Environmental Product Declaration



Ceramic sanitaryware in Vitreous China (VC) and Fine Fire Clay (FFC)

EPD OF MULTIPLE PRODUCTS BASED ON AN AVERAGE PRODUCT. PRODUCTS INCLUDED ARE CERAMIC WCS, BASINS AND BIDETS, MADE IN VC AND FFC.



IN ACCORDANCE WITH PCR 2019:14 Construction Products v 1.3.4

PROGRAMME The International EPD System www.environdec.com IN COMPLIANCE WITH ISO 14025:2010 and EN 15804:2012+A2:2019/ AC:2021 CPC CODE 37210 REGISTRATION NUMBER EPD-IES-0020177:001

PUBLICATION DATE 25/02/2025 **VALIDITY DATE** 23/02/2030

PRODUCTION PLANT via Gargarasi 8, Civita Castellana (VT)

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

PROGRAMME OPERATOR AND PUBLICATION PLATFORM OF THE EPD



Programme information

EPD REFERENCES

EPD OWNER: Colavene S.p.A. Via Flaminia, km 58,600 01033 Civita Castellana (VT) Italia

PROGRAMME: EPD INTERNATIONAL AB, box 21060, Se-100 31 Stockholm, Sweden; info@environdec.com

RESPONSIBILITY FOR PCR, LCA AND INDEPENDENT THIRD-PARTY VERIFICATION

The declaration has been developed with reference to the International EPD® System, in accordance with General Programme Instruction v. 4.0. Additional information and the EPD document are available at www.environdec.com. The EPD document is valid with the following geographic boundaries: Global, in line with Colavene market and the reference norms.

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Core PCR: EN 15804:2012+A2:2019/AC:2021

PCR 2019:14 version 1.3.4 "Construction Products"

PCR review was conducted by: The Technical Committee of the International EPD® System. See www.environdec.com/TC for the list of members. Review chair: Claudia A. Peña, University of Concepción, Chile. The review committee can be contacted through the Secretariat (www.environdec.com/contact).

Independent third-party verification of the declaration and data, according to ISO 14025:2010



YES

EPD verification

Third party verifier: Luca Giacomello - approved independent verifier

Approved by: the Technical Committee of the International EPD® System

The procedure for follow-up during EPD validity involves third-party verifier:

EPDs within the same product category but registered in different EPD programmes or not compliant with EN 15804:2012+A2:2019/AC: 2021 may not be comparable. For two EPDs to be comparable, they must be based on the same PCR (including the same version number to the first two figures) 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; be valid at the time of comparison. For additional information on the comparability, see norms EN 15804 and ISO 14025.

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

CONTACTS

For additional information on Colavene S.p.A. or regarding this EPD declaration, please contact: colavene@colavene.it



Technical support to Colavene was provided by: Life Cycle Engineering S.p.A. (info@lcengineering.eu, www.lcengineering.eu).



THE COMPANY

In Colavene S.p.A.—founded in 1968 by Giovanni Colamedici in Civita Castellana, the **heart of the Viterbo ceramic district**—the production unit **AXA** plays a strategic role in manufacturing **ceramic washbasins and sanitaryware**.

These products complement the Colavene offering, embodying the concept of the **Spazio Colavene total bathroom**.

This bathroom furnishing philosophy represents a virtuous union of **technological research and artisanal craftsmanship**, a true expression of one of the most representative territories of **Made in Italy** manufacturing.

COLAVENE SpA





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It was Giovanni Colamedici who, through Colavene,

In 1995, driven by a passion for innovation and for his

enterprise focused on the values of ethics and the

work, he founded AXA: today, it is a genuine family

Constantly seeking solutions to meet the needs of

Expert hands and advanced technologies combine

a sensitivity to form and a desire for innovation,

is only fulfilled with the creation of unique products.

bathroom from a service area into a true living space.

earth, water, air, and fire in a complex process that, with

contemporary living, AXA has transformed the

essentially invented laundry furniture.

quintessential Italian craftsmanship.



The mission guiding AXA is to transform the bathroom into an oasis of well-being, with an uncompromising commitment to **sustainability**.

Sustainability, inherent in the very essence of ceramics crafted from natural raw materials (clay, feldspar, kaolin) transformed into **durable** products—is a constant challenge for AXA. The aim is to reduce the impact on the planet as much as possible, both in creating products and encouraging users to make **sustainable purchasing choices**.

This mission translates into guidelines such as minimizing energy use, maximizing the recycling of water in the production process, designing timeless





Spazio Colavene

Spazio Colavene offers one of the most comprehensive ranges of bathroom furnishings. Designers and architects can explore the wide array of solutions for creating wellness-focused spaces in both residential and contract environments.

Thanks to a series of **acquisitions in the area** and the development of **key skills** in the production of various materials – from ceramics to wooden furniture, to methacrylate bathtubs since the 1970s – **Colavene S.p.A.** has grown over time and can today offer valuable opportunities for furnishing the entire bathroom environment.

products that ensure **longevity**, and developing technologies aimed at **water conservation**. These principles have led to the implementation of a circular system for **recovering production waste and water**, the introduction of advanced **high-efficiency flushing technologies**, the **removal of rims to limit detergent use** (making cleaning easier), and ongoing research and development efforts, all driven by the awareness that **preserving nature** is our only future.

The passion shared by the Colamedici family (now in its third generation) is the secret behind the cohesion of diverse companies and the ability to **pass down** not just know-how but also a **corporate ethos centered on sustainability**.



THE COMPANY

AXA - CERAMIC PRODUCTION

AXA is a Colavene SpA brand and business unit. The main figures describing its workforce, clients and plant are here displayed.

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+2000 ITALIAN AND INTERNATIONAL CLIENTS









THE PRODUCTS

Ceramic sanitaryware consist of a **body** providing the structure and a **glaze** that imparts all the unique characteristics of this product (**hygiene** and **durability** throughout its lifecycle).

WCs and bidets are made using **Vitreous China** (VC) slip, while washbasins are primarily manufactured using **Fine Fire Clay** (FFC or FC).

Both slips mixtures share most of the main ingredients, such as **clay**, **kaolin**, and **quartz**, differing only in their

proportions and certain steps of the production process, though all within the **same industrial layout**.

Here below are listed the **several collections** including the products studied in this EPD. Throughout the EPD validity period new collections could be added where these products are included, and this list will be updated accordingly.

THE SUBJECT OF THIS EPD DECLARATION ARE THE FOLLOWING CERAMIC SANITARYWARES:

COLLECTIONS									
+ TRENTANOVE	MATE								
DELANO	WILD								
VIS	DP/KRACKLITE								
LEGACY	WHITE JAM								
SKYLAND	GLOMP								
EVA	CONTEA								
PICCOLA EVA	PRISMA								
COSA/COSA H.35	SINK								
RADICI	CIOTOLA								
DECUS	NORMAL								

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WASHBASINS



BIDETS (FLOOR-MOUNTED AND WALL-HUNG)



WCs (FLOOR-MOUNTED AND WALL-HUNG)



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THE PRODUCTS



The Fine Fire Clay mixture provides:

Resistance to deformation:

during firing, it undergoes **minimal shrinkage**, enabling the production of **large washbasins with complex shapes** without deformation issues.

Design and workability:

thanks to its excellent **workability**, this mixture is ideal for **custom-designed** washbasins with unique shapes, making it perfect for our aesthetic solutions and to meet specific **design requirements**.



The Vitreous China mixture, on the other hand, is used for WCs and bidets due to its particularly low water absorption (as WCs are constantly in contact with water).

The main features of this mixture include:

Waterproofing:

thanks to the **vitrification process**, the surface is extremely smooth, non-porous, and **completely impermeable**, essential for ensuring hygiene and ease of cleaning in WCs and bidets.

Mechanical strength:

this mixture is more **robust** than Fine Fire Clay, making it ideal for sanitaryware that is subjected to **significant loads** and mechanical stress.

Durability:

it offers greater **resistance to wear**, **moisture**, **and temperature fluctuations**, essential for frequent and long-term use.



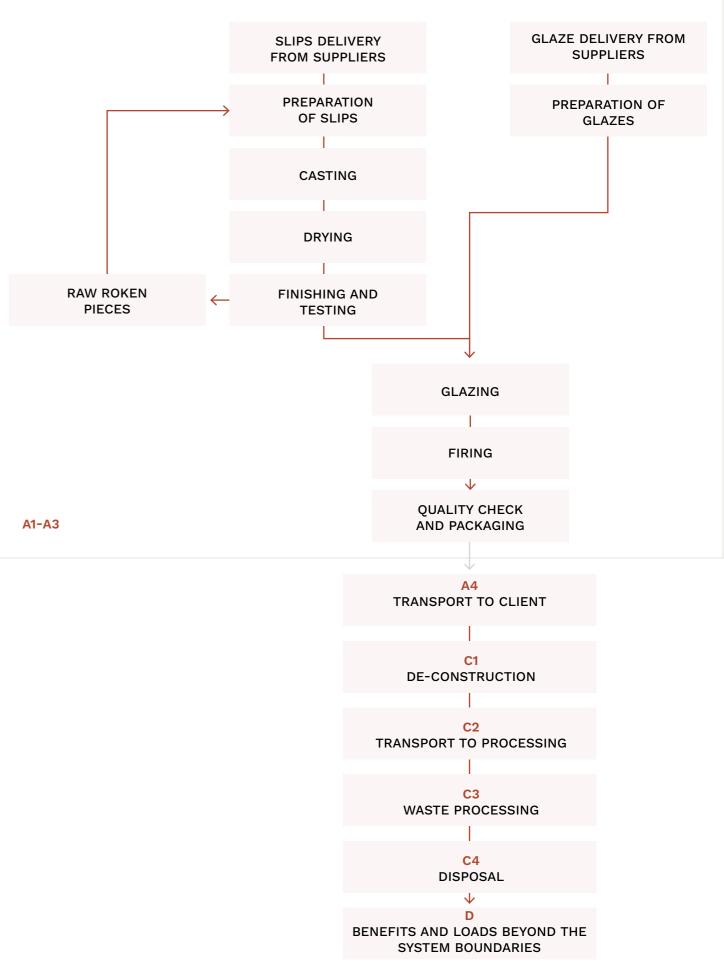
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Product information

THE PRODUCTION PROCESS

The whole production process is entirely comparable for both types of slips (VC and FC). Below is a summary of the main steps that make up the process.

PREPARATION OF SLIPS AND G	LAZES
	Slips and glazes are purchased from specialized suppliers . Upon delivery, the raw materials undergo rheological testing and preparation before being introduced into our production process.
CASTING	The slip is poured into low-pressure plaster molds .
DRYING	The product is subjected to a drying process tailored to its type.
FINISHING	This is performed partially by hand (for washbasins and monobloc WCs) and partially through an automated processes using robots. The goal of this step is to produce a flawless product.
TESTING	The pieces are inspected and prepared for subsequent phases. Non-conforming products are recovered and reused , that is raw materials are melted and used again as inputs in the production process.
GLAZING	Glaze is applied by robots and includes coloured variants. After the glazing, the products are placed in a dedicated area to dry before the firing.
FIRING	Products are fired in intermittent kilns at approximately 1250°C for 20 hours . Coloured products are fired in a single-cycle " monofiring " process.
SELECTION	Each piece is inspected and evaluated individually. First-choice items are sent to the warehouse for shipping.
PACKAGE	Products are placed in cardboard boxes and prepared on pallets for shipment to the final customer.



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THE PRODUCTION PROCESS

The firing process

AXA AND COLAVENE CHOOSE TO PRODUCE THE COLOURED CERAMIC THROUGH A SINGLE FIRING PROCESS.

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Firing can be carried out in two ways:

Double firing: the glossy white product is fired for the first time, then colored according to customer requests, and fired again;

Single firing: the product, with the color already applied, is fired only once. This method eliminates an entire phase of the production process, reducing both time and energy consumption.

SINGLE FIRING BENEFITS

Higher energy efficiency

Single firing uses a single thermal cycle to simultaneously solidify the ceramic body and the glaze, reducing the overall energy consumption.

Better glaze adherence

During single firing, the glaze melts directly onto the raw surface of the piece. This often ensures stronger adherence, as the glaze and ceramic body fuse together during the heating process.

Reduced risk of flaws in the finished product

Single firing, being a one-step process, minimizes the risk of warping or cracking that can occur during handling between firings in the double-firing method.

Aesthetic effect

With single firing, the glaze can achieve a more uniform and glossy appearance, thanks to its direct fusion with the raw body of the piece. In double firing, the glaze applied to the biscuit may undergo alterations due to its interaction with an already solidified surface.



SCOPE AND TYPE OF EPD

THE SELECTED APPROACH FOR THIS EPD IS «FROM CRADLE TO GRAVE WITH OPTIONS».

The EPD is based on the **LCA methodology** applied to a selection of life cycle stages of the product. The life cycle stages included in the system boundaries are show in the Table below.

	PRODUCTION STAGE		CONSTRUCTION PROCESS STAGE		USE STAGE						END OF LIFE STAGE			BENEFITS AND LOADS BEYOND THE SYSTEM BOUNDARIES			
	Raw materials supply	Raw materials transport	Manufacturing	Transport to the site	Assembly	Use	Maintenance	Ripair	Replacement	Refurbishment	Operational energy use	Operational water use	De-construction	Transport to processing	Waste processing	Disposal	Reuse/Recycling/Recovery
MODULES	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5	B6	B7	C1	C2	C3	C4	D
DECLARED MODULES	~	~	~	~	MND	MND	MND	MND	MND	MND	MND	MND	~	~	~	~	~
GEOGRAPHICAL SCOPE	IT	IT	IT	GLO	-	-	-	-	-	-	-	-	GLO	GLO	GLO	GLO	GLO
SPECIFIC DATA		88%		>90%	-	-	-	-	-	-	-	-	-	-	-	-	-
PRODUCTS VARIATION	-0,	6% / 2,	,8%	-	-	-	-	-	-	-	-	-	-	-	-	-	-

 \checkmark = Module declared

MND = Module not declared EU = Europian Union IT = Italy GLO = Global

TYPE OF EPD: EPD of product «from cradle to grave with options» (modules A1-A4, modules C1-C4, D) PRODUCTION PLANT: environmental impacts are referred to the plant in Civita Castellana (VT), via Gargarasi 8. SOFTWARE: SimaPro ver. 9.6.0.1 (www.pre.nl) DATABASE: Ecoinvent 3.10 **REFERENCE YEAR:** Jan-Dic 2023 DECLARED UNIT: this declaration is referred to the decalred unit of 1 kg of ceramic sanitaryware delivered to clients with its packaging (excluded from the 1 kg of product) ALLOCATION: physical, by mass

Product information

LCA STUDY

The LCA study forming the basis of this EPD has been developed in accordance with ISO 14040 and 14044 standards.

The LCA model for production processes has been developed using primary data from the plant where the ceramic sanitary ware under study are manufactured. Data have been collected through customized questionnaires, allowing for the gathering of all necessary information on the processes involved, such as the characteristics of the raw materials used, process consumptions, and waste management methods, in order to assess the overall environmental impact associated with the product.

The LCA model excludes infrastructure, long-term emissions and production equipment. Additionally, the products use phase has not been



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considered as no consumption is associated with this phase, nor are substantial maintenance activities required.

In compliance with the guidelines set by ISO standards 14040 and 14044, **allocation** has been carried out using physical parameters as a reference in order to attribute all the energy and material flows entering and exiting the studied system to the declared unit.

Data quality has been assessed during the data collection process itself. All raw materials that make up the product have been considered, limiting exclusions to the transportation of packaging, the production of packaging for raw materials, and the production of a minor share of the packaging and auxiliary products used.

The primary data collected were supplemented with secondary data from the **Ecoinvent** database.



CALCULATION RULES

The different stages of the product life cycle have been divided into the various **modules that make up the life cycle**, following the requirements of EN 15804:2012+A2:2019/AC:2021 and PCR 2019:14 v 1.3.4.



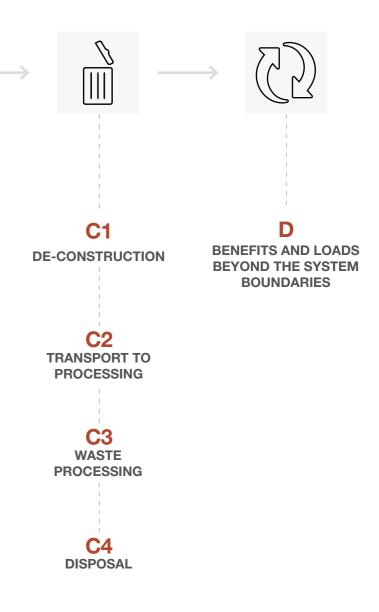
A1 RAW MATERIALS SUPPLY

A4 TRANSPORT TO CLIENT

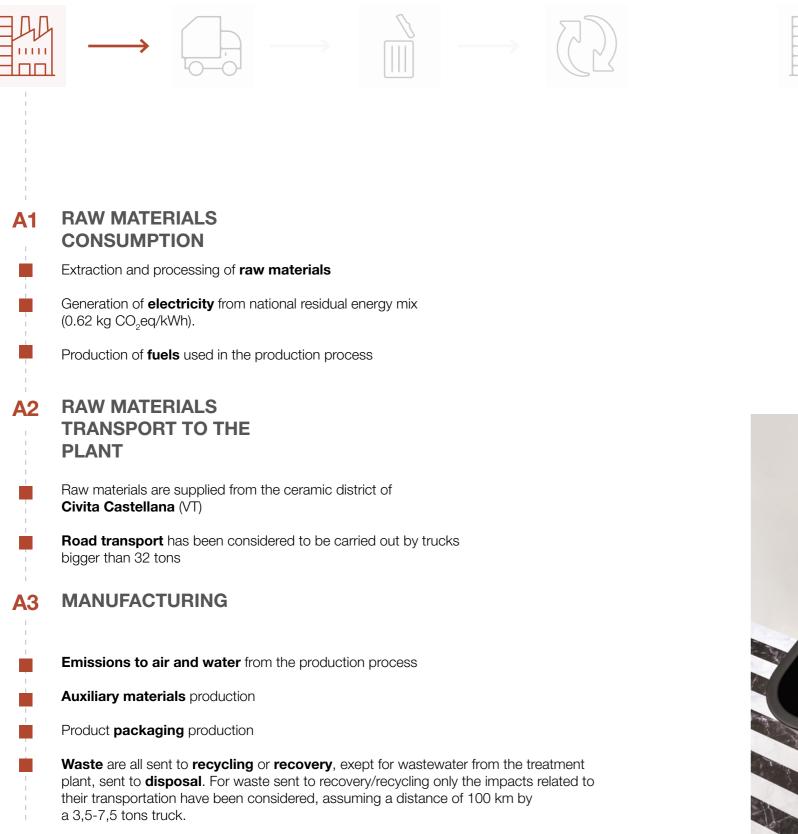
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RAW MATERIALS TRANSPORT TO THE PLANT

A3 MANUFACTURING

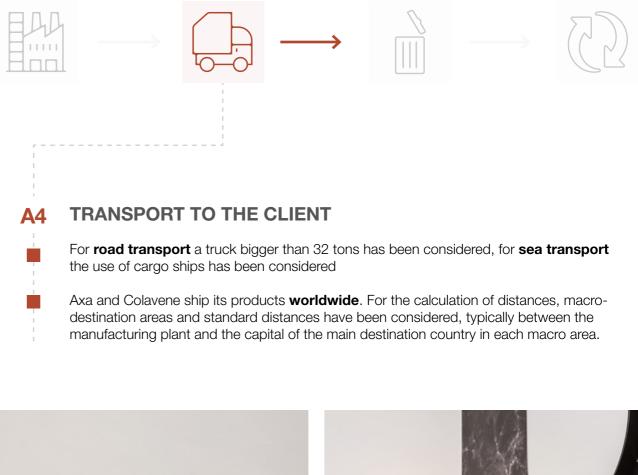


CALCULATION RULES



Product information

CALCULATION RULES



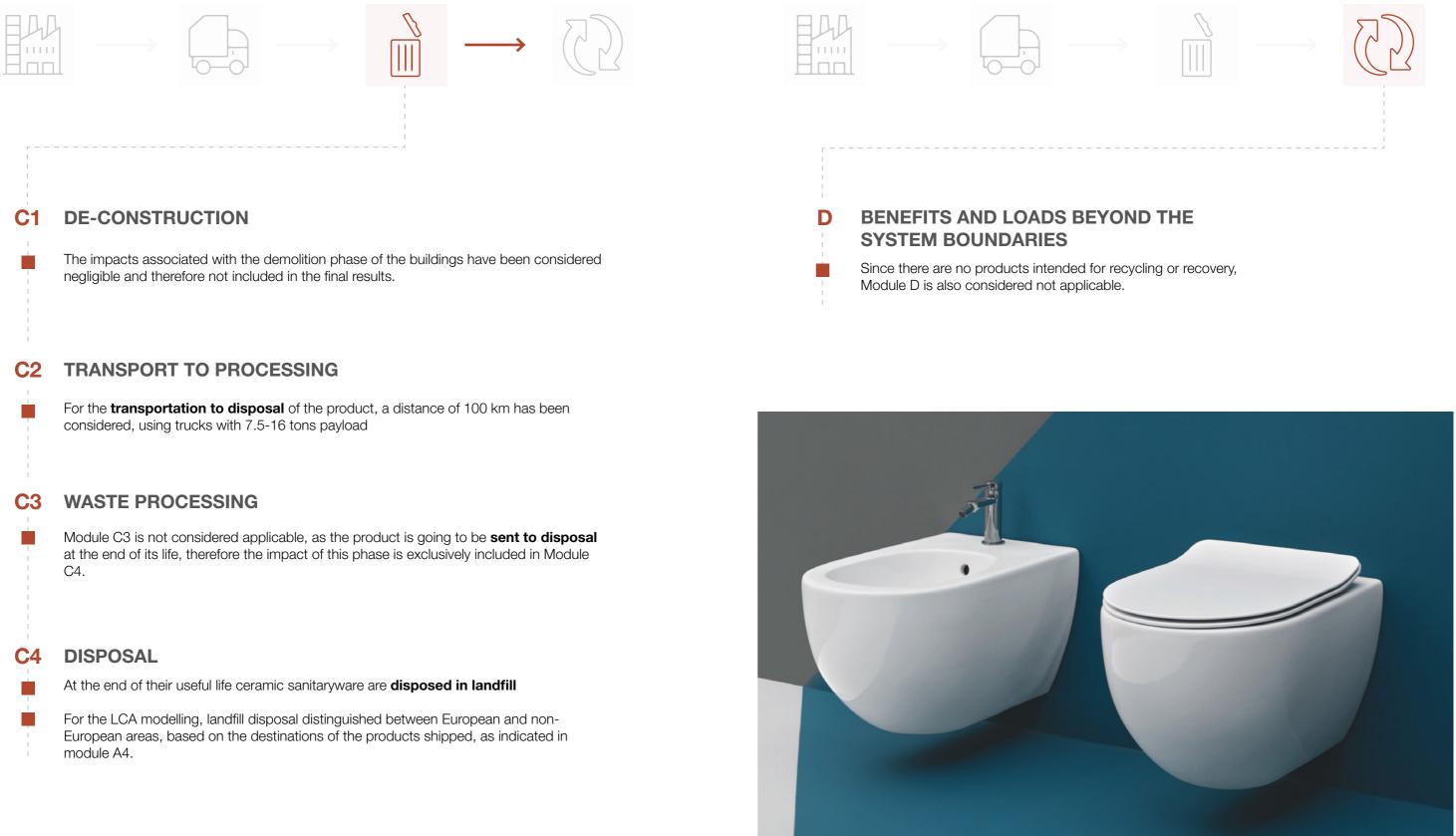




CALCULATION RULES

Product information

CALCULATION RULES



The EPD considered various types of ceramic sanitaryware made from two types of slips, **VC and FFC**.

As observed, there are no significant differences between the different products and mixtures in terms of raw materials used and the production process. For this reason, the EPD results refer to an **average product** obtained through a weighted average of the information on the compositions and the tons sold of each in the reference year.

17.6%

Clay

range 25-35%

12.6%

AVERAGE CERAMIC SANITARYWARE COMPOSITION 43.2% range 43-44% Water

Product content declaration



No substances included in the Candidate List of Substances of Very High Concern for authorisation under the REACH Regulations* are present in the product.

*Regulation (EC) n.1907/2006 of the European Parliamo of thel 18 December 2006 on «Registration, Evaluation, Authorization and Restriction of chemicals».

PACKAGING COMPOSITION

Biogenic carbon content: 45%





Environmental performance

The results presented below refer to **1 kg of average ceramic sanitary product**. The estimated impact results are only relative statements, which do not indicate the endpoints of the impact categories, the exceeding of threshold values, safety margins, and/or risks.

ENVIRONN IMPACTS	IENTAL	A1-3	A4	C1	C2	C3	C4	D	VAR %*
GWP, t	$\mathrm{kg}\mathrm{CO}_{_2}\mathrm{eq}$	3.72E+00	6.50E-01	0.00E+00	1.97E-02	0.00E+00	9.36E-03	0.00E+00	0.7%
GWP, f	kg $\rm CO_2$ eq	3.71E+00	6.50E-01	0.00E+00	1.97E-02	0.00E+00	9.33E-03	0.00E+00	0.7%
GWP, b	kg CO ₂ eq	7.19E-03	2.14E-05	0.00E+00	7.93E-07	0.00E+00	3.28E-05	0.00E+00	-0.3%
GWP, luluc	kg $\rm CO_2$ eq	9.49E-04	1.83E-05	0.00E+00	5.70E-07	0.00E+00	2.60E-06	0.00E+00	-3.8%
ODP	kg CFC-11 eq	1.35E-07	1.01E-08	0.00E+00	2.62E-10	0.00E+00	2.86E-10	0.00E+00	0.7%
AP	mol H+ eq	5.50E-03	1.81E-02	0.00E+00	5.15E-05	0.00E+00	1.08E-04	0.00E+00	-0.8%
EPf	kg P eq	9.13E-05	5.23E-07	0.00E+00	4.82E-08	0.00E+00	4.47E-07	0.00E+00	8.7%
EPm	kg N eq	1.59E-03	4.66E-03	0.00E+00	1.84E-05	0.00E+00	2.70E-05	0.00E+00	-0.1%
EPt	mol N eq	1.58E-02	5.18E-02	0.00E+00	2.03E-04	0.00E+00	2.90E-04	0.00E+00	-0.4%
POCP	kg NMVOC eq	8.06E-03	1.39E-02	0.00E+00	7.68E-05	0.00E+00	1.05E-04	0.00E+00	1.3%
ADPe**	kg Sb eq	1.92E-06	9.02E-09	0.00E+00	1.16E-09	0.00E+00	3.05E-09	0.00E+00	-5.6%
ADPf**	MJ	5.68E+01	8.07E+00	0.00E+00	2.60E-01	0.00E+00	2.23E-01	0.00E+00	2.2%
WDP**	m³ depriv.	4.35E-01	3.13E-03	0.00E+00	2.40E-04	0.00E+00	-1.42E-01	0.00E+00	-5.1%
ENVIRONN IMPACTS	IENTAL	A1-3	A4	C1	C2	C3	C4	D	VAR %*
GWP, GHG	kg CO ₂ eq	3.82E+00	6.50E-01	0.00E+00	1.97E-02	0.00E+00	9.36E-03	0.00E+00	2.8%

*This column shows the greatest deviation for each indicator compared to the results of the average product for the sum of modules A1-A3 listed inthis table.

**The results of this environmental impact indicator should be used with caution as the uncertainty of these results is high or there is limited experience.

It is not recommended the use the results of modules A1-A3 alone without considering the results of module C.

GWP - TOTAL Global Warming Potential Total

GWP - FOSSIL Global Warming Potential Fossil fuels

GWP - BIOGENIC Global Warming Potential Biogenic

GWP - LULUC Global Warming Potential Land use

and Ind use change

GWP - GHG Global Warming Potential Irreversible

ODP Ozone Depletion Potential

AP Acidification Potential

EP - FRESHWATER Eutrophication Potential Aquatic freshwawter

EP - MARINE Eutrophication Potential Aquatic marine
 EP - TERRESTRIALS Eutrophication Potential Terrestrial
 POCP Photochemical Ozone Creation Potential
 ADP - MINERALS&METALS Abiotic Depletion Potential - Non fossil resources (elements)

ADP - FOSSIL Abiotic Depletion Potential - Fossil resources WDP Water Deprivation Potential

Environmental performance

USE OF RESOURC	CES	A1-3	A4	C1	C2	C3	C4	D
PERE	MJ	2.72E+00	1.73E-02	0.00E+00	4.18E-04	0.00E+00	3.03E-03	0.00E+00
PERM	MJ	1.89E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PERT	MJ	4.61E+00	1.73E-02	0.00E+00	4.18E-04	0.00E+00	3.03E-03	0.00E+00
PENRE	MJ	5.64E+01	8.07E+00	0.00E+00	2.60E-01	0.00E+00	2.23E-01	0.00E+00
PENRM	MJ	3.80E-01	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
PENRT	MJ	5.68E+01	8.07E+00	0.00E+00	2.60E-01	0.00E+00	2.23E-01	0.00E+00
SM	kg	5.44E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RSF	MJ	5.50E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NSRF	MJ	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
FW	m³	1.23E-02	1.64E-04	0.00E+00	8.73E-06	0.00E+00	-3.16E-03	0.00E+00

PERE Primary Renewable energy (carrier)PERM Primary Renewable energy (feedstock)PERT Primary Renewable energy (total)PENRE Primary Non-renewable energy (carrier)PENRM Primary Non-renewable energy (feedstock)



PENRT Primary Non-renewable energy (total)
SM Use of secondary materials
RSF Use of renewable secondary fuels
NSRF Use of non-renewable secondary fuels
FW Use of Net Fresh Water

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Environmental performance

WASTE F	LOWS	A1-3	A4	C1	C2	C3	C4	D
HWD	kg	1.62E-06	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
NHWD	kg	4.05E-02	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
RWD	kg	0.00E+00						

OUTPU	T FLOWS	A1-3	A4	C1	C2	C3	C4	D
CRU	kg	0.00E+00						
MFR	kg	1.01E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00	0.00E+00
MER	kg	0.00E+00						
EE	MJ	0.00E+00						

HWD Hazardous Waste Disposed NHWD Non-Hazardous Waste Disposed RWD Radioactive Waste Disposed CRU Components For Re-Use MFR Material For Recycling MER Materials For Energy Recovery EE Exported Energy





References

- General Programme Instructions for the International EPD® System v. 4.0
- Product Category Rules PCR 2019:14 v.1.3.4 "Construction Products"
- EN 15804:2012+A2: 2019 "Sustainability of construction works Environmental product declarations Core rules

for the product category of construction products"

- UNI EN ISO 14040:2021 Environmental management Life cycle assessment Principles and framework
- UNI EN ISO 14044:2021 Environmental management Life cycle assessment Requirements and guidelines
- UNI EN ISO 14025:2010, Environmental labels and declarations Type III environmental declarations Principles and

procedure

• Life Cycle Assessment (LCA) di sanitari ceramici a scopo EPD (Dichiarazione Ambientale di Prodotto)





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