
Ozone Layer Depletion	Kg CFC-11 eq	1,46E-04	3,22E-02	99,5 %
Abiotic Resource Depletion – fossil fuels	MJ	1,35E+04	1,97E+04	31,1%

Dekton® EPD has been calculated since the start of its production in 2015, the first year with significant production that provides adequate baseline data.

Comparing the 2020 EPD with the previous 2015EPD, we can see the following reductions:

→ 60.1 % in the Climate Change impact category

→ 99.5 % in the Ozone Layer Depletion impact category

→ 31.8 % in the Freshwater Eutrophication impact category

→ 31.1 % in the Abiotic Resource Depletion (fossil fuels)impact category

These reductions are the result of Cosentino® efforts over the last 5 years to make Dekton® more sustainablethan when it was developed. These efforts include a number of large-scale actions and projects such as:

→ Significant investment to recover heat from the kilns inthe production of Dekton® and use it in drying rooms.

→ 100 % of the electrical energy consumed in our CantoriaIndustrial Park (Almería, Spain), where Dekton® is produced in its entirety, is certified renewable energy.

→ Replacement of furnace burners with more efficient ones that reduce the consumption of natural gas in theproduction process.

→ Transition towards more sustainable raw materials andwith a smaller environmental footprint.

→ Recovery of material from the production process to reuse it as raw material.

→ Sustainable Mobility Plan.

→ In-house waste treatment plant that reduces the distanceour waste has to travel to only 3.2 km.

Company and contact information

The Cosentino® group is a Spanish, family-owned company with a global reach that is dedicated to the design, manufacture, production, distribution and marketing of innovative surfaces forthe world of architecture and design.

Our purpose of **"Inspiring people through innovative and sustainable spaces"** marks the strategic approach of our corporate culture: environmental, economic and social sustainability as the only way to imagine and commit to the future.

The group bases its development on global expansion, a ground-breaking programme of research and development, respect for the environment and sustainability, and its ongoing corporate commitment to society and the local communities in which it operates, promoting training, equality and occupational safety. From its headquarters in Almería (Spain), Cosentino® Group markets its products and brands in 116 countries on all five continents, with its own facilities in 40 of them.

A passion for change drives Cosentino® Group to immerse itself in a constant process of continuous improvement to become a company that is increasingly more responsible about safety and the environment. Innovation is part of Cosentino® Group's culture and purpose. Innovating is in the daily lives of everyone in the Group in order to think ahead and anticipate future needs.

As a result of this approach, in 2020 the commitments made with regard to the UN Sustainable Development Goals have been strengthened in order to successfully tackle the ecological transition, with major social and environmental challenges facing the world.

→ Cosentino® City Sydney/Atelier LAB

Environmental commitment

Since its inception, the company has implemented measures aimed at preventing and improving the environmental variables of its immediate surroundings.
Consequently, the calculation and subsequent certification of the Dekton® EPD was contemplated from the outset. After an initial product launch period with the collection of representative manufacturing data during the first stable production period, the first Certified EPD for Dekton® was published in 2016.

At Cosentino® we are moving forward with an international momentum towards the full transition to a **low-carbon economy**, promoting circular economy, energy efficiency, emissions reduction and sustainable mobility.

At the Cosentino® Group we are firmly committed to the **circular economy**. In this respect we continue to invest resources and efforts so that, year after year, the circular economy and waste recovery is reflected in Cosentino®'s range of colours and products.

At Cosentino® Group, we identify any **environmental risks** that may result from our activity. During 2020, there were no fines or monetary sanctions for non-compliance with environmental laws or regulations.

Cosentino® Group remains committed to **sustainable innovation**, aspiring to ensure that its products offer the best qualities of respect for the environment and safety, offering materials with a significant content of recycles and/or recovered raw materials in their formulation.

→ Olive tree in the Cosentino® industrial park

Policies and actions in favour of sustainabilityand environmental awareness

Cosentino® Group is one of the world's leading companies in its sector in terms of investment in environmental awareness and improvement policies and actions.
Examples include the following actions:

Environmental management

→ In 2020, a global roll-out of investments in environmental assets worth more than €15 million and expenditure on environmental control and improvement of more than €10million was launched.

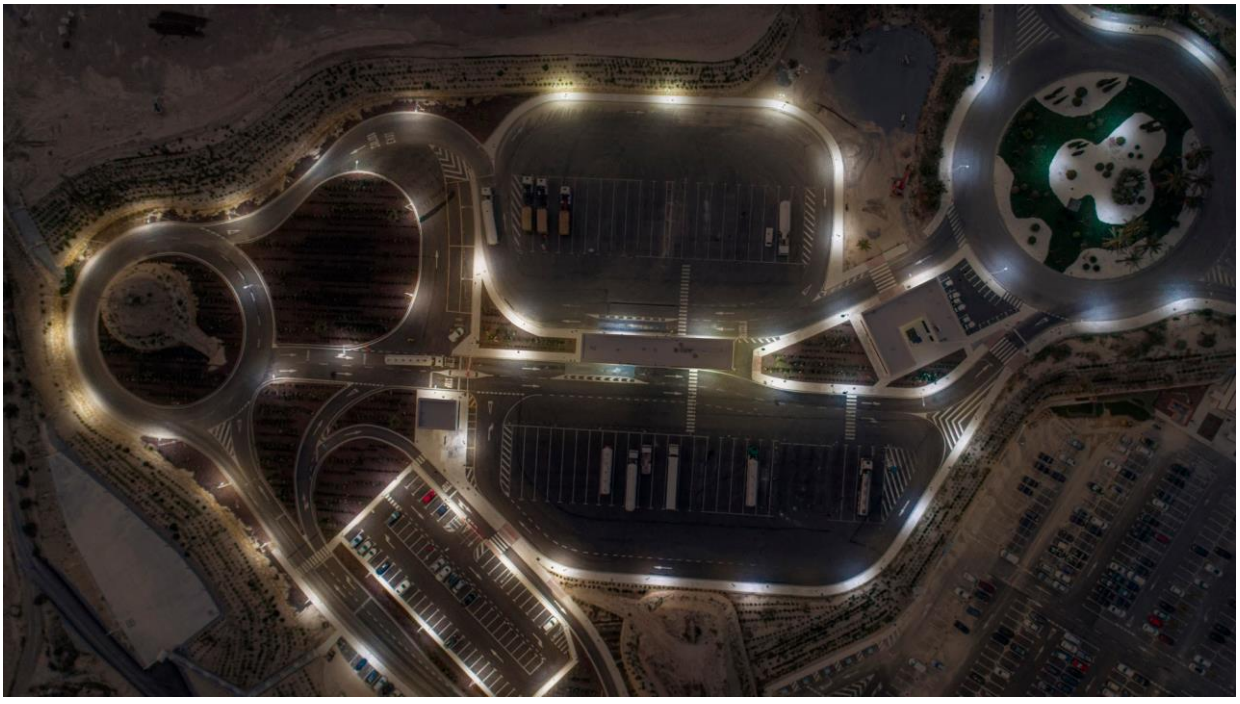
→ In 2020 we also continued to develop the Gensuite® tool, which has enabled us to keep track of all the environmental aspects and incidents that concern thecompany's day-to-day operations.

Innovation and sustainable transformation

→ In 2020 we committed to the voluntary compensation of CO_2 emissions generated throughout the life cycle ofDekton®, thus offering a carbon neutral product.

→ With Dekton®, the company continues to make a great effort to incorporate waste and scrap from the productionprocess as raw material for the product itself, as well as for other external processes. In 2020, we succeeded in incorporating a minimum of 5 % recovered raw materials in the production process of all our products.

→LED lighting throughout the Cosentino® industrial park



Circular economy and waste prevention

→ In 2020, Cosentino® produced 1.45 million square metres of surfaces with recovered materials, representing 22 % of the total production.

→ One of our major milestones in 2018 was the launch of our own Waste Management and Recovery Plant. In 2020 the company began to adapt these facilities to ensure the long-term storage and treatment of the waste generated.

→ Participation in the "Economía Circular en Acción" [Circular Economy in Action] platform and adherence to the "Pacto por una Economía Circular" [Pact for a Circular Economy], promoted by the Spanish Ministry for Ecological Transition and Demographic Challenge (MITECO, in Spanish).

→ 26 % increase in the consumption of recycled or recovered raw material compared to 2019.

→ The Circularity R&D project, a continuation of the Reborn project (started in 2016), aims to respond to the need to expand research lines for waste treatment. Some external lines studied are:

- Civil engineering and construction materials.
- Technosols.
- Ceramics industry.

Cosentino® decarbonisation strategy

→ We have a firm commitment to achieve carbon neutrality for our Dekton® products through international voluntary offset projects certified and within the framework of the Voluntary Carbon Market.

→ Participation in the "Loma Los Colorados Landfill Gas Project" for electricity generation with biogas, held in Chile.

→ In 2020 Cosentino® signed a framework partnership agreement with the environmental association SUSTENTA, through which we are promoting an adaptive environmental management project to offset emissions in our region.

Sustainable mobility

→ In 2020 the company launched the 2nd edition of the Business Mobility Plan with a set of 20 actions aimed at studying and analysing the present and future situation, quantifying all movements both internal and external to the organisation.

Biodiversity and natural capital

→ Landscape project surrounding our facilities: a Green Belt in our Cantoria Industrial Park (Almería, Spain). Phases 1 to 4 of the project have already been completed, reaching approximately 140,000 m² to date.

→ None of the Cosentino® industrial park facilities are located in an area where there are nearby protected habitats or sites of special environmental interest.

Environmental indicators

→ 2020 marked the second year of operating our own non-hazardous waste treatment and recovery plant through the subsidiary "Environmental Solutions COMA".

→ In 2020 we built new, clean areas in the main factories within the industrial park, improving both the segregation of waste and the efficiency of the factory's "door to door" collection service.

→ We managed around 400,000 tons of waste.

→ We recovered 45 % of the waste generated.

→ We increased the waste recovery rate by 37 % compared to 2019.

→ Non-hazardous waste: 44 % is directly reused within the production chain to make new products, thus strengthening the circular economy as a fundamental point in our waste management strategy.

→ Hazardous waste: the total weight of hazardous waste transported was more than 4,000 tons, of which 2,300 tons have been recovered. The recovery rate represents 56 % of waste management.

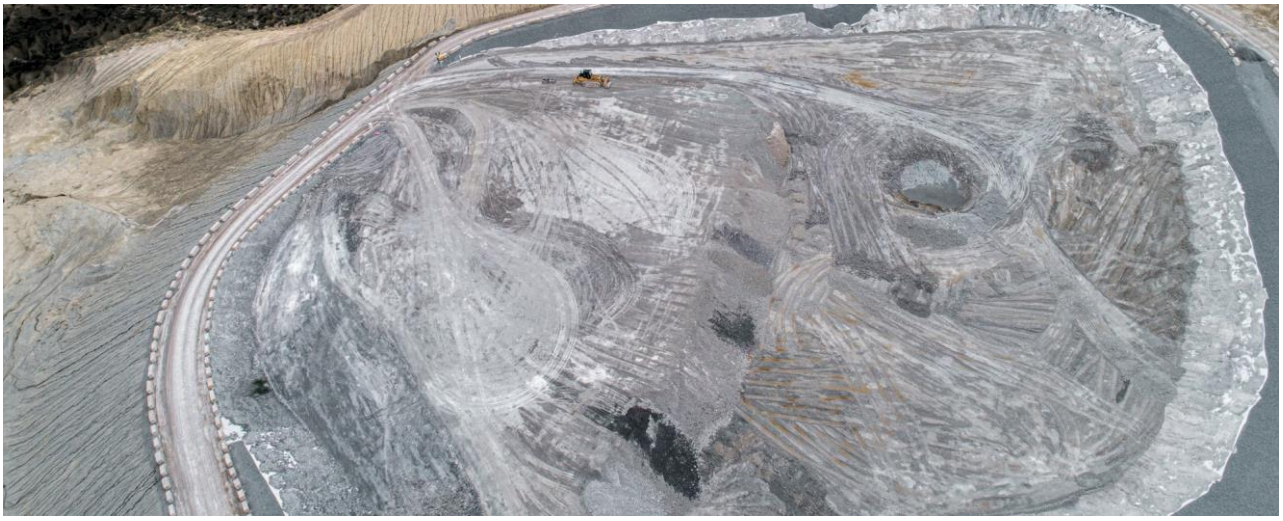
→ Sustainable water usage policy: in 2020 we increased our recycling levels by 80 % compared to 2019.

→ Energy efficiency. 100 % of our electricity needs in the Cantoria Industrial Park are covered through renewable energy sources with certified origin.

→ The heat recovery system project at the Dekton® plant to reduce gas consumption has been implemented, with an estimated saving of 12.45 GWh/year.

→ For the third year in a row, we have calculated our Organisational Carbon Footprint in accordance with the new version of the UNE-EN ISO 14064-1:2019 Standard. Indirect Emissions account for 87 % of our Organisational Carbon Footprint.

→ Cosentino® waste management plant



→ Aerial view of the Cosentino® industrial park

Main accreditations and awards 2020

Cosentino® has a management system based on a set of interconnected and transversal rules and principles, which contribute to the internal management of our processes. The effectiveness of our management system is verified by several external certification bodies that endorse our commitment and generate added value both for our direct value chain and for society in general.

ISO 9001:2015 QUALITY MANAGEMENT SYSTEM

This certification ensures that our customers receive high quality products and services, increasing customer satisfaction through a process of continuous improvement. It covers the design, manufacturing, production, distribution, sales and marketing areas of the company.

ISO 14001:2015 ENVIRONMENTAL MANAGEMENT SYSTEM

This certificate recognises and consolidates the quality of the Cosentino® Environmental Management System. Its scope covers the entire process in which the company is involved, from the design, manufacture and transformation of its products, to their distribution and marketing.
Among other aspects, it certifies the efficient use of raw materials, the control of atmospheric emissions, waste management programmes, industrial water treatment and reuse systems, the disposal of chemical substances and the control of environmental risks.

ISO 20400:2017 SUSTAINABLE PROCUREMENT MANAGEMENT SYSTEM

UNE 15896:2015 VALUE ADDED PURCHASING MANAGEMENT

In 2020 we renewed our UNE 15896:2015 certification and successfully passed the first audit to adapt our processes to the ISO 20400:2017 standard. This demonstrates our commitment to best market practices, both in terms of purchasing management and continuous improvement, as well as our commitment to sustainability.

Product certification

We hold more than 20 product certificates, verified self-declarations and published voluntary tests of our products, of which more than 10 certificates are audited on an annual or biannual basis together with regular tests carried out both internally and externally, depending on the requirements of each certificate.

The major topics covered by these certificates are:

→ Food contact.
→ Volatile emissions.
→ Applications like façades, ships, trains, floorings, etc.
→ Environmental certifications.

Prices and awards 2020

Products / Brands

→ The Dekton® Stonika series has been recognised asa finalist in the Dobry Wzór awards, one of the most renowned and prestigious awards in Poland.

→ Carbon Neutral Dekton® recognised among the 101 Business Examples of Climate Action in 2020, organisedbythe #PorElClima Community.

→ The Dekton® Liquid series, finalist in the Best of the Year2020 awards ofthe American magazine Interior Design(USA).

Cosentino® Group

→ Cosentino® Group, Spanish National Mobility Award in the "Mobility to Work" category awarded in 2021 by"Empresas por la Movilidad Sostenible" (Companiesfor Sustainable Mobility) in recognition of actions implemented in 2020.

→ Cosentino® Group, recognised in the 1st Edition of the UK- Spain Business Awards, promoted by the International Trade Department of the British Embassy in Spain (United Kingdom).

→ Cosentino® Group, recognised as Best Ambassador Company of Southern Spain at the 1st Edition of the PEC Awards by CESUR (Association of Entrepreneurs ofSouthern Spain) (Spain).

→ Cosentino® Group, recognised by the Iberia airlines as Best Company in the Southern Delegation as part of itsFitur Awards (Spain).

→ Cosentino® Group, awarded with Ponce de León "Company of the Year" prize by the Spain-US Chamber ofCommerce (USA).

→ Stevie Awards for the publication "C-Top Restaurants byCosentino®".

→ The US insurance company PMA Companies awards Cosentino® North America's risk and safety management.

→ "Inspiration Day", winner of the Best Internal Event for up to 500 employees category at the Dircom Ramón delCorral awards.

→ "Cosentino® One", awarded as Best Internal Publication at the Dircom Ramón del Corral awards.

→ "Cosentino® TV Magazine", winner of the Best Corporate Radio and Television category at the Dircom Ramón del Corral awards.

Other Awards

→ Designer Awards Gold Award in the category: "Innovationin Kitchen Product Design" to the series: Dekton® Liquid (United Kingdom).

→ The Dekton® Avant-Garde series is the winner of the#MetropolisLikes NYCxDesign Awards (USA).

→ The Dekton® Avant-Garde series was nominated "Editor's Pick" in the category: "Interior Finishes + Surfaces" of the Architect's Newspaper Best of Products Awards.

→ The Dekton® Liquid series was nominated as a finalistin the "Hard Surfacing" category at the Architizer A+ Awards.

→ The Dekton® Avant-Garde'20 series received an honourable mention at the Interior Design's NYCxDesignAwards in the "Kitchen" category by the American magazine Interior Design (USA).

→ The Dekton® Liquid Sky series was the winner in the category: "Great Bath Design" at the AD Great DesignAwards by Architectural Digest magazine (USA).

→ The Dekton® Liquid series has been awarded the Gold 2020 prize in the "Surfaces" category at the Most Valuable Products Awards of the American magazinePRODUCTS (USA).

Contact Cosentino®

This Environmental Product Declaration isthe property of Cosentino, S.A.U.

The address of the company and its place of manufacture,as well as the company's contact for any enquiries, are:

Cosentino Industrial, S.A.U.
Ctra. Baza-Huércal Overa, km.59
04850 Cantoria (Almería)
Tel: +34 950 444 175
Fax: +34 950 444 226
email: productcertification@cosentino.com
Website: www.cosentino.com

Product information

Cosentino® Group maintains a firm commitment to sustainable innovation, aspiringthat its products offer the best qualities of respect for the environment and safety.

Product description and applications

Dekton® is a sophisticated mixture of raw materials that is able to recreate any type of material with a high level of quality. It is manufactured in large format slabs of up to 320 x 144 cm and in five different thicknesses, 0.4 cm, 0.8 cm, 1.2 cm, 2 cm and 3 cm. It offers superior technical properties such as exceptional resistance to ultraviolet rays, scratches, stains, thermal shock and very low water absorption rates. The main technical characteristics of the product are specified in the productdata sheet, which can be consulted on the website www.cosentino.com.

This product does not contain resins or organic additives, so no polymerisation reactionsare used in its production. The chemical composition of the product is fully inorganic.

This product is classified under the code CPC 373 (“Refractory products and structural non-refractory clay products”). Additionally, according to its technicalcharacteristics, it qualifies for class BIa in accordance with EN 14411:2006.

Dekton® by Cosentino® has become the best partner for architects and designers all over the world due to its great versatility of applications. Seamless surfaces and spaces, without limits and without joins, available in large format and suitable for both indoors and outdoors:

→ Façades
→ Kitchens
→ Flooring
→ Bathrooms
→ Swimming pools and gardens
→ Furniture

Content declaration

The material results from the high-temperature sintering of various ultracompacted minerals in different proportions, depending on the colour.

Table 3: Dekton® composition

PRODUCT COMPONENTS	WEIGHT, KG	POST CONSUMER MATERIALS, WEIGHT, KG	RENEWABLE MATERIALS, WEIGHT, KG
Clay	406.8	-	-
Feldspar	494.2	-	-
Inorganic pigments	13.3	-	-
Other additives	85.7	-	-
PACKAGING MATERIAL, KG	WEIGHT, KG	WEIGHT - % (IN RELATION TO THE PRODUCT)	
Metal trestle	1	0.1%	

Cosentino® confirms that, after analysing the formulation of Dekton®, our product complies with the REACH regulation, according to the report issued by the external laboratory Tecnalia with number 090877-1. The REACH regulation addresses Substances of Very High Concern (SVHC), which are published by the European Chemicals Agency (ECHA) and listed in Annex XVII of the REACH regulation.

Functional unit

The functional unit is the reference used to express all the data of this Life Cycle Analysis. In this case, the manufacture, transportation and end of life ("from cradle to grave") of one ton (1,000 Kg) of Dekton® has been selected as the functional unit.

All the unique features of Dekton® are made possible thanks to the Particle Sintering Technology (PST), developed exclusively by our R&D Department. This technology consists of an innovative ultra-compaction process which plays a significant role in making Dekton® a totally revolutionary product, with very low maintenance, high durability and suitable for both indoor and out door applications.

Description of processes and system boundaries

This document contains the Environmental Product Declaration (EPD) of the Dekton® construction surface and the results of its Life Cycle Assessment (LCA). For this purpose, we have based this on data collected during 2020 and on the previous Dekton® EPD published in 2016, with EPD N°. S-P-00916. The calculations were carried out using the SimaPro software, version 9.1.1.1, which is fed by more than 4,000 Ecoinvent databases, version 3.7.

60 years is considered a typical life for the product.

This study has been carried out to understand the environmental impact of this construction surface, including all the stages of the life cycle ("from the cradle to the grave"). This means that the results reflect the analysis of the production, transport, installation, use and end-of-life phases. Other objectives of this study are to establish a systematic process of continuous improvement in all phases of this cycle, and to achieve the basic results to publish an Environmental Product Declaration (EPD).

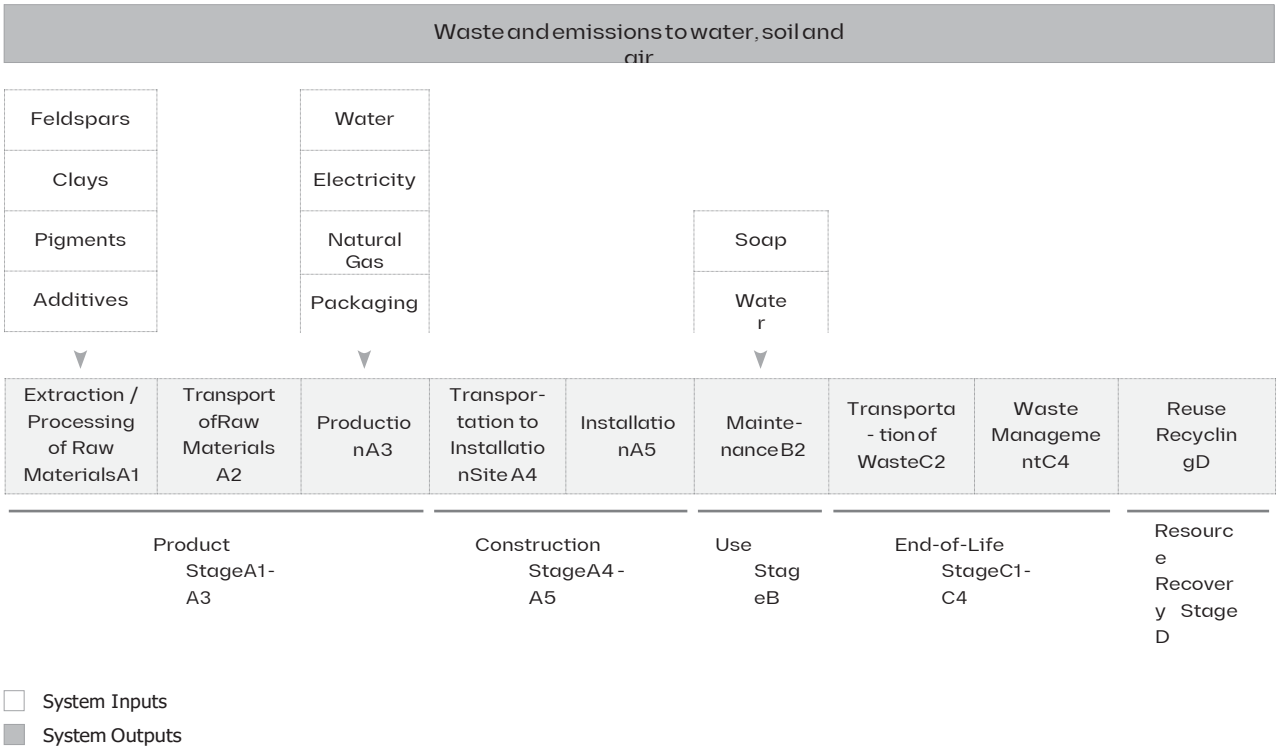
The system boundaries determine which processes are included in this declaration. This document considers each of the processes of raw material procurement and product manufacture, transport to the customer and end of life of the product ("from cradle to grave with options").

The general description of the processes considered and the system boundaries is as follows:

Table 4: Description of system boundaries (X = Included; NDM = Non-declared module)

	PRODUCT STAGE			CONSTRUCTION STAGE		USE STAGE							END-OF-LIFESTAGE				RESOURCE RECOVERY STAGE
	A1. Raw materials	A2. Transportation	A3. Production	A4. Transportation	A5. Installation	B1. Use	B2. Maintenance	B3. Repair	B4. Substitution	B5. Rehabilitation	B6. Energy use	B7. Water use	C1. Demolition	C2. Transportation	C3. Waste treatment	C4. Discharge	D. Reuse, recycling and recovery
Declared modules	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Module	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
Geographic location	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.	Int.
Specific data	More than 99 % specific data is used in this EPD																
Variation - products	Less than 10 % within each product group																
Variation - sites	Less than 10 %																

Figure 1: System boundaries including modules



Product Stage (A1 - A2 - A3)

The product stage is subdivided into three modules: A1, A2 and A3, that respectively represent supply of raw material, transport to manufacturer and manufacture. These modules are described belowand include additional technical information.

A1: Supply of raw materials.
This includes the extraction and processing of raw materials and the energy (100 % certified renewable electricity) used in the production process of Dekton®.

A2: Transportation from the supplier to the factory.
The raw materials are transported to the factory. The modelling includes road and/orboat transportation of each raw material.

A3: Production.
This stage includes the manufacture and packagingof the product, as well as the treatment of waste and water generated during production.

The main substages of the productionprocess are described below:

Reception and preparation of Raw Materials

All raw materials undergo quality control, are stored separately and are transported via a conveyor belt system to the hoppers.

Grinding and homogenization

Wet grinding is carried out to a specific particle size. The resulting mixture is then stored for a certain period of time for stabilisation.

Pigmentation

This consists of a complex system of mixers, disintegrators and stirrers.

Atomisation

The coloured Dekton® formula is dried by atomisation until a specific size, grain form and humidity is achieved. The different powder products obtained are stored in separate silos.

Decoration systems

These small particles are carefully positioned at different places on a conveyor belt, resulting in a continuous slab. The different design effects are achieved by means of decorative devices.

Shaping system

The continuous slab is separated into different sections that will later generate the finished slab format and undergo an extreme ultra-compaction process.

Thermal process

During this process the initial raw materials and pigments are transformed into various intermediate compounds.

Classification and storage

The slabs are stored horizontally in an automated warehouse.

Sustainable production

In keeping with its sustainability policy, the Cosentino® Group has developed a series of measures for the manufacture and production of Dekton®:

Atmosphere: in order to keep the air clean, we have installed:

→ Airtight transport systems for raw materials from the lorry to the mill.

→ Integrated transport systems to minimise the potential emissions from the point of generating the raw material to the point of storage (24 airtight silos). The natural resource consumption is optimised by increasing the efficiency of its use, minimising industrial waste generation by 95 %. Centralised dust collection and purification systems, through numerous bag filters which purify 99 % of the emitted dust.

→ Installation for the vacuum, treatment and recovery of the fumes from the kilns. This system reduces natural gas consumption by more than 10 % compared to conventional installations.

MDR and SPR heat recovery systems in the kilns: natural gas consumption is reduced by 5 %, with the consequent decrease in atmospheric emissions linked to its combustion.

Energy efficiency: LED lighting has been used for exterior areas, with time regulation linked to traffic, while maximum use has been made of natural light withskylights for lighting the interior of the factories.

Furthermore, a number of measures are being taken in the production process to ensure maximum energyefficiency in the thermal processes used, such as the installation of the latest technology in our kilns to achieve minimum energy consumption with high productivity.

Waste recovery: the following systems havebeen installed for the recovery of waste generated in the production process:

→ Several installations designed to reuse raw waste. Withthis equipment, the industrial waste is reprocessed, minimising the amount of waste by 90 %. This has enabled the reuse of over 5,600 tons of raw waste in 2020.

→ Dust recovery system from the different emission catchment areas. This dust is reused as a raw material in the process.

→ Sweeper-scrubber cleaning machine with water recycling system.

→ Thanks to various R&D projects, it has been possible to reuse the waste generated in the process. For example, Dekton® tiles can be used in the formulation of some Silestone® colours, and the dehydrated sludge from the water purification process can be used in other industrial applications.

Management and efficient use of water:

→ A number of tanks located at different points in the factory allow for the collection of clean water and its reuse in the process. This installation prevents the generation of 50 % of clean water being handled as waste.

→ Technological water system by reverse osmosis.

→ A water pouring and clarification system that allows the treatment and recovery of process water (95 % recovery).

→ Automatic cleaning systems for atomisers.

→ Cosentino® water treatment and recovery plant

Construction Stage (A4 - A5)

This stage consists of the following modules:

A4: Transportation to the installation site.
The average transport of one ton of Dekton® has been considered, assuming transport by 16 - 32 ton lorries and/or trans-oceanic container ships. For this purpose, the weight of the product taken to each destination has been analysed, taking into account the route taken and the number of kilometres travelled by lorry and/or ship.

Table 5: Module A4 description

PARAMETER	UNIT (EXPRESSED PER FUNCTIONAL UNIT)
Type and fuel consumption of the vehicle, type of vehicles used for transport, for example, long distance lorries, ship, etc.	Transport lorry 16 - 32 ton EURO 6. Fuel consumption 51 L / 100 km. Trans-oceanic container ship.
Distance	Lorry: 968 km Ship: 3,445 km
Capacity use (including the empty return)	% Integrated into Ecoinvent 3.7
Bulk density of the products transported	2,500 - 2,610 Kg/m^3
Useful capacity factor	1

A5: Installation stage.
In this case there is no product wastage, as it is reused on site.

Waste generated by the packaging, in this case the steel trestle used during transportation, must also be taken into account. We operate a system for returning or repairing trestles so that, in 2020, only 1.9 % of the returned trestles were discarded, the rest being repaired.

Use Stage (B1 - B7)

In this stage the following modules are considered:

→ B1: Direct use of the product
→ B2: Maintenance
→ B3: Repair
→ B4: Substitution
→ B5: Rehabilitation
→ B6: Operational energy use
→ B7: Operational water use

In this case only module B2 applies. The direct use of the product (B1) phase has a value of 0. Also, as energy consumption is not required during the use of the product, B6 phase also has a value of 0.

The technical properties of the product (hardness, resistance to scratching, abrasion or stains ...) make repair, replacement or rehabilitation of Dekton® unnecessary, so phases B3, B4 and B5 have a value of 0.

B2: Maintenance stage.
Dekton® is low maintenance and requires only neutral liquid soap and water for cleaning.

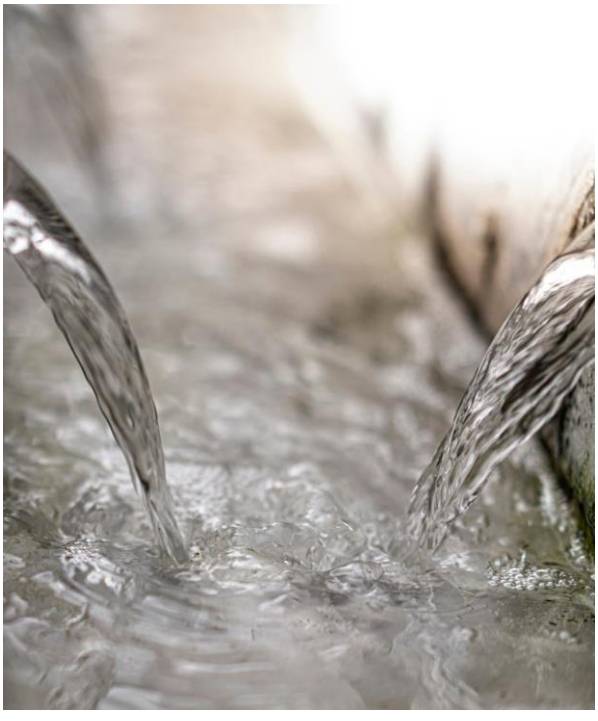


Table 6: Module B2 description

PARAMETER	UNIT (EXPRESSED BY FUNCTIONAL UNIT)	VALUE
Maintenance process	Description of the source where the description can be found	Cosentino® (2020)
Maintenance cycle	Number of cycles per year	50 cleanings (one per week)
Auxiliary materials for maintenance	Kg/cycle	0.2 Kg soap/year
Quantitative description of the type of energy and its use during maintenance (e.g. vacuum), energy (e.g. electricity), and quantity, if applicable and relevant	kWh or MJ	0
Net water consumption	m^3	0.0008 m^3/year
Direct emissions into the air, soil or water	Kg	0
Waste resulting from maintenance specified by type	Kg	0 Kg/year to landfill
Destination (specified by type) of waste resulting from maintenance, e.g. collection for recycling, energy recovery, disposal, specified by route	Kg	0 Kg/year to landfill
Type of vehicle used for transportation, specifying the type of waste and output materials	Lorry	Lorry is always used

End of Life Stage (C1 - C4)

In this stage the following modules are considered:

→ C1: Demolition
→ C2: Transportation to the waste treatment centre
→ C3: Treatment for reuse, recycling or rehabilitation
→ C4: Final disposal

The dismantling of Dekton® can be considered negligible in the overall demolition of a building, which in itself representsa very low impact considering the lifetime impact of the product. Therefore, C1 can be considered irrelevant.

With respect to the management of the product afterthe end of its useful life, it is an "engineered slab" and therefore inert before and after its management as waste.In case of disposal by incineration, the product is not flammable and does not burn. For this reason, the depositof Dekton® in an inert landfill has been considered as theend of life. Taking this into account, C3 is considered 0.

Table 7: Stage C1 - C4 description

PARAMETER	UNIT (EXPRESSED PER FUNCTIONAL UNIT)	VALUE
C1 Deconstruction		
Collection process specified by type	Kg collected separately	0
	Kg collected mixed with construction residues	1,000
C2 Transportation		
Type and fuel consumptionof the vehicle, type of vehicles used for transport	Transport lorry16 - 32 ton	Diesel consumptio n:25 L / 100 km
Distance	Km	50
Capacity use (including the empty return)	%	100 % volume (round trip)
Bulk density of the products transport	Kg/m^3	2,500 - 2,610
Useful capacity factor	-	1
C3 Waste processing		
Recovery system specifiedby type	Kg for reuse	0
	Kg for recycling	0
	Kg for energy recovery	0
C4 Disposal		
Disposal specified by type	Kg of product for final disposal	1,000 Kg deposited in a controlled landfill site

Resource Recovery Stage (D)

This stage covers the reuse, recycling and recoveryof the product after the end of its useful life.

Although considerable work has been undertaken through various R&D projects aimed at finding technically and economically viable methods of recycling and recovery, it has not yet been possibleto collect sufficient data to quantify the results.

Therefore, to date and worldwide there are no potential savings from its recycling or reuse, as the product is entirelydestined for disposal in a inert waste treatment facility.

Data quality and additional information

Data quality and allocation criteria

All the data used in the modelling of the processes was obtained during a wholeyear of production (2020). The data reflects, in a representative manner, the activities currently carried out by the company for the production of Dekton®. The data specified in this document are valid for the EPD until there are substantial modifications that affect the impact produced. An increase of more than 10 % in theenvironmental impact per functional unit is considered substantial modifications.

A sensitivity analysis has also been carried out to verify that the impact does not exceed 10 % for the different formulations used (taking into account the raw materialswith the highest impact factor), as well as for the different finishes used.

All the data used has been measured specifically at the facilities. Ecoinvent 3.7 wasselected as the reference database because it matches the geographical area, technology equivalence, and boundaries with respect to the natural and technical systems of the process, and because it contains over 4,000 life cycle inventoriesand is updated frequently. In fact, the latest update made is from this year.

Environmental information

This section provides information on the environmentalperformance of the product according to Multiple UN CPC codes 2012:01 Construction Productsand Construction Services (version 2.3.3).

All the values shown in the following tables referto the functional unit of this study (one ton of product). Tables 9 and 10 describe the environmentalperformance and resource use of Dekton®, always expressed in values per functional unit.

The units, environmental impact indicators and conversion factors selected, are those set out in UNE- EN 15804:2012+A2:2019 and those established in the "EN 15804+A2 Method V1.00/ EF 3.0 Normalization and Weighting Set" for the calculation of environmentalimpact. This methodology is fully developed and used at European level thanks to the reliability ofits data and scientific basis, which are based on EF3.0 Method and UNE-EN 15804:2012+A2:2019.

The Cumulative Energy Demand (CED) methodology,version 1.11 developed by Frischknecht et al. (2007) was used to calculate the primary renewable energy consumed, while the AWARE methodology (2016) was used to calculate the water footprint.

The calculated impacts are potential and alwaysconsidering standard operating conditions.

The parameters describing the use of resources and environmental information based on the Life Cycle Inventory (LCI) are those described in UNE-EN 15804:2012+A2:2019 as basic environmental impact parameters which are detailed and defined below:

Table 8: Environmental impact parameters

IMPACT CATEGORY	PARAMETER	UNIT
Climate Change - Total	Total Global Warming Potential (GWP - total)	Kg CO_2 eq
Climate Change - Fossil Fuels	Global Warming Potential of Fossil Fuels (GWP - fossil)	Kg CO_2 eq
Climate Change - Biogenic	Biogenic Global Warming Potential (GWP - biogenic)	Kg CO_2 eq
Ozone Layer Depletion	Stratospheric Ozone Depletion Potential (ODP)	Kg CFC11 eq
Acidification	Acidification potential, cumulative surplus (AP)	mol H+ eq
Freshwater Eutrophication	Eutrophication potential, fraction of nutrients reaching freshwater end compartment (EP - freshwater)	Kg P eq
Marine Eutrophication	Eutrophication potential, fraction of nutrients reaching marine water end compartment (EP - marine)	Kg N eq
Terrestrial Eutrophication	Eutrophication potential, cumulative surplus (EP - terrestrial)	mol N eq
Photochemical Ozone Formation	Photochemical Ozone Formation Potential (POFP)	Kg NMVOC eq
Abiotic Resource Depletion - minerals and metals	Abiotic resource depletion potential for non-fossil resources (ADP - minerals&metals)	Kg Sb eq
Abiotic Resource Depletion - fossil fuels	Abiotic resource depletion potential for fossil resources (ADP - fossil)	MJ
Water Consumption	Water Deprivation Potential (user), deprivation-weighted water consumption (WPD)	m^3 depriv.

Note that estimated impact results are only relative statements, which do not indicate theend points of the impact categories, upper limit values, safety margins or risks.

Table 9: Environmental performance per functional unit (1,000 Kg Dekton®)

IMPACT CATEGORY	UNIT	TOTAL	A1 - A3 Product	A4 Transportation to Installation	A5 On-site Installation	B2 Maintenance	C2 Waste Transportation	C4 Waste Management	D Recovery
Climate Change - Total	Kg CO_2 eq	8,67E+02	6,76E+02	1,63E+02	7,37E-03	1,47E+01	8,15E+00	5,27E+00	0
Climate Change - Fossil Fuels	Kg CO_2 eq	8,52E+02	6,71E+02	1,63E+02	7,35E-03	4,78E+00	8,13E+00	5,25E+00	0
Climate Change - Biogenic	Kg CO_2 eq	6,08E+00	3,35E+00	2,18E-01	2,28E-05	2,47E+00	1,97E-02	1,63E-02	0
Ozone Layer Depletion	Kg CFC11 eq	1,46E-04	9,42E-05	4,69E-05	3,03E-09	7,50E-07	1,85E-06	2,16E-06	0
Acidification	mol H+ eq	4,46E+00	2,06E+00	2,27E+00	6,94E-05	5,83E-02	2,26E-02	4,96E-02	0
Freshwater Eutrophicatio n	Kg P eq	1,38E-01	8,42E-02	1,01E-02	6,86E-07	4,22E-02	5,56E-04	4,90E-04	0
Marine Eutrophicatio n	Kg N eq	1,08E+00	4,50E-01	5,42E-01	2,42E-05	6,32E-02	4,71E-03	1,73E-02	0
Terrestrial Eutrophicatio n	mol N eq	1,13E+01	4,86E+00	6,01E+00	2,65E-04	2,12E-01	5,12E-02	1,89E-01	0
Photochemical OzoneFormation	Kg NMVOC eq	3,24E+00	1,46E+00	1,67E+00	7,69E-05	3,36E-02	1,96E-02	5,49E-02	0
Abiotic Resource Depletion - minerals and metals	Kg Sb eq	3,26E-03	2,80E-03	3,20E-04	1,64E-08	9,75E-05	2,99E-05	1,17E-05	0
Abiotic Resource Depletion - fossil fuels	MJ	1,35E+04	1,02E+04	3,05E+03	2,06E-01	4,98E+01	1,23E+02	1,47E+02	0
Water Consumption	m^3 depriv.	3,17E+02	2,77E+02	7,04E+00	9,00E-03	2,57E+01	3,60E-01	6,64E+00	0

Table 10: Use of resources per functional unit (1,000 Kg Dekton®)

PARAMETER	UNIT	TOTAL	A1-A3 Product	A4 Transportation to Installation	A5 On-site Installation	B2 Maintenance	C2 Waste Transportation	C4 Waste Management	D Recovery
Use of renewable pri-mary energy excludingrenewable primary energy resources usedas raw materials	MJ	2,25E+03	2,15E+03	2,37E+01	1,67E-03	7,12E+01	1,77E+00	1,19E+00	O
Use of renewable pri- mary energy resourcesused as raw materials	MJ	0,00	0,00	0,00	0,00	0,00	0,00	0,00	O
Total use of renew-able primary energy resources	MJ	2,25E+03	2,15E+03	2,37E+01	1,67E-03	7,12E+01	1,77E+00	1,19E+00	O
Use of non-renewable primary energy exclud-ing non-renewable pri-mary energy resources used as raw materials	MJ	1,48E+04	1,12E+04	3,25E+03	2,19E-01	6,24E+01	1,31E+02	1,56E+02	O
Use of non-renewa-ble primary energy resources used as rawmaterials	MJ	0,00	0,00	0,00	0,00	0,00	0,00	0,00	O
Total use of non-renew-able primary energy resources	MJ	1,48E+04	1,12E+04	3,25E+03	2,19E-01	6,24E+01	1,31E+02	1,56E+02	O
Use of secondary material	Kg	0,00	0,00	0,00	0,00	0,00	0,00	0,00	O
Use of renewable sec-ondary fuels	MJ	0,00	0,00	0,00	0,00	0,00	0,00	0,00	O
Use of non-renewable secondary fuels	MJ	0,00	0,00	0,00	0,00	0,00	0,00	0,00	O
Use of net fresh water	m^3	3,12E+02	2,73E+02	7,06E+00	9,25E-03	2,53E+01	3,54E-01	6,61E+00	O

Acronyms: PERE = Use of renewable primary energy excluding renewable primary energy resources used as raw materials; PERM = Use of renewable primary energy resources used as raw materials; PERT = Total use of renewable primary energy resources; PENRE = Use of non-renewable primary energy excluding non-renewable primary energy 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 resources; SM = Use of secondary material; RSF = Use of renewable secondary fuels; NRSF = Use of non-renewable secondary fuels; FW = Use of net fresh water

Bibliography / References

→ Boulay, A.-M., Bare, J., Benini, L., Berger, M., Lathuillière, M.J., Manzardo, A., Margni, M., Pfister, S. (2018). The WULCA consensus characterization model for water scarcity footprints: assessing impacts of water consumption based on available water remaining(AWARE). International Journal of Life Cycle Assessment , (2) , 368-378.

→ Cosentino® (REV. 03 - 03/2021). Worktop Cleaning and Maintenance. Dekton® Manual.

→ Cosentino® (REV. 01 - 04/2019). Maintenance and Cleaning for Dekton® flooring. Ultracompact Surfaces.

→ Tecnalia (2021). Notification of Testing and Classification: Dekton® Compliance withREACH.

→ Frischknecht R, Jungbluth N, Althaus H, Bauer C, Doka G, Dones R, Hischier R, Hellweg S, Humbert S, Köllner T, Loerincik Y, Margni M and Nemecek T (2007). Implementation of LifeCycle Impact Assessment Methods Data v2.0.

→ Arzadun Larrucea, A. (2021). Dekton® Life Cycle Assessment Accompanying Report.

→ Guinée JB, Gorreé M, Heijungs R, Huppes G, Kleijn R, de Koning A, van Oers L, Weneger A, Suh S, Udo de Haes HA, de Bruijn H, van Duin R and Huijbregts M (2001). Life Cycle Assessment: An operational guide to the ISO standards. Ministry of Housing, Spatial Planning and Environment. Netherlands.

→ EN ISO 14040:2006. Environmental management. Life cycle analysis. Principles and frameof reference.

→ EN ISO 14025:2010. Labels and environmental declarations. Type III environmentaldeclarations. Principles and procedures.

→ EN ISO 14044:2006. Environmental management. Life cycle analysis. Requirements andguidelines.

→ PCR 2019:14 Product Category Rules (PCR) for Construction Products. (version 1.11).

→ Swedish Environmental Management Council (2021). General programme instructions forthe International EPD® System version 4.0 (2021-03-29).

→ UNE-EN 15804:2012+A2:2019. Sustainability on construction. Environmental Product Declarations. Basic product category rules for construction products.

→ Cosentino® RSC 2020. Corporate Social Responsibility 2020. Content prepared in accordance with GRI standards.

→ United Nations 2015. Central Product Classification (CPC), version 2.1 (ST/ESA/STAT/SER.M/77/Ver.2.1).

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